



TE 250R - 310R 2013 I.E.
TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

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1st edition (07-2012) - Rev. 00

Workshop Manual

TE 250R - 310R 2013 I.E. TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA

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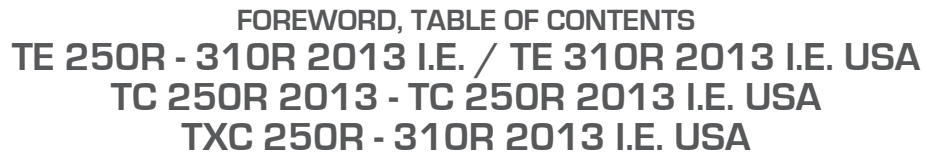
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MODELS COVERED (from serial number onwards)



1. Chassis serial number

TE 250R: ZKHA300AADV000001
TE 310R: ZKHA301AADV000001
TE 310R USA: ZKHKCEDG#DV000001
TC 250R: ZKHA300AADV050001
TC 250R USA: ZKHTC253#DV000001
TXC 250R USA: ZKHTX253#DV000001
TXC 310R USA: ZKHTX313#DV000001



This publication is designed for use by **HUSQVARNA** Service Centres to assist authorised personnel in the maintenance and repair of the models covered in this manual. The technical information provided in this manual is a critical complement to operator training and operators should become thoroughly familiar with it.

For ease of understanding, diagrams and photographs are provided next to the text.

Notes with special significance are identified as follows throughout the manual:



Accident-prevention rules for operator and persons working nearby.



Damage to vehicle and/or its components may result from noncompliance with relevant instructions.



Additional information concerning the operation covered in the text.

Useful tips

To prevent problems and ensure effective service work, observe the following **HUSQVARNA** recommendations:

- before repair, evaluate the customer's description of the problem and ask the appropriate questions to clearly identify problem symptoms;
- diagnose the problem and identify the causes clearly. This manual provides basic background information that must be supplemented with the operator's expertise and specific training available through **HUSQVARNA** held at regular periods;
- plan ahead before starting work: gather any spare parts and tools to avoid unnecessary delays;
- avoid unnecessary disassembly work to get to the part that needs repairing.

Always read the relevant instructions and follow the disassembly sequence outlined in this manual.

Recommended shop practices

- 1 Always replace gaskets, sealing rings and split pins with new ones.
- 2 When loosening or tightening nuts or bolts, always begin with the bigger ones or from the centre. Tighten to the specified torque and follow a cross pattern.
- 3 Always mark any parts or positions that might be confused upon assembly.
- 4 Use genuine **HUSQVARNA** parts and the recommended lubricant brands.
- 5 Use special tools where specified.
- 6 Technical Bulletins might contain more up-to-date setting data and procedures than this manual. Be sure to read them.

FOREWORD, TABLE OF CONTENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Table of Contents

Title	Section
Foreword, table of contents	a
Important notices	b
General information	A
Maintenance	B
Troubleshooting	C
Settings and adjustments	D
General procedures	E
Engine disassembly	F
Engine overhaul	G
Engine reassembly	H
Front suspension	I
Rear suspension	J
Brakes	L
Electrical system	M
Engine cooling	N
Hydraulically controlled clutch	P
Fuel injection system	S
Special tools	W
Tightening torque figures	X
Chassis and wheels	Y

NOTES

Unless otherwise specified, data and specifications apply to all models.



IMPORTANT NOTICES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section

b



TE

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1) **TC, TXC** models are **RACING** motorcycles and are warranted to be free from operating defects; a scheduled maintenance chart for racing use is provided in Section B.

2) The **TE** model is for **ROAD USE (DERATED)**; it is warranted to be free from defects and covered by legal warranty, provided that the **STANDARD CONFIGURATION IS MAINTAINED** and the maintenance chart provided in Section B is observed. For TE models modified to **RACING SPECIFICATIONS (FULL POWER RATING)**, observe the scheduled maintenance chart for racing use provided in Section B.

* This motorcycle has not been designed to travel over long distances with the engine at top rpm, as in long-distance road or highway travel. Riding over long distances at full throttle may result in severe engine damage.

* The geometry and setup of this motorcycle have been designed for racing and to provide top performance when riding solo. We advise against riding two-up, whether off-road or on the track.

* **ALWAYS** remember that these motorcycles are specifically designed for racing, i.e. for usage conditions significantly different from those experienced in regular road use.



TXC

H11270

IMPORTANT

VEHICLE CONFIGURATION as outlined below is a prerequisite for the warranty to remain valid:

- A) STANDARD MOTORCYCLE, FOR ROAD USE: DERATED;
- B) RACING MOTORCYCLE, FOR RACING USE: FULL POWER RATING.

* In order to maintain the vehicle's "Guarantee of Functionality", the client must follow the maintenance programme indicated in Section B by having the required maintenance inspections carried out at authorised HUSQVARNA dealers. The cost for changing parts and for the labour necessary in order to comply with the maintenance plan is charged to the Client. The warranty becomes **NULL AND VOID** if the motorcycle is rented.

Notes

Left and right side is determined when seated on motorcycle.

Z: number of teeth

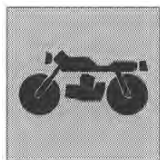
- A: Austria
- AUS: Australia
- B: Belgium
- BR: Brazil
- CDN: Canada
- CH: Switzerland
- D: Germany
- E: Spain
- F: France
- FIN: Finland
- GB: Great Britain
- I: Italy
- J: Japan
- USA: United States of America

Unless otherwise specified, data and instructions apply to all market variants.



TC

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GENERAL INFORMATION

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



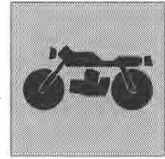
Section

A

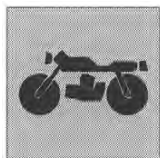


GENERAL INFORMATION

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Engine	A.3
Starting	A.3
Timing system	A.3
Lubrication	A.3
Ignition	A.3
Fuel system	A.3
Primary drive	A.3
Clutch	A.3
Transmission	A.4
Secondary drive.....	A.4
Final ratios (TE).....	A.4
Final ratios (TXC)	A.4
Final ratios (TC).....	A.4
Frame	A.4
Front suspension	A.4
Rear suspension.....	A.5
Front brake	A.5
Rear brake.....	A.5
Rims	A.5
Tires.....	A.5
Cold tire pressure	A.5
Electrical components location (TC).....	A.6
Electrical components location (TXC)	A.6
Electrical components location (TE).....	A.6
Overall dimensions.....	A.7
Weight	A.8
Capacities.....	A.8



GENERAL INFORMATION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Engine

Type..... single cylinder, 4 stroke

TE-TXC 250R - 310R

Cooling liquid, with electric fan on models

TC 250R

Cooling liquid

TE-TXC 250R + TC 250R

Bore..... 3,11 in. (79 mm)

Stroke 2,00 in. (50,9 mm)

Displacement..... 15,22 cu. in. (249,5 cm³)

Compression ratio 13,6:1

TE-TXC 310R

Bore..... 3,23 in. (82 mm)

Stroke 2,26 in. (57,3 mm)

Displacement..... 18,46 cu. in. (302,44 cm³)

Compression ratio 13:1

Starting

TE-TXC 250R - 310R electric

TC 250R kick start (with automatic decompressor)

Timing system

Type..... 4 titanium valves,
controlled by twin finger follower type camshafts, mixed chain/gear drive system

Valve clearance (with engine cold)

Intake..... 0,006 in. (0,15 mm)

Exhaust..... 0,008 in. (0,20 mm)

Lubrication

Type..... wet crankcase, lobe pump and cartridge and mesh filters

Ignition

Type..... Electronic, inductive discharge,
with adjustable advance (digital control)

Spark plug type..... NGK CR9EIA-9

Spark plug gap 0.031÷0,035 in. (0,8÷0,9 mm)

Fuel system

Type Electronic injection feed

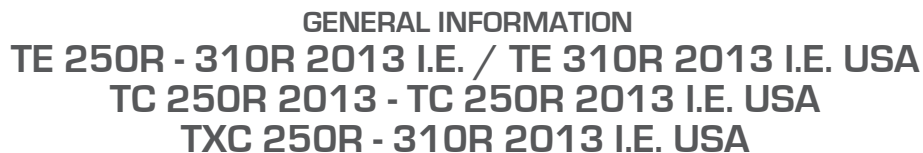
Primary drive

Drive pinion gear- Clutch ring gear Z 17- Z 54

Transmission ratio 3,176

Clutch

Type..... oil bath multiple disc clutch, hydraulic control



TE-TXC 250R - 310R

1st gear.....	2,142 (z 30/14)
2nd gear.....	1,750 (z 28/16)
3rd gear.....	1,450 (z 29/26)
4th gear.....	1,227 (z 27/22)
5 th gear.....	1,041 (z 25/24)
6 th gear.....	0.884 (z 22/27)

Transmission ratio

1st gear.....	2,142 (z 30/14)
2nd gear.....	1,750 (z 28/16)
3rd gear.....	1,450 (z 29/26)
4th gear.....	1,227 (z 27/22)
5 th gear.....	1,041 (z 25/24)

Transmission sprocket- Rear wheel sprocket

<u>TXC + TC</u>	Z 13- Z 50
<u>TE</u>	Z 13- Z 40

Transmission ratio

<u>TXC + TC</u>	3,846
TE.....	3.076

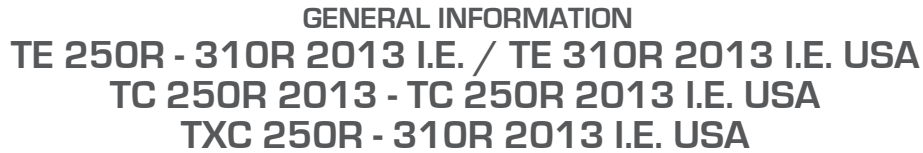
1st gear	20,926
2nd gear	17,096
3rd gear	14,165
4th gear	11,987
5th gear	10,169
6th gear	8,636

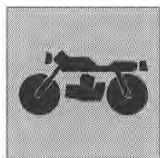
1st gear.....	26,164
2nd gear	21,376
3rd gear	17,251
4th gear	14,987
5th gear	12,715
6th gear	10,797

1st gear.....	26,180
2nd gear.....	21,380
3rd gear.....	17,715
4th gear.....	14,994
5th gear.....	12,726

Type..... Steel single tube cradle (round, rectangular, ellipsoidal tubes);
light alloy rear frame

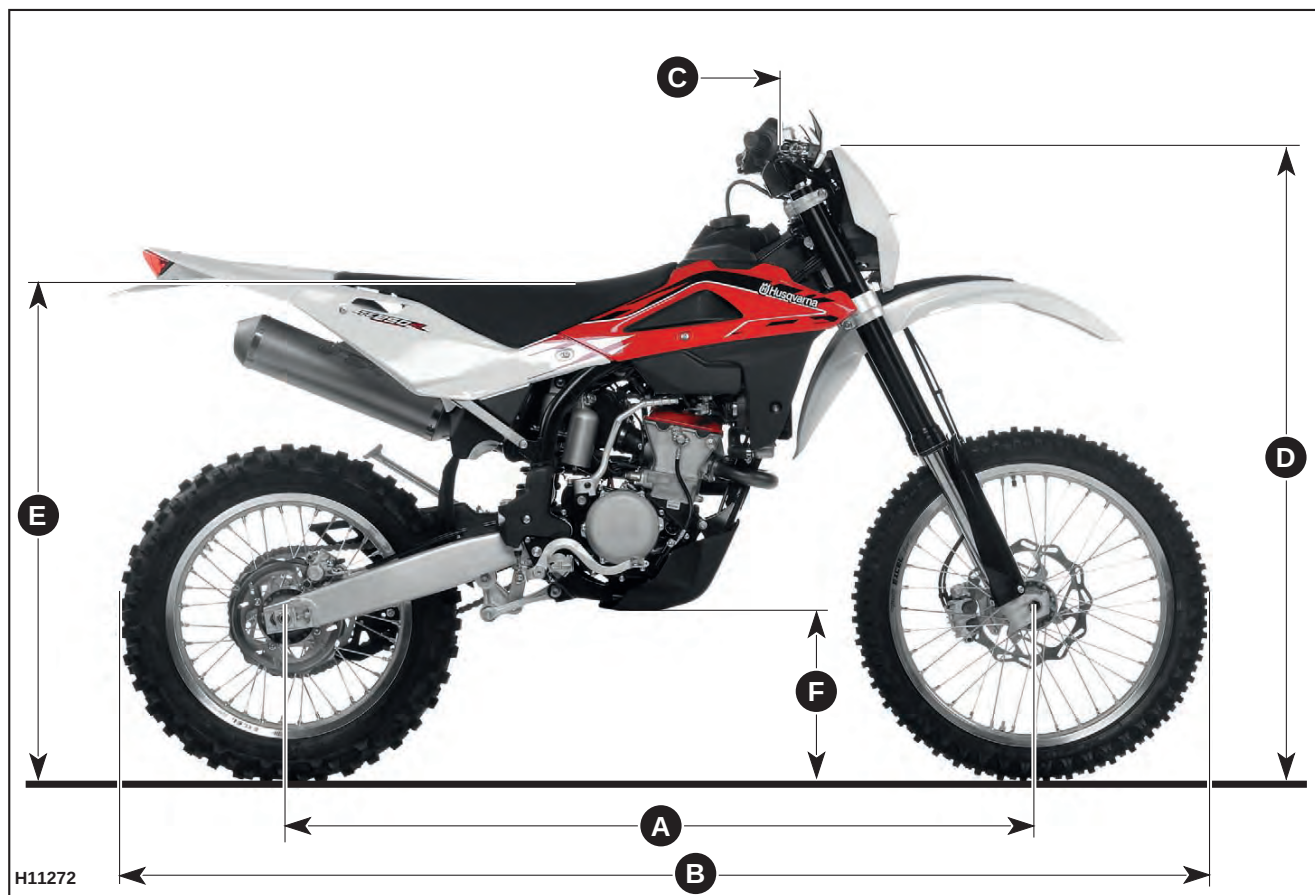
Type..... "Upside-down" telescopic hydraulic front fork with advanced axle
(adjustable in compression and rebound stroke);
stanchions tubes Ø 1.89 in. (Ø 48 mm)
Legs axis stroke..... 11.8 in. (300 mm)





GENERAL INFORMATION

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Overall dimensions

Wheelbase A

(TE-TXC) mm 1460 (57.47 in.)
(TC) mm 1470 (57.87 in.)

Overall length B

(TC) mm 2215 (87.20 in.)
(TE) mm 2260 (88.97 in.)
(TXC) mm 2176 (85.66 in.)

Overall width C mm 820 (32.28 in.)

Overall height D

(TE-TXC) mm 1290 (50.78 in.)
(TC) mm 1305 (51.37 in.)

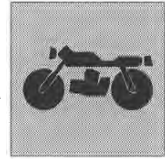
Saddle height E

(TC) mm 985 (38.77 in.)
(TE-TXC) mm 950 (37.40 in.)

Minimum ground clearance F

(TE-TXC) mm 290 (11.41 in.)
(TC) mm 325 (12.79 in.)

GENERAL INFORMATION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Weight

(TC)

Kerb weight, without fuel:101,2 Kg (213,8 lb)

(TE)

Kerb weight, without fuel:113 Kg (249,1 lb) 250 / 113,5 Kg (250,2 lb) 310

(TXC)

Kerb weight, without fuel: 108,6 Kg (239,4 lb) 250 / 109,1 Kg (240,5 lb) 310

Capacities	Type	Quantity
Fuel tank (TC)	Premium grade unleaded fuel (R.O.N. 98)	6,5 liters Imp. Gall. 1.43 U.S. Gall. 1.72
Fuel tank (TE-TXC) (2,3 liters - 0.51 Imp. Gall. - 0.61 U.S. Gall. reserve included)	Premium grade unleaded fuel (R.O.N. 98)	8,5 liters Imp. Gall. 1.87 U.S. Gall. 2.25
Gearbox/engine oil	CASTROL POWER 1 RACING (SAE 10W50)	900 cc (oil change and oil filter replacement) 850 cc (oil change)
Front fork oil	KAYABA KHL15-11 (SAE 7,5; SAE 5 for extremely cold weather)	
Oil quantity in each fork leg (TC - TXC) 556 cm ³ (33.93 in ³) Cartridge: 196 cm ³ (11.96 in ³) Fork sleeve: 360 cm ³ (21.97 in ³)		
Oil quantity in each fork leg (TE) 674 cm ³ (41.13 in ³)		
Rear shock absorber oil	CASTROL SYNTHETIC FORK OIL (5W)	
Coolant	CASTROL MOTORCYCLE COOLANT	0.9 litres 0,24 U.S. Gall. 0,2 Imp. Gall.
Front brake fluid	CASTROL RESPONSE SUPER (DOT 4)	
Rear brake fluid	CASTROL RESPONSE SUPER (DOT 4)	
Clutch fluid	CASTROL RESPONSE SUPER (DOT 4)	
Drive chain lubrication	CASTROL CHAIN LUBE RACING	
Grease lubrication	CASTROL PASTE TA GREASE	
Electric contact protection	CASTROL METAL PARTS CLEANER	
	CASTROL MOTORCYCLE DWF	
Fillers for radiator	AREXONS LIQUID FILLER	
Front fork oil:	Kayaba KHL15-11	
Air filter oil	AGIP FORMULA FILTER "Foam air filter protection oil"	
Air filter detergent	AGIP "Filter clean foam air detergent fluid"	

IMPORTANT - Do not add any additives to fuel or lubricants.



MAINTENANCE

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section

B



MAINTENANCE
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



SCHEDULED MAINTENANCE CHART (TO BE CARRIED OUT AT THE HUSQVARNA DEALER)													
TXC - TE 250R / TXC - TE 310R RACING MOTORCYCLE, FOR RACING USE: FULL POWER RATING	AFTER THE FIRST 2,5 h	EVERY 5 h	EVERY 10 h	EVERY 20 h	EVERY 30 h	EVERY 40 h	EVERY 50 h	EVERY 60 h	EVERY 70 h	EVERY 80 h	EVERY 90 h	EVERY 100 h	REPLACE AS REQUIRED
PARTICOLARE	CHECK	CHECK	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	
FRONT BRAKING SYSTEM FLUID						C				S			
REAR BRAKING SYSTEM FLUID						C				S			
MASTER CYLINDER TO BRAKE CALLIPER HOSES						C							X
WHEEL HUB BEARINGS								C					X
ENGINE OIL AND FILTER			S										
SPARK PLUG							S						
VALVES							C (*)					S	
VALVE SPRINGS, ROCKER ARMS AND PLATES							C						
TIMING CHAIN / TIMING CHAIN SLIDER							C						
TIMING CHAIN GEARS							C						
TIMING CHAIN TENSIONER							C						
OIL PUMP							C						X
CRANKSHAFT OIL SEALS										S			
PISTON							S						
CYLINDER							C					S	X
CLUTCH HUB							C						X
CRANKCASE BEARINGS							C			S			
CRANKSHAFT										S			
PRIMARY DRIVE GEAR PAIR							C						X

LEGEND:

h: HOURS
 S: REPLACE
 C: CHECK
 (*): CHECK CLEARANCE
 P: CLEAN
 R: OVERHAUL
 L: GREASE/LUBRICATE
 *: CHANGE AND/OR ADD IF NECESSARY

NOTES:

- REPLACE GASKETS AND SEALS AFTER EACH REMOVAL
- REPLACE SCREWS AND BOLTS IF DAMAGED
- PERFORM A GENERAL INSPECTION AFTER RIDING ON MUDDY OR SANDY TERRAIN



SCHEDULED MAINTENANCE CHART (TO BE CARRIED OUT AT THE HUSQVARNA DEALER)				
TE 250R / TE 310R STANDARD MOTORCYCLE, FOR ROAD USE (DERATED)	AFTER FIRST 1000 KM	EVERY 5000 KM	EVERY 10000 KM	REPLACE AS REQUIRED
PART	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	
VALVES	C (•)	C (•)	S	
VALVE SPRINGS			C	X
TIMING CHAIN			S	
TIMING CHAIN SLIDER		C	S	
TIMING DRIVEN GEAR			C	X
TIMING DRIVE GEAR			C	
TIMING CHAIN TENSIONER			C	
INTAKE MANIFOLD AND CLAMPS	C	C	S	X
COMPLETE CYLINDER			C	X
COMPLETE PISTON			S	
COMPLETE CRANKSHAFT			S	
CRANKCASE BEARINGS			S	
CRANKSHAFT OIL SEAL			C	X
ENGINE OIL AND OIL FILTER	S	S	S	
OIL PUMP			C	
PRIMARY DRIVE GEAR PAIR		C		X
CLUTCH HUB		C		X
CLUTCH PLATES		C	C	X
CLUTCH PRESSURE PLATE			C	X
CLUTCH SPRINGS			C	X
CLUTCH PUSHROD			C	X
TRANSMISSION SPROCKET		C	C	X
STARTER GEARS			C	X
KICK START PEDAL			L	
GEAR SHIFT PEDAL		C		X
SPARK PLUG		P	S	
AIR FILTER		P, L	P, L	X
RADIATORS			C	
WATER HOSES AND CLAMPS		C	C	
RADIATORS TO WATER PUMP HOSE		C	C	
CRANKSHAFT OIL SEAL	C	C		
FOOTPEGS, PINS, SPRINGS		C		X
REAR CHASSIS MNTG BOLTS, ENGINE MNTG BOLTS	C		C	
SIDE STAND		C		
CHAIN GUIDE ROLLER, BEARING		C	C	X
STEERING HEAD, BOTTOM YOKE WITH STEM			L	
FRONT FORK			R	
HANDLEBAR MOUNTS WITH FASTENERS	C		C	
REAR SWINGING ARM BUSHING			C	



MAINTENANCE
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



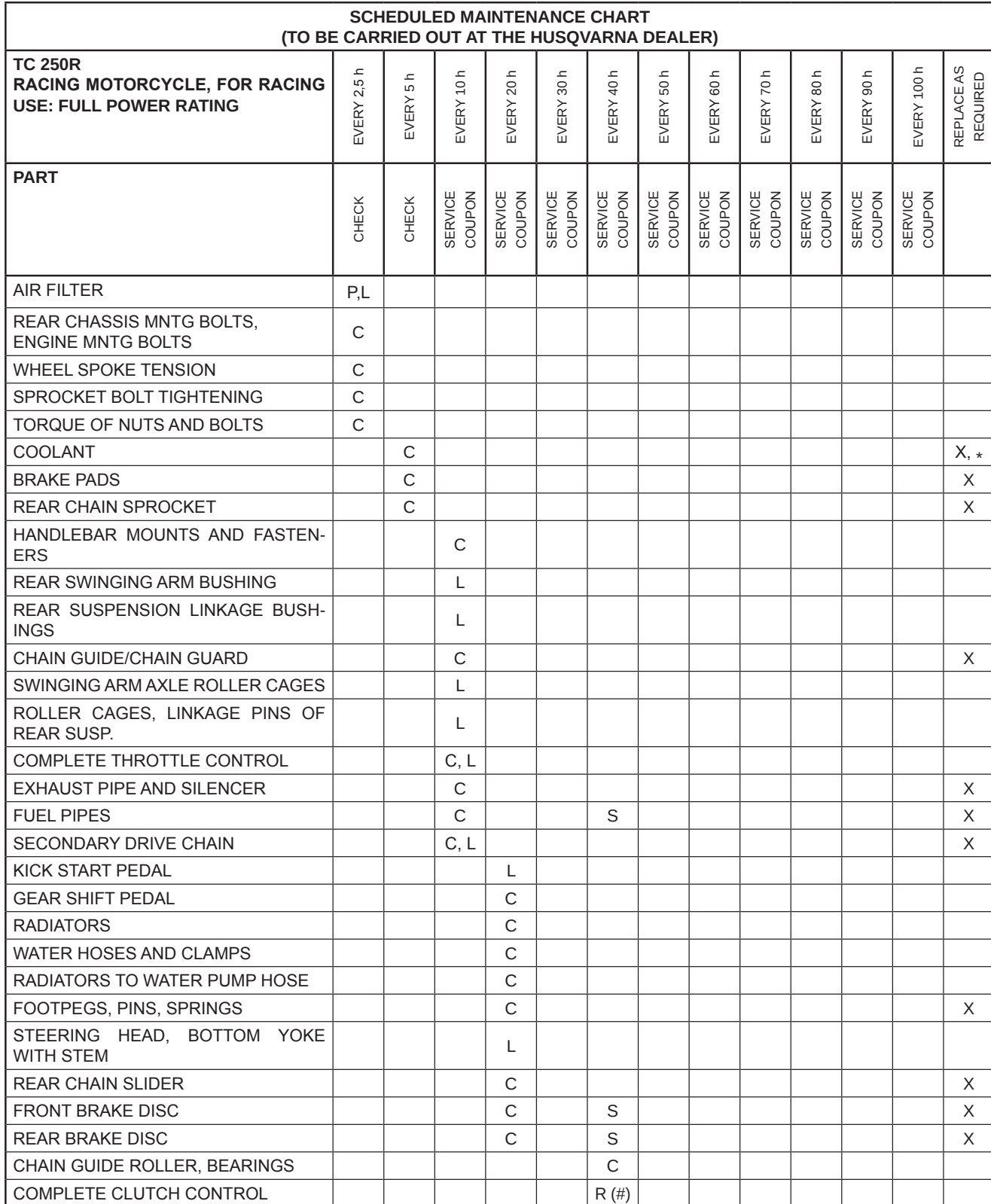
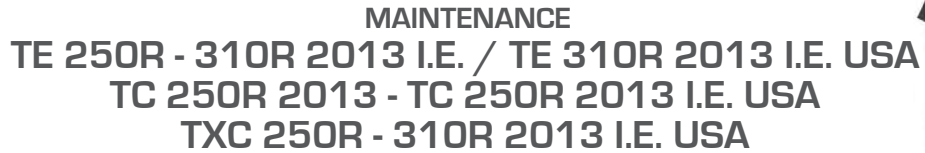
SCHEDULED MAINTENANCE CHART (TO BE CARRIED OUT AT THE HUSQVARNA DEALER)				
TE 250R / TE 310R STANDARD MOTORCYCLE, FOR ROAD USE (DERATED)	AFTER FIRST 1000 KM	EVERY 5000 KM	EVERY 10000 KM	REPLACE AS REQUIRED
PART	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	
REAR CHAIN SLIDER	C	C		X
REAR SUSPENSION LINKAGE BUSHINGS			C	X
CHAIN GUIDE/CHAIN GUARD	C	C		X
ROLLER CAGES, LINKAGE PINS OF REAR SUSP.		L		
REAR SHOCK ABSORBER			C	
COMPLETE THROTTLE CONTROL		C, L		
COMPLETE CLUTCH CONTROL		C	R	
THROTTLE CABLES		C	L	X
FRONT BRAKE DISC			C	X
FRONT BRAKING SYSTEM FLUID		C	S	
REAR BRAKE DISC			C	X
REAR BRAKING SYSTEM FLUID		C	S	
BRAKE PADS	C	C	C	X
MASTER CYLINDER TO BRAKE CALLIPER HOSES			C	X
FUEL PIPES			C	X
EXHAUST PIPE AND SILENCER		C		X
WHEEL SPOKE TENSION	C		C	
WHEEL HUB BEARINGS			C	X
REAR CHAIN SPROCKET		C	S	
SPROCKET BOLT TIGHTENING	C	C	C	
SECONDARY DRIVE CHAIN	C, L	C, L	C, L	X
TORQUE OF NUTS AND BOLTS	C	C		

LÉGENDE:

S: REMPLACEMENT
C: CONTRÔLE
(•): CONTRÔLE JEU
P: NETTOYAGE
R: CONTRÔLE TECHNIQUE
L: GRAISSAGE/LUBRIFICATION

REMARQUES:

- REMPLACER LES JOINTS À CHAQUE DÉPOSE
- REMPLACER LA VISSERIE SI ENDOMMAGÉE
- APRÈS CHAQUE PARCOURS SUR TERRAIN BOUEUX OU SUR SABLE, FAIRE UN CONTRÔLE GÉNÉRAL





MAINTENANCE
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



SCHEDULED MAINTENANCE CHART (TO BE CARRIED OUT AT THE HUSQVARNA DEALER)													
TC 250R RACING MOTORCYCLE, FOR RACING USE: FULL POWER RATING	EVERY 2,5 h	EVERY 5 h	EVERY 10 h	EVERY 20 h	EVERY 30 h	EVERY 40 h	EVERY 50 h	EVERY 60 h	EVERY 70 h	EVERY 80 h	EVERY 90 h	EVERY 100 h	REPLACE AS REQUIRED
PART	CHECK	CHECK	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	SERVICE COUPON	
THROTTLE CABLES						C							X
FRONT BRAKING SYSTEM FLUID						S							
REAR BRAKING SYSTEM FLUID						S							
MASTER CYLINDER TO BRAKE CALLI- PER HOSES						C							X
WHEEL HUB BEARINGS						C							
ENGINE OIL AND FILTER			S										
PLUG				S									
VALVES						C (•)						S	
VALVE SPRINGS, ROCKER ARMS AND PLATES						C							
TIMING CHAIN / TIMING CHAIN SLIDER						C							
TIMING CHAIN GEARS						C							
TIMING CHAIN TENSIONER						C							
OIL PUMP						C							X
CRANKSHAFT OIL SEALS						S							
PISTON				S									
CYLINDER						S							
CLUTCH HUB						C							X
CRANKCASE BEARINGS								S					
CRANKSHAFT								S					
PRIMARY DRIVE GEAR PAIR										C			X

LEGEND:

h: HOURS
P: CLEAN
L: GREASE/LUBRICATE
C: CHECK
R: OVERHAUL
S: REPLACE
(•): CHECK CLEARANCE

*: CHANGE AND/OR ADD IF NECESSARY

NOTES:

- REPLACE GASKETS AND SEALS AFTER EACH REMOVAL
- REPLACE SCREWS AND BOLTS IF DAMAGED
- PERFORM A GENERAL INSPECTION AFTER RIDING ON MUDDY OR SANDY TERRAIN



TROUBLESHOOTING
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section

C



ENGINE

Trouble	Cause	Remedy
Engine does not start or has starting trouble	Insufficient compression	
	1. Piston seized	Replace
	2. Connecting rod small or big end seized	Replace
	3. Worn piston rings	Replace
	4. Worn cylinder	Replace
	5. Cylinder head loosely tightened	Tighten
	6. Head gasket leaking	Replace
	7. Spark plug loose	Tighten
	8. Incorrect valve clearances	Adjust
	9. Weak or seized valve springs	Replace
	10. Seized valves	Replace
	Weak or no spark	
	1. Spark plug faulty	Replace
	2. Fouled or wet spark plug	Clean or dry
	3. Spark plug electrode gap too wide	Adjust
	4. Ignition coil faulty	Replace
	5. High-tension cables open circuit or shorted	Check
	6. Electronic control unit faulty	Replace
	7. Right-hand switch faulty (TE - TXC)	Replace
Engine stalls easily	1. Fouled spark plug	Clean
	2. Electronic control unit faulty	Replace
	3. Carburettor jets clogged	Clean
	4. Low idle	Adjust
Engine is noisy	Noise seems to come from piston	
	1. Too much piston-to-cylinder clearance	Replace
	2. Worn piston rings or piston grooves	Replace
	3. Too much carbon build-up in combustion chamber or on piston crown	Clean
	4. Valve clearances too large	Adjust
	5. Weak or seized valve springs	Replace
	6. Worn timing chain	Replace
	7. Incorrect timing chain tension	Adjust
	Noise seems to come from crankshaft	
	1. Worn main bearings	Replace
	2. Connecting rod big end has too much side clearance or end float	Replace
	3. Crankshaft gear damaged	Replace
	4. Crankshaft locknut loose	Tighten
	Noise seems to come from the clutch	
	1. Worn plates	Replace
	2. Too much clearance between clutch housing and friction plates	Replace
	Noise seems to come from gearbox	
	1. Worn gears	Replace
	2. Worn gear grooves	Replace
Noise seems to come from secondary drive chain	1. Chain stretched (worn) or improperly adjusted	Replace or adjust
	2. Worn transmission sprocket and rear chain sprocket	Replace



TROUBLESHOOTING
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Trouble	Cause	Remedy
Clutch slips	1. Weak clutch springs 2. Worn clutch plates	Replace Replace
Clutch is hard to operate	1. Uneven spring load 2. Bent clutch plates	Replace Replace
Gears do not engage	1. Bent or seized shifter forks 2. Worn gear ratchets 3. Damaged shifter fork shafts	Replace Replace Replace
Gear shift pedal does not return to original position	1. Weak or broken selector return spring 2. Worn shifter forks	Replace Replace
Transmission jumps out of gear	1. Worn sliding gear dogs 2. Worn gear grooves 3. Worn dog slots in gears 4. Worn selector shaft splines 5. Damaged shifter fork shafts	Replace Replace Replace Replace Replace
Engine has low power	1. Dirty air filter 2. Poor fuel quality 3. Intake coupling loose 4. Spark plug electrode gap too wide 5. Insufficient compression 6. Incorrect valve clearances 7. Valve seats or guides faulty 8. Weak or seized valve springs	Clean Replace Tighten Adjust Identify cause Adjust Replace Replace
Engine overheats	1. Combustion chamber and/or piston crown fouled with carbon deposits 2. Insufficient oil in engine or wrong oil 3. Obstructions blocking air flow on radiator 4. Cylinder head gasket leaking 5. Clutch slips 6. Cooling fan faulty (TE-TXC) 7. Faulty thermostatic valve (TE-TXC) 8. Faulty fan thermal switch	Clean Top up or change Clean Replace Adjust Replace the fan Replace the valve Replace



CHASSIS

Trouble	Cause	Remedy
Handlebar turns hard	1. Insufficient tyre pressure	Inflate
	2. Bearing adjuster ring nut or steering stem nut overtightened	Adjust
	3. Bent steering stem	Replace bottom yoke
	4. Worn or seized steering bearings	Replace
Handlebar vibration	1. Bent fork legs	Replace
	2. Bent front wheel axle	Replace
	3. Warped chassis	Replace
	4. Bent front wheel rim	Replace
	5. Worn front wheel bearings	Replace
Damping is too hard	1. Too much oil in fork legs	Remove excess oil
	2. Fork oil viscosity too high	Change
	3. Overinflated tyres	Deflate
	4. Improperly set rear shock absorber	Adjust
Damping is too soft	1. Insufficient oil in fork legs	Top up
	2. Fork oil viscosity too low	Change
	3. Weak fork springs	Replace
	4. Weak rear shock absorber spring	Replace
	5. Improperly set rear shock absorber	Adjust
(Front / rear) wheel shakes	1. Bent wheel rim	Replace
	2. Worn wheel hub bearings	Replace
	3. Incorrect spoke tension	Adjust
	4. Wheel axle nut loose	Tighten
	5. Worn rear swinging arm bearings	Replace
	6. Improperly adjusted chain tensioners	Adjust
	7. Improperly balanced wheel	Balance
Rear suspension is noisy	1. Worn link rod spacers or bearings	Replace
	2. Worn shock absorber ball joints	Replace
	3. Shock absorber faulty	Replace
Poor braking (front and rear)	1. Air in brake system	Bleed
	2. Insufficient fluid in tank	Top up
	3. Worn brake pad and/or disc	Replace
	4. Damaged disc	Replace
	5. Improperly adjusted brake pedal	Adjust
	6. Water in brake system	Change fluid

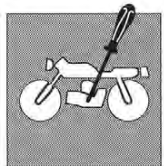


TROUBLESHOOTING
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



ELECTRICAL SYSTEM (see also Section M)

Trouble	Cause	Remedy
Spark plug fouls easily	1. Dirty air filter 2. Worn piston rings 3. Worn piston or cylinder liner	Clean Replace Replace
Spark plug electrodes overheat	1. Spark plug electrode gap too close 2. Heat rating too high	Adjust Replace with recommended spark plug
Generator does not charge or is not providing enough charge	1. Cables running to voltage regulator improperly connected or shorted 2. Voltage regulator faulty 3. Generator coil faulty	Connect correctly or replace Replace Replace
Generator overcharges battery	1. Voltage regulator faulty	Replace
Battery does not hold charge (TE-TXC)	1. Battery terminals dirty	Clean
Starter motor does not start or slips (TE-TXC)	1. Battery is flat 2. Control on R.H. switch faulty 3. Starter relay faulty 4. Starter motor faulty 5. Worn starter gears 6. Worn or damaged freewheel rollers	Charge Replace Replace Repair or replace Replace Replace freewheel

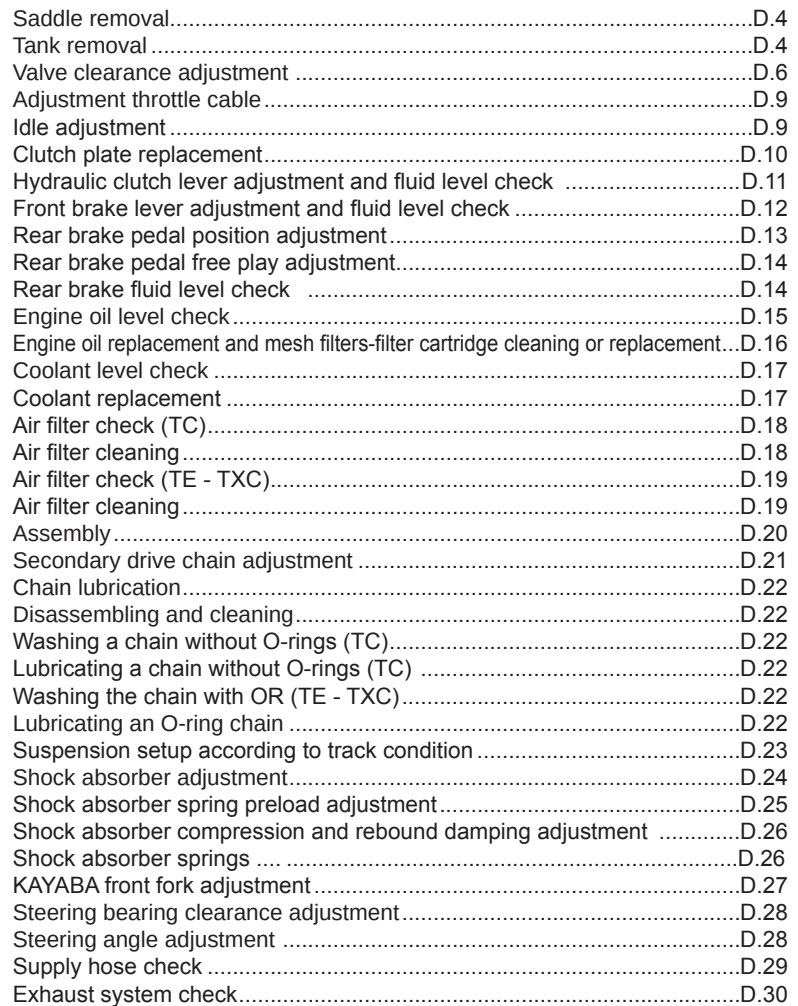
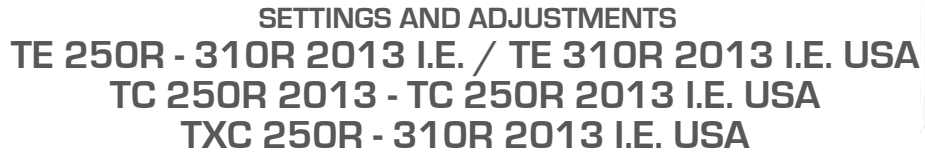


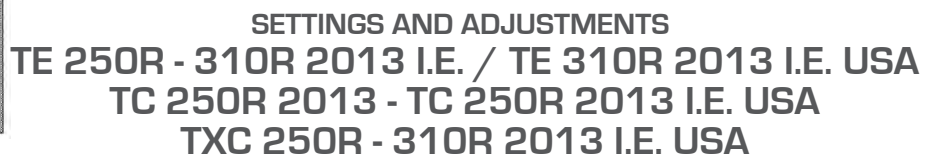
SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

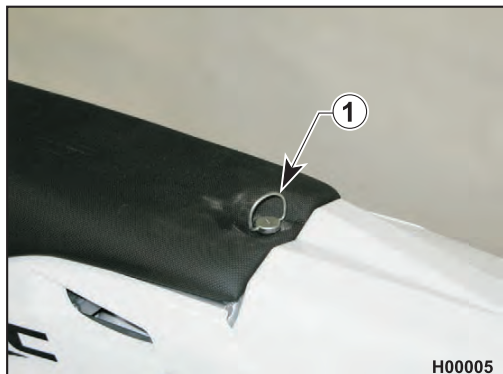
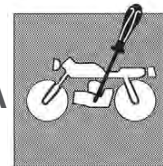


Section

D

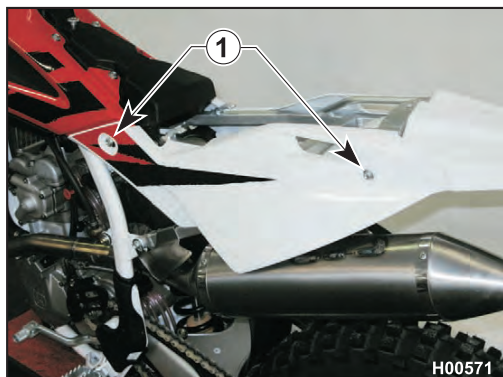






Saddle removal

Turn the rear fixing (1) counter clockwise, remove it and extract the saddle.

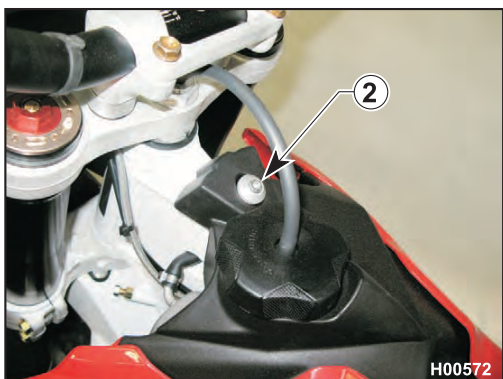


Tank removal



During the fuel tank removal operations, pay particular attention to the couplings of the fuel hose on the pump body and on the throttle body in order to prevent possible breakage / damages to the parts.

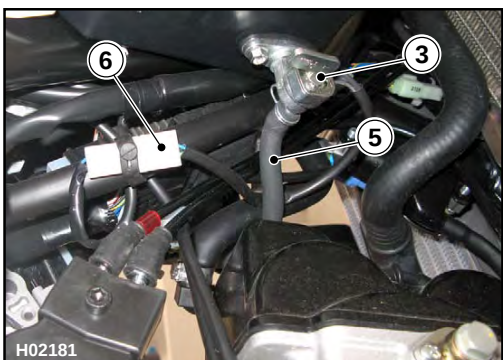
Remove the screws (1) and the side panels.

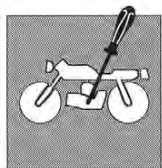


Remove the tank retaining screw (2).

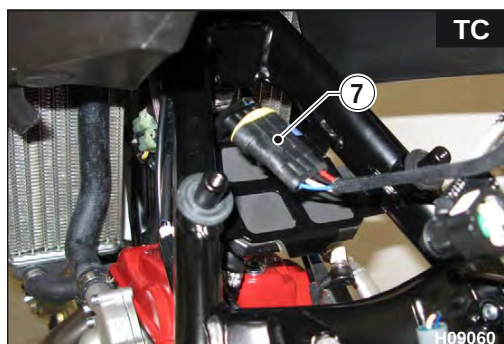
(TE-TXC)

Close the two taps (3) and (4) and connect the hose (5).
 Disconnect connector (6) of the reserve sensor.

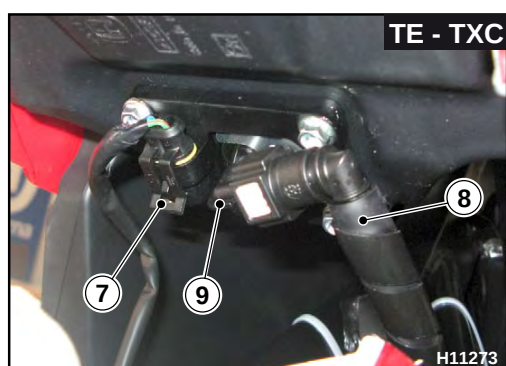




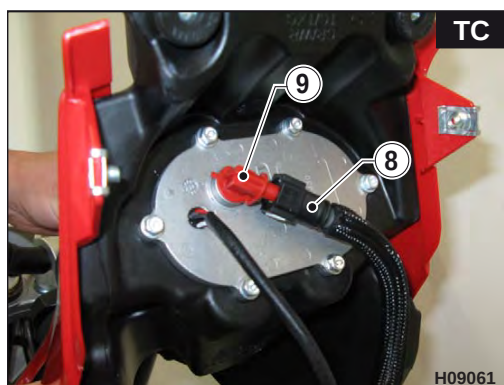
SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



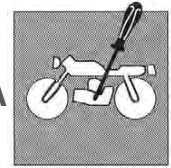
Lift the tank and disconnect the fuel pump connector (7) from the main wiring harness.



Disconnect the supply hose (8) from the outlet fitting (9) on the fuel pump, located in the rear bottom section of the tank.

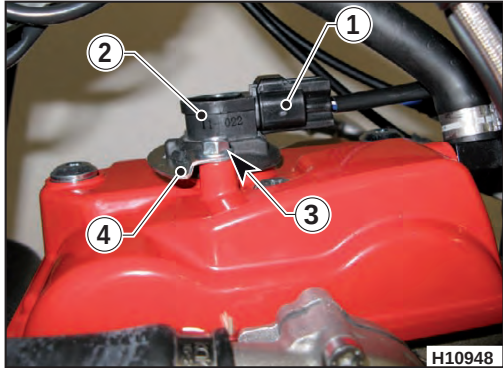


Remove the tank (10) together with the scoops.



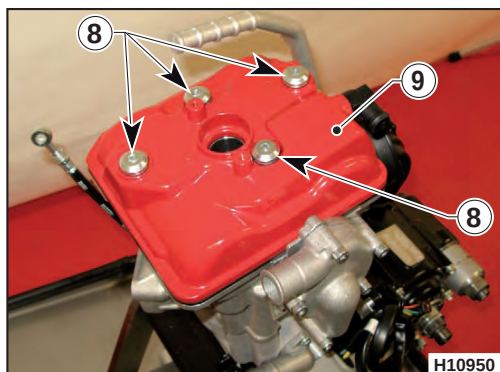
Valve clearance adjustment

Remove saddle and tank as outlined in the relevant paragraphs.

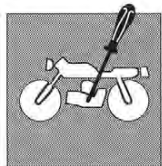


- Remove the connector (1) from the coil (2).
- Loosen the two screws (3), remove coil (2) and retaining bracket (4), and then remove the spark plug.

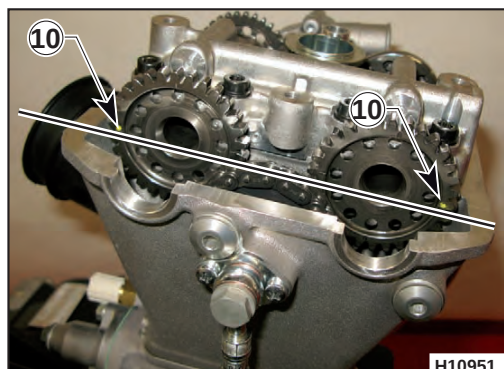
NOTE: During refitting, check that the gasket (5) is correctly positioned; the reference lug (6) must correspond with the retaining bracket (4) gap (7).



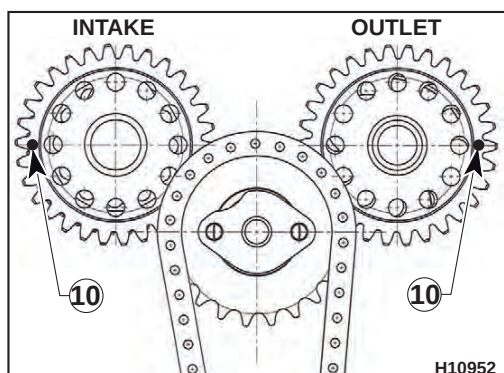
Loosen the four screws (8) of the head cover and remove the head cover (9).

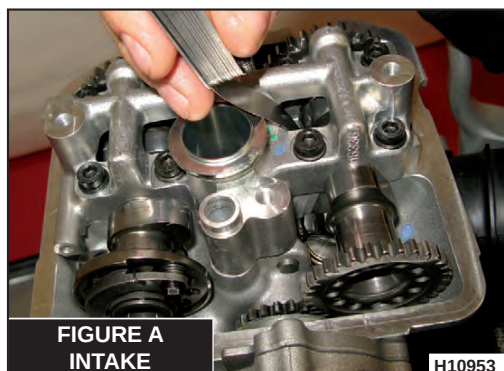
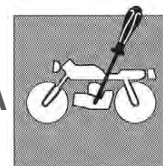


SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Engage the 2nd gear and push and pull the motorcycle back and forth to bring the piston to Top Dead Centre. In this condition, the engraved reference marks (10) on the gears of the camshafts are positioned on the same axle although they are diametrically opposed.



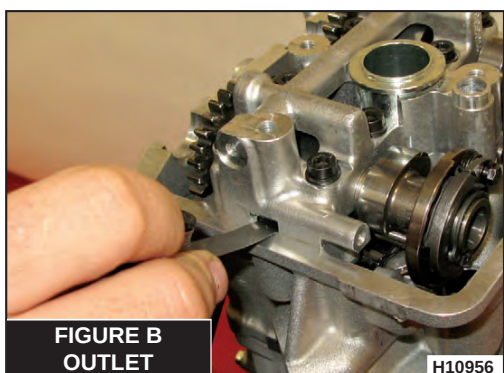
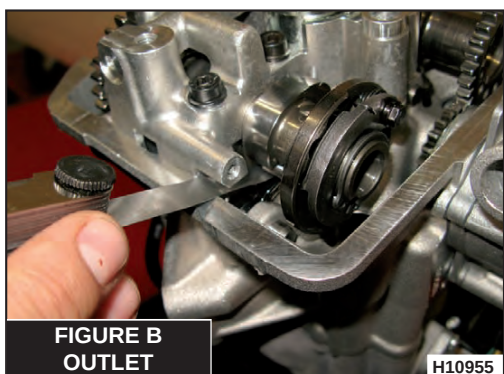
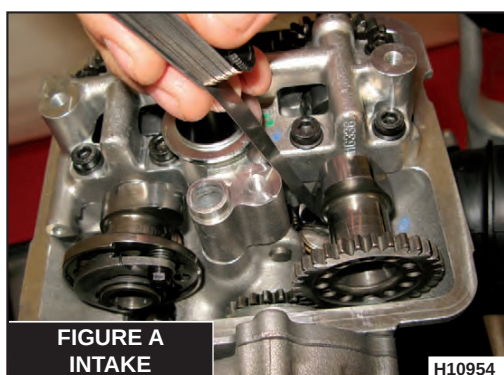


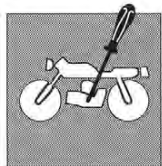
Use a thickness gauge to make sure that the clearance is equal to 0.15 mm for the INTAKE side (Figure "A") and 0.20 mm for the OUTLET side (Figure "B").

If not so, remove the shim from under the valve bucket and measure its thickness. Depending on what you find, replace the shim with a new shim with the required thickness to achieve correct clearance (replacement shims are available in a 1.60 mm to 2.60 mm thickness range, in 0.05 mm increments).

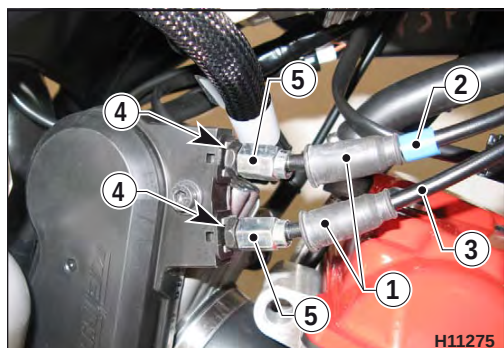
Check valve clearances again. If clearances are correct, refit the parts you have removed reversing the disassembly procedure.

For camshaft disassembly and reassembly, see Section “F” Engine disassembly and Section “H” Engine assembly.





SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Adjustment throttle cable

To check the correct adjustment of the throttle operate as follows:

- Remove rubber caps (1);
- By moving the opening cable (2) back and forth, check that free play is 3 mm;
- By moving the closing cable (3) back and forth, check that free play is 1 mm;
- If it does not happen, loosen the nut (4) and appropriately turn the adjuster screw (5);
(loosen it to decrease clearance, tighten it to increase it);
- After adjustment block the nut (4).

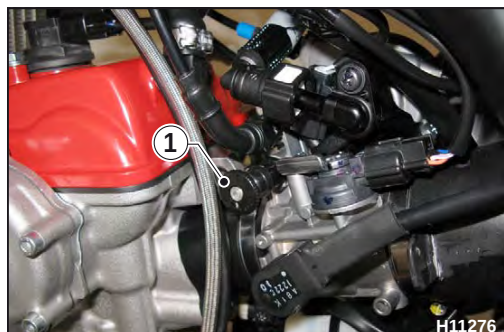


Operation with damaged throttle cable could result in an unsafe riding condition.



Exhaust gas contains poisonous carbon monoxide. Never run the engine indoors.

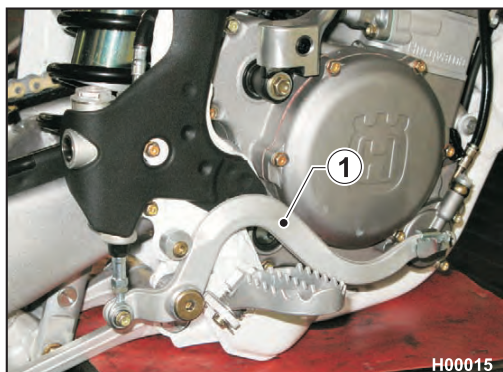
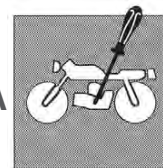
To replace the cables, you will need to remove the fuel tank as described in the relevant paragraph.



Idle adjustment

Adjust the carburetor with warm engine and with the throttle control in closed position. Proceed as follows:

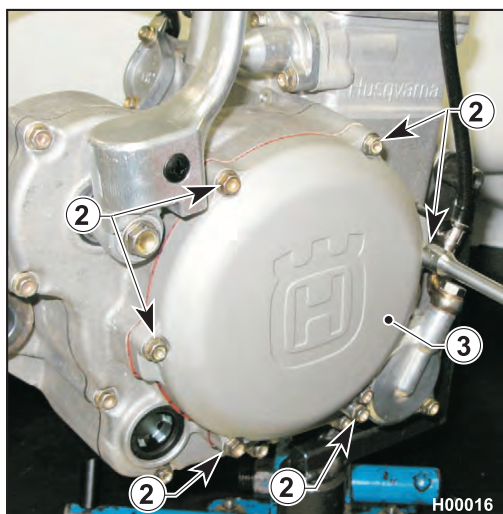
- turn the knob (1) on the right side of the throttle body of about 34 clicks from the fully closed position, checking with the suitable device that revs are of about 1,950 RPM (turn clockwise to increase the speed and counter clockwise to reduce it).



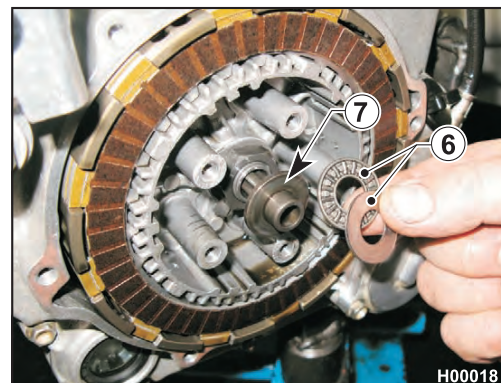
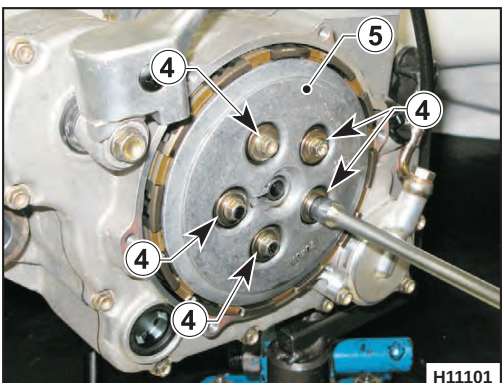
Clutch plate replacement

This procedure can be performed with the motorcycle leaning to the left - **there is no need to drain engine oil.**

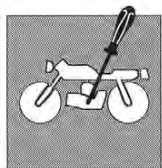
- Remove the brake pedal (1).



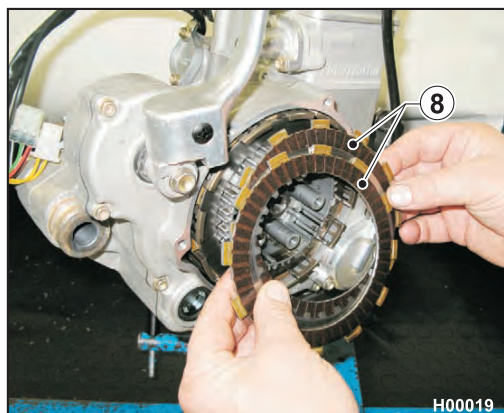
- Remove the six retaining screws (2) and the clutch cover (3).



- Using an 8 mm wrench, unscrew the six screws (4) securing the clutch springs. Remove springs, pressure plate (5) with bearing (6) and clutch actuator plate (7).



SETTINGS AND ADJUSTMENTS TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA

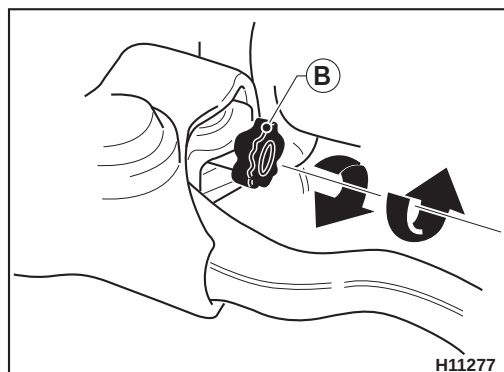


- Remove the plates (8), lubricate the new plates with engine oil and install them (always start with a friction plate).

Refit clutch actuator plate, bearing and pressure plate.
Tighten the spring screws gradually in a cross pattern (8 Nm - 0.8 Kgm - 5.8 ft/lb).
When refitting the clutch cover (8 Nm - 0.8 Kgm - 5.8 ft/lb), check gasket for wear and replace as required.



For additional information on assembly procedures, see Section "H" Engine assembly.



Hydraulic clutch lever adjustment and fluid level check

Free play (A) must be at least 0,39 in. (10 mm).

The lever position can be adjusted to suit the rider hand size.

To decrease the lever distance from the handgrip, rotate the adjuster (B) CLOCKWISE.

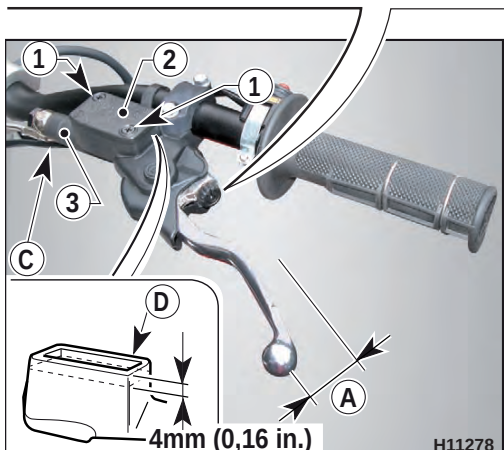
To increase the lever distance from the handgrip, rotate the adjuster (B) COUNTER CLOCKWISE.

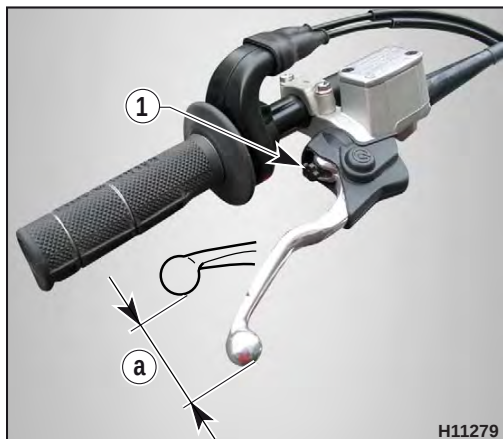
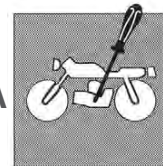
Fluid level is checked as follows:

- Remove screws (1), cover (2) and rubber diaphragm from the control;
- Keep the control cylinder (3) in a horizontal position and make sure that fluid level has not dropped lower than 4 mm (0.16 in.) below the upper edge (D) of master cylinder body;
- If needed, top up with the fluid specified in the LUBRICANT CHART included in Section "A".

Refit any parts you have removed.

Periodically check the connecting hose (see "Scheduled Maintenance Chart"); if hose (C) is worn or cracked, its replacement is advised.





Front brake lever adjustment and fluid level check

The adjuster (1) located on the control lever, allows adjusting of the free play (a). Free play (a) must be at least 0,39 in. (10 mm).

The level of the fluid in master cylinder reservoir must never be below the minimum value (2), which can be checked from the inspection window on the rear of the master cylinder body. A decrease of the fluid level will let air into the system, hence an extension of the lever stroke.



If the brake lever feels mushy when pulled, there may be air in the brake line or the brake may be defective: **CHECK THE BRAKING SYSTEM** (see Section "L").



Too much brake lever free play may reduce braking action: **CHECK BRAKE PAD THICKNESS** (see Section "L").



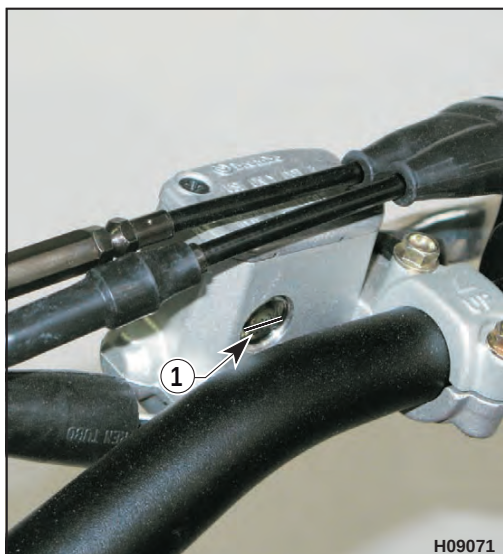
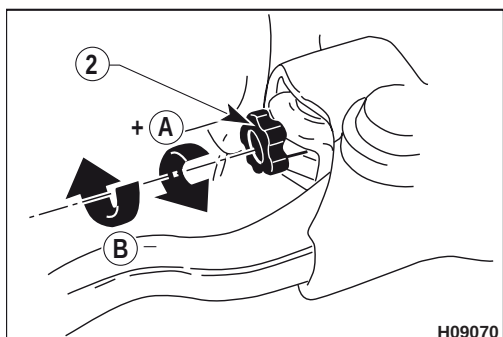
Do not spill brake fluid onto any painted surface or lens (for example lights lens).



Do not mix two brands of fluid. Completely change the brake fluid in the brake system if you wish to switch to another fluid brand.

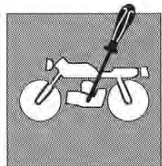


Brake fluid may cause irritation. Avoid contact with skin or eyes. In case of contact, flush thoroughly with water and call a doctor if your eyes were exposed.

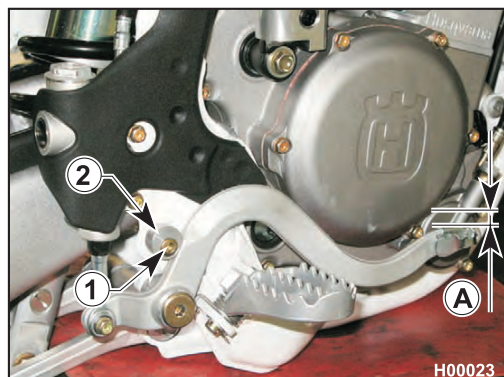


A: to increase clearance

B: to decrease clearance



SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



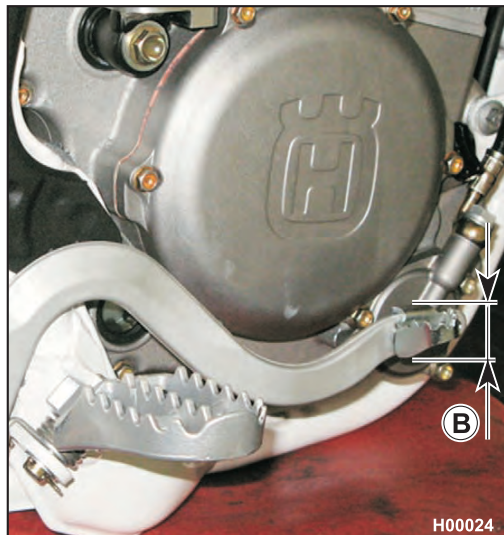
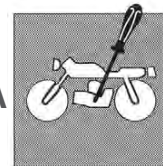
Rear brake pedal position adjustment

The position of the rear brake pedal with respect to the footrest may be adjusted according to individual needs.

For adjusting, proceed as follows:

- Loosen the screw (1).
- Turn the cam (2) in order to raise or lower the brake pedal within the range available (A).
- When finished, tighten the screw (1).

Once this operation is completed, it is necessary to check/adjust the free play of the pedal as well, according to the instructions below.



Rear brake pedal free play adjustment

The rear brake pedal should have 5 mm free play (B) before the brake begins to bite. Should this not happen, operate as follows:

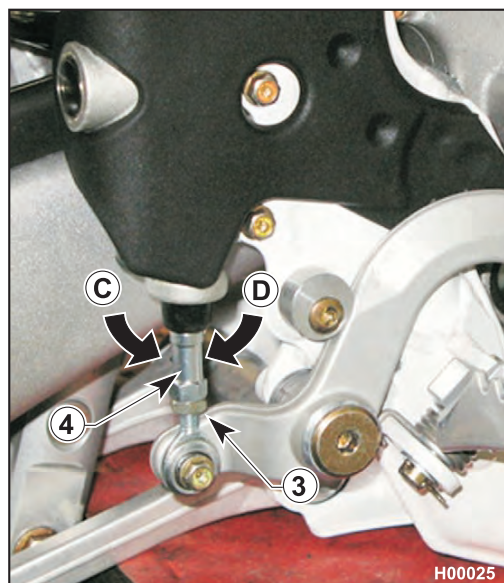
- Loosen the nut (3);
- Operate the master cylinder linkage (4) to increase or decrease free play;
- Tighten the nut (3) at the end of the operation.



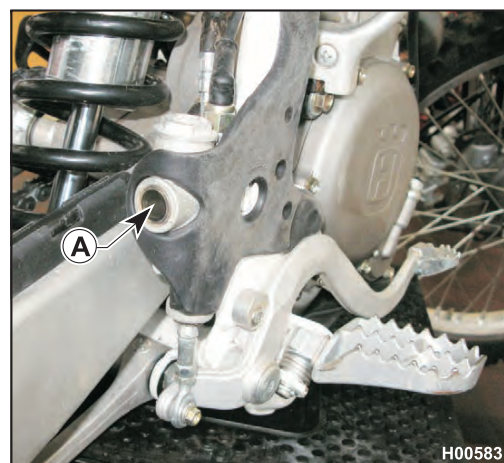
When the free play requirement is not met, the brake pads will be subjected to an early wear that may lead to **TOTAL BRAKE INEFFECTIVENESS**.



If the brake pedal feels mushy when pulled, there may be air in the brake line or the brake may be defective. **CHECK THE BRAKING SYSTEM** (see Section L).

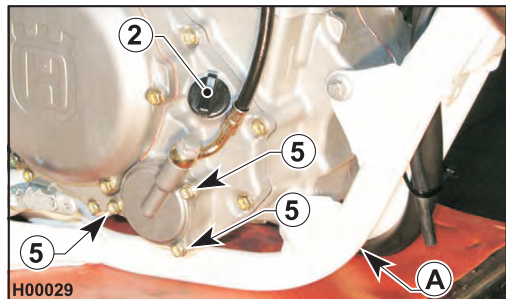
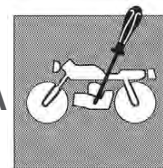


C: to increase clearance
D: to decrease clearance



Rear brake fluid level check

Level (A) must be between the MIN and MAX notches visible on the master cylinder reservoir.



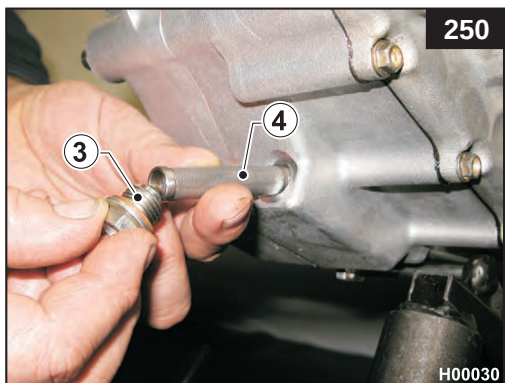
Engine oil replacement and mesh filters-filter cartridge cleaning or replacement

Drain the oil with WARM ENGINE; proceed as follows:

- Remove the oil filler cap (2).
- The oil sump guard (A) may be left in place. However, the procedure will be easier with the guard removed.
- Place an oil drain pan under the engine.

(TE-TC-TXC 250)

- Remove oil drain plug (3) and filter (4), drain the oil and clean the plug magnet.
- Wash the filter (4) with petrol and refit it into its seat.



(TE 310)

- loosen tie (3a) without disconnecting tube (3b);
- unscrew hose tail (3c), remove mesh filter (4) and drain the used oil.
- Unscrew the screws (5) and remove cover (6) together with filter (7).
- Change the filter (7) and refit the assembly making sure to fit the Belleville washer (8) in the correct position.

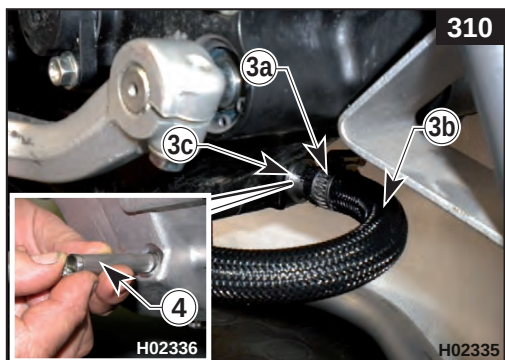
(TE-TC-TXC 250)

- Refit the drain plug (3) (25 Nm - 2.5 Kgm - 33.89 ft/lb) and the oil sump guard (A).

(TE 310)

- Reassemble fitting (3c), screw clamp (3a), and refit the engine cover (A).
- Fill with the specified quantity of oil.

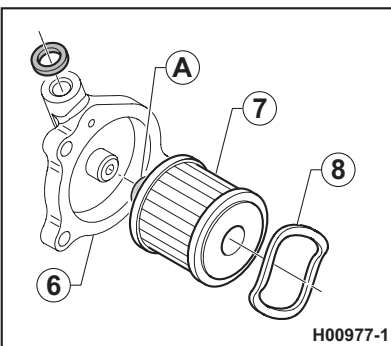
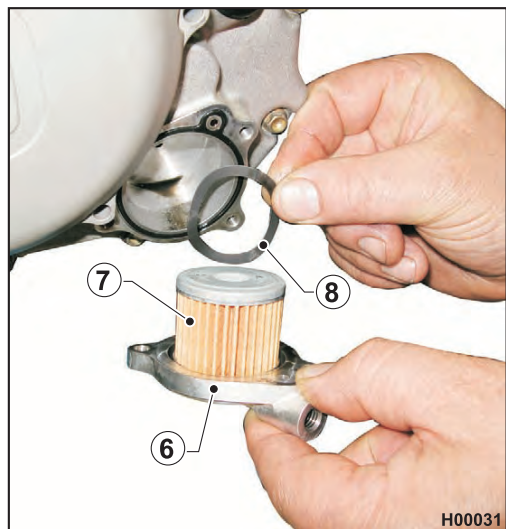
For recommended oil type and quantity, see "Capacities" table in Section "A".

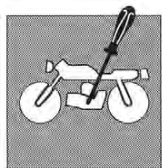


Be careful not to touch hot engine oil.

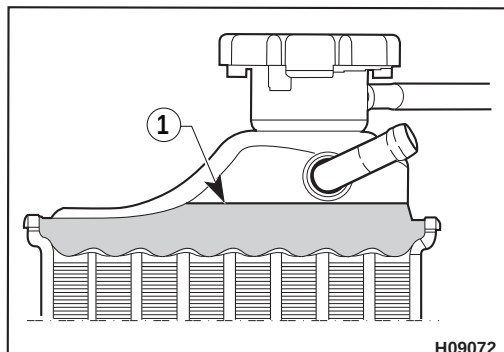


WARNING When assembling filter to cover, make sure to fit the filter oil seal (A) first onto the cover (6).





SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



H09072

Coolant level check

Check level (1) in right-hand radiator when engine is cold (place the motorcycle so that it is perpendicular to the ground). The coolant should be approximately 0.39 in. above the cells.

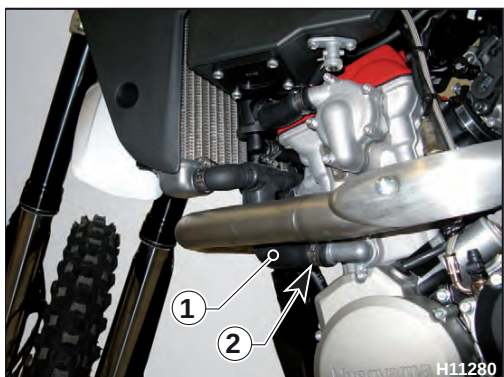
The radiator cap features two locking positions: the first one is for prior discharge of pressure from the cooling system.



Avoid removing radiator cap when engine is hot, as coolant may spout out and cause scalding.



Difficulties may arise in eliminating coolant from painted surfaces. If this occurs, wash off with water.



H11280

Coolant replacement

Place a vessel on the L.H. side of the cylinder, under the hose (1).

Loosen the clamp (2) on the hose (1) and detach the hose from the engine. SLOWLY open the cap (3) of the right-hand radiator and lean the motorcycle to the left to let the coolant drain into the vessel.

When finished, refit the hose (1) and secure it with the clamp (2).

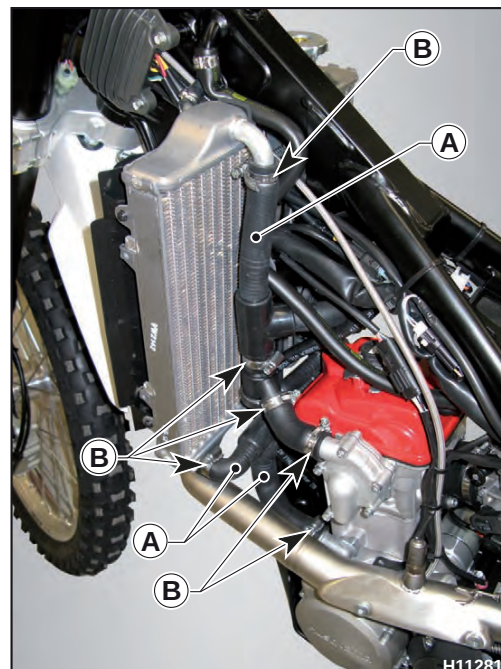
Pour the necessary quantity of coolant in the radiator then warm up the engine in order to eliminate any possible air bubbles.

Periodically check the connecting hoses (see "Scheduled Maintenance Chart"): this will avoid coolant leakage and consequent engine seizure. If hoses (A) show cracks, swelling or hardening due to sheaths desiccation, their replacement shall be advisable.

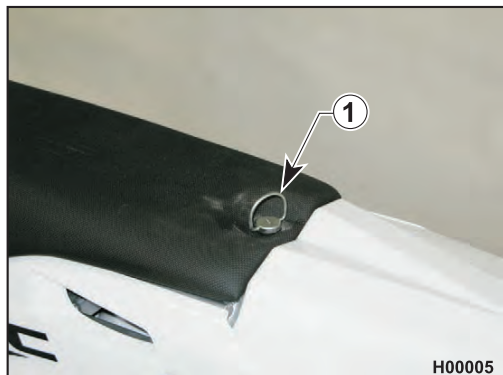
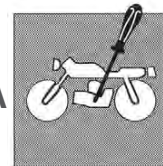
Check the correct tightening of the clamps (B).



H02187



H11281



Air filter check (TC)

Turn the rear fixing (1) counter clockwise, remove it and extract the saddle releasing it from the front retaining screw.

Remove the screw (3), remove the complete air filter (4) and separate filter (5) from rear chassis (6).

Air filter cleaning

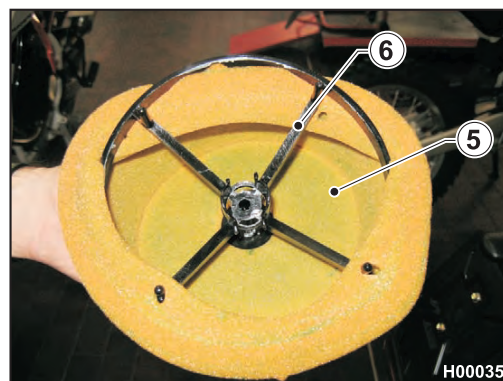
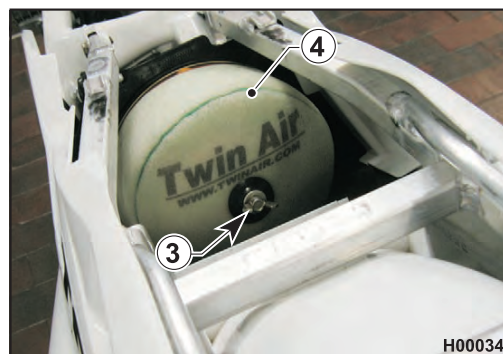
Wash the filter with a specific detergent (see "Capacities" table in Section A) then dry it fully (wash filter with gasoline only in case of need). Plunge the filter in special oil for filters (see "Capacities" table in Section A), then wring it to drain superfluous oil.

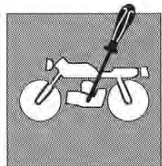


Do not use fuel or a low flash-point solvent to clean the filtering element. A fire or explosion could result.

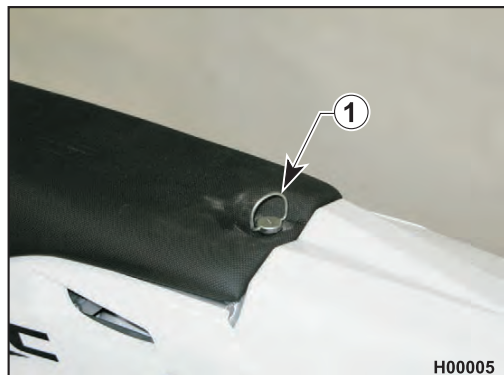


Clean the filtering element in a well ventilated area and do not allow sparks or flames anywhere near the working area.





SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Air filter check (TE - TXC)

Turn the rear fixing (1) counter clockwise, remove it and extract the saddle releasing it from the front retaining screw.

Take out the battery (A) and leave it hanging on the side of the motorcycle.

Remove the screw (3), remove the complete air filter (4) and separate filter (5) from intake silencer (6).

Air filter cleaning

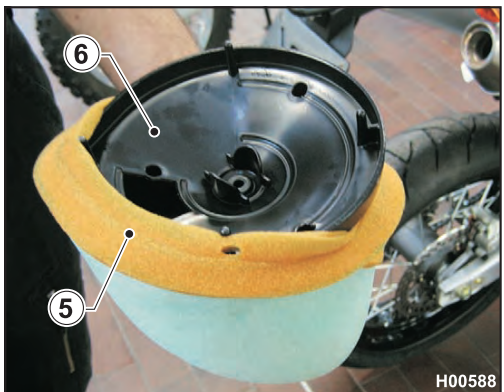
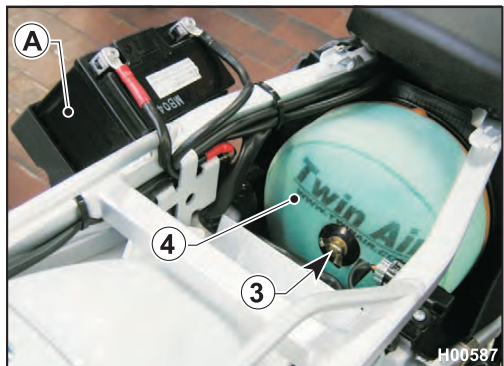
Wash the filter with a specific detergent (see "Capacities" table in Section A) then dry it fully (wash filter with gasoline only in case of need). Plunge the filter in special oil for filters (see "Capacities" table in Section A), then wring it to drain superfluous oil.

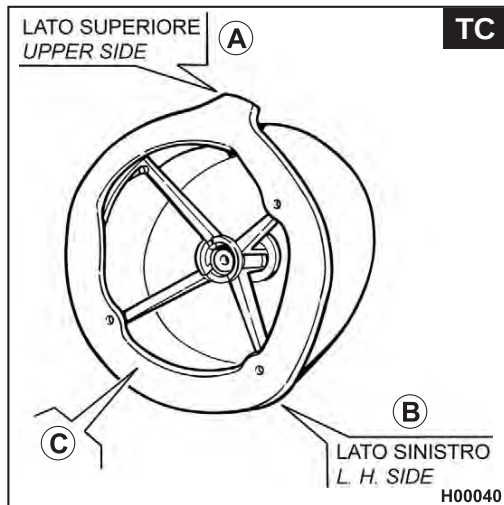
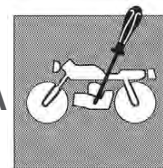


Do not use fuel or a low flash-point solvent to clean the filtering element. A fire or explosion could result.



Clean the filtering element in a well ventilated area and do not allow sparks or flames anywhere near the working area.





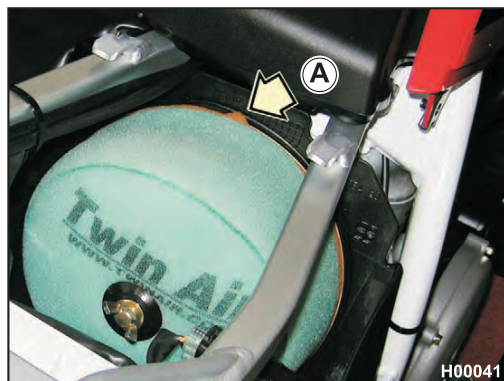
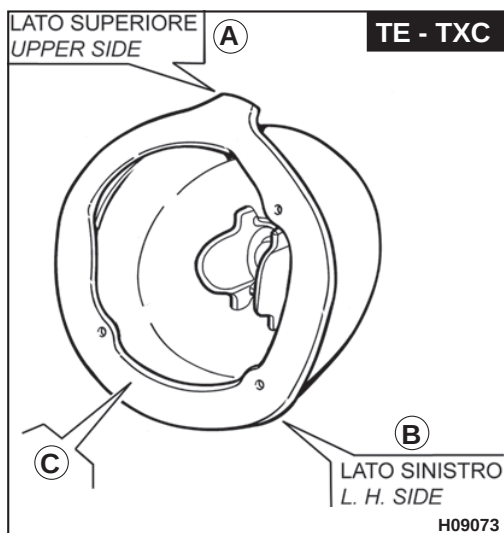
Assembly

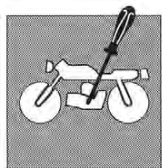
Grease the edge (C) of the filter face that goes into the housing to ensure proper sealing. When refitting the filter into its housing, make sure to position it with the tab (A) pointing upwards and edge (B) at the left bottom corner of the filter housing. Refit any parts you have removed.



An improperly positioned filter might let dirt or dust into the engine, leading to early wear of piston rings and cylinder.

A = Upper side
B = Left-hand side





SETTINGS AND ADJUSTMENTS TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA

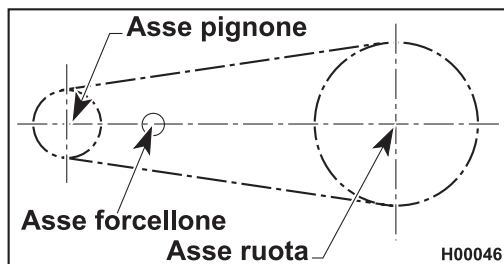


Fig. A

Asse pignone = Sprocket axis
Asse forcellone = Swinging arm axis
Asse ruota = Wheel axis

Secondary drive chain adjustment

Chain should be checked, adjusted and lubricated as per the "Maintenance Chart" (see Section B) to ensure safety and prevent excessive wear. If the chain becomes badly worn or is poorly adjusted (i.e., if it is too loose or too taut), it could escape from sprocket or break. To adjust chain tension, you need to lower the rear end of the motorcycle so as to bring the axes of rotation of sprocket, swinging arm and rear wheel into alignment as shown in figure "A", and then turn the rear wheel three turns. In this condition, the chain should be neither taut nor slack. (Fig. A).

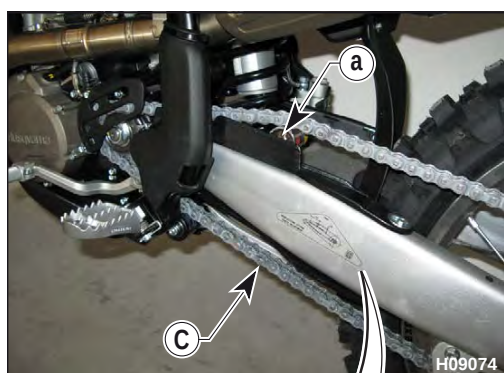


Fig. B

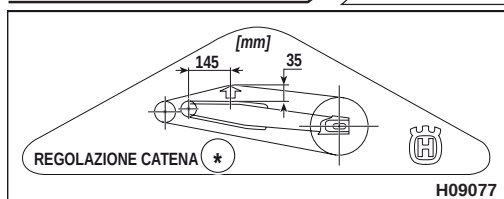
Quick adjustment (Fig. B)

Insert, at a distance of 145 mm (5.7 in.) from the fork centre, a bushing (a) with a 35 mm (1.37 in.) diameter (as an alternative, insert a spacer of the same dimensions) and make sure that the lower arm (C) of the chain is slightly tight.

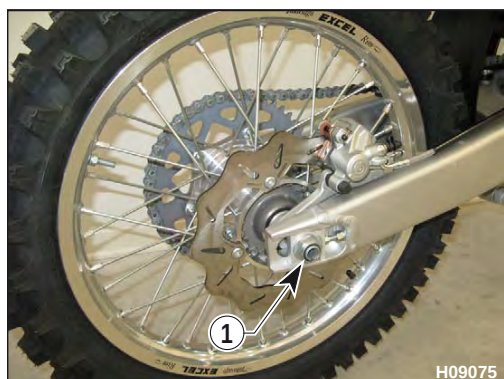
If it is not, proceed as follows:

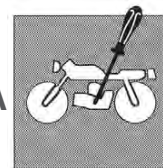
- Loosen the wheel axle nut (1) on the right-hand side using a 27 mm socket wrench;
- Loosen the check nuts (2) on both chain tensioners with a 12 mm wrench and work the screws (3) until achieving the correct tension;
- When the adjustment is completed, tighten the check nuts (2) and the wheel axle nut (1).

After any adjustment, always check wheel alignment and tighten wheel axle securely (142.1 Nm - 14.5 Kgm - 104.8 ft/lb).



* : Chain adjustment





Chain lubrication

Lubricate the chain following these instructions.



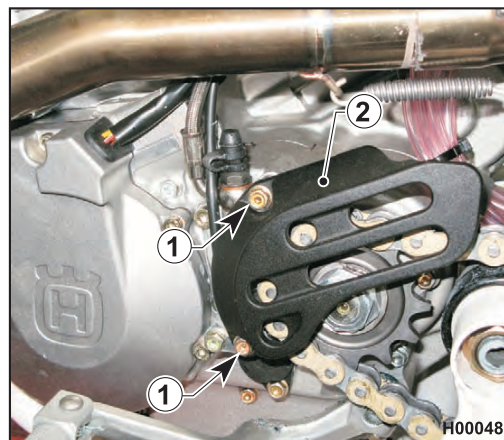
Never use grease to lubricate the chain. Grease helps to accumulate dust and mud, which act as abrasive and help to rapidly wear out the chain, the front and rear sprockets.

Disassembling and cleaning

When particularly dirty, remove and clean the chain before lubrication. Proceed as follows:

- Set a stand or a block under the engine and see that the rear wheel is lifted from the ground.
- Remove: screws (1), sprocket guard (2), clip (3), master link (4) and chain (5). To reassemble, reverse the above procedure.

Make sure that the chain is neither worn out nor damaged. If the rollers or the links are damaged, replace the chain by following the instructions given in the Scheduled Maintenance Chart. Ensure that the sprockets are not damaged. Wash and clean the chain as described hereunder.



Washing a chain without O-rings (TC)

Wash using petroleum or naphtha. If you use fuel or especially trichloroethylene, dry and lubricate the chain to avoid oxidation.

Lubricating a chain without O-rings (TC)

After drying, dip the chain in Molybdenum Disulphide chain lubricant, if possible, or in warm high-viscosity engine oil (if warmed up, oil will be more fluid).

NOTE: As an alternative, you can use suitable spray lubricants.

Washing the chain with OR (TE - TXC)

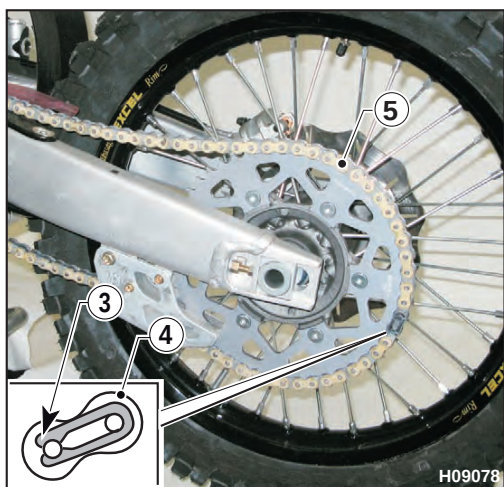
Wash using oil, diesel oil, or paraffin oil. Never use gasoline, trichloroethylene, or solvents, as the OR may suffer damages.

Use instead special sprays for chains with OR.

Lubricating an O-ring chain

Lubricate all metallic and rubber (O-ring) elements using a brush and engine oil with SAE 80-90 viscosity, inside and outside parts.

Assemble the master link clip (3) by setting the closed side facing the chain direction of rotation, as shown in the figure.



The master link is the most critical safety part in the drive chain. Even if the master links are reusable when in good conditions, for safety purposes we advise using a new master link when reassembling the chain.

Accurately adjust the chain as described on page D.18.



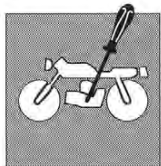
The chain lubricant shall NEVER get in contact with the tyres or the rear brake disc.



Chain guide roller, chain guide roller, chain guide, chain slider
Check the wear of the above-mentioned elements and replace them when necessary.



Check the chain guide alignment, and remember that a bent element can cause chain early wear. In this case, chain might unwrap from the sprocket.



SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Suspension setup according to track condition

Following are a few guidelines to find the right suspension setup for different types of terrain. Always start from the suspensions standard setting before making any change. Afterwards, increase or decrease the adjusting clicks, one at a time.

HARD GROUND

Front fork: softer compression setting.

Shock absorber: softer compression setting.

For fast tracks, a softer compression and rebound setting both front and rear will give more grip.

SANDY GROUND

Front fork: set compression harder, or replace the standard spring with a harder spring and set the compression softer and the rebound harder.

Shock absorber: harder compression, and especially harder rebound settings. Work on the spring preload to lower the motorcycle riding height (rear end).

MUDDY GROUND

Front fork: set compression harder, or replace the standard spring with a harder spring.

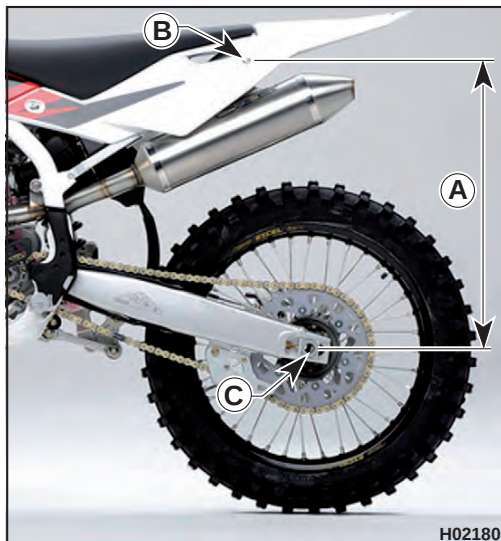
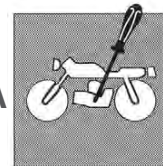
Shock absorber: harder compression and rebound settings or replace the standard spring with a harder spring. Work on the spring preload to lift the motorcycle riding height (rear end). Changing the springs front and rear is advised in order to compensate for increased motorcycle weight due to caked-on mud.

NOTES

If the fork remains too soft or too hard no matter what setting you choose, check oil level in the fork tubes, as it might be too low or too high. Remember that the more oil you add, the more frequently you will need to bleed the forks. If changes to suspension settings take no effect, check the adjuster assemblies, as they might be stuck.

Standard settings, available replacement springs and adjusting procedures are outlined in the following pages.





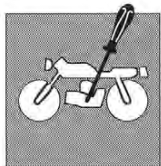
Shock absorber adjustment

The rear shock absorber must be adjusted to suit rider weight and terrain conditions.

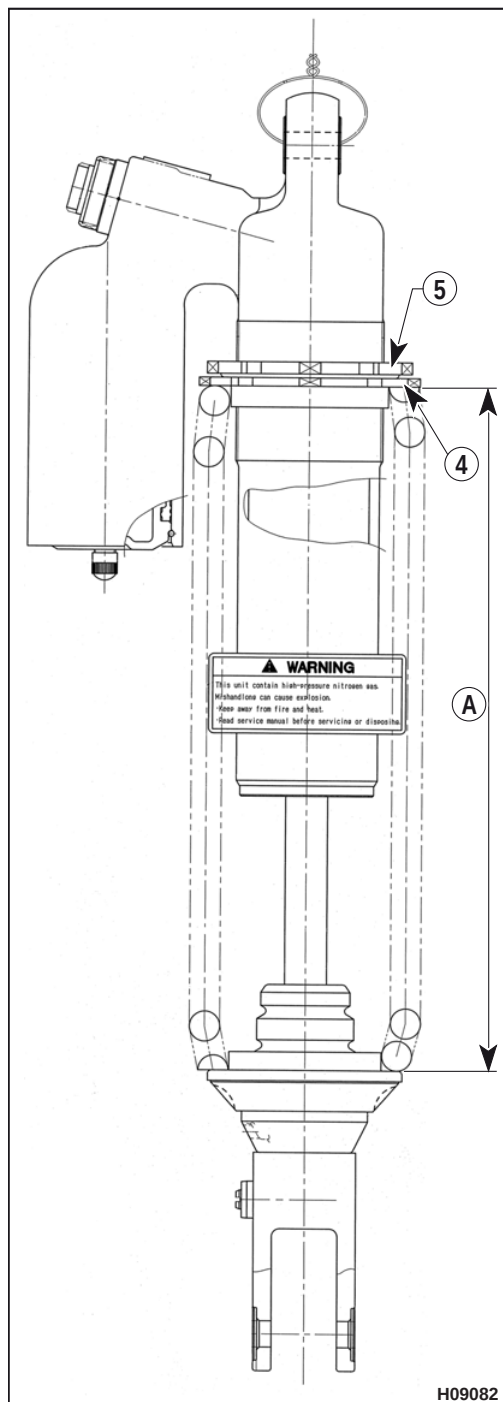
Proceed as follows:

1. Place the motorcycle on the stand and measure distance (A).
2. Sit on the motorcycle in normal riding position with full riding gear on.
3. Have someone else measure distance (A) again.
4. The difference between these two measurements is the distance the rear end settles when the rider sits on the motorcycle (RIDER SAG). Recommended rider sag is 100 mm with a cold shock absorber and 95 mm with a warm shock absorber.
5. To achieve correct rider sag for your weight, adjust the spring preload of the shock absorber (see relevant paragraph).

B: panel retaining screw axis
 C: rear wheel axle height



SETTINGS AND ADJUSTMENTS TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA



H09082

The standard length of the preloaded spring is as follows:

TC - TXC: A= 250 ± 0.5 mm (9.84 ± 0.02 in.)
TE: A= 247 ± 0.5 mm (9.72 ± 0.02 in.)

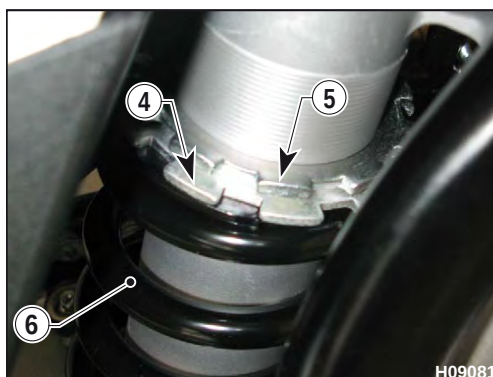
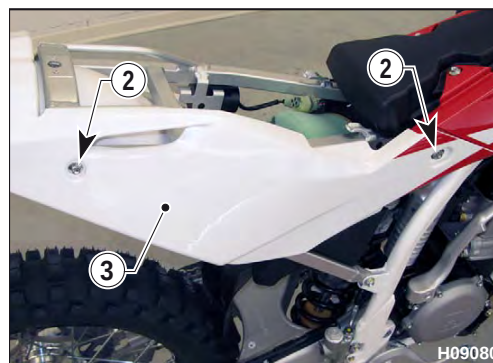
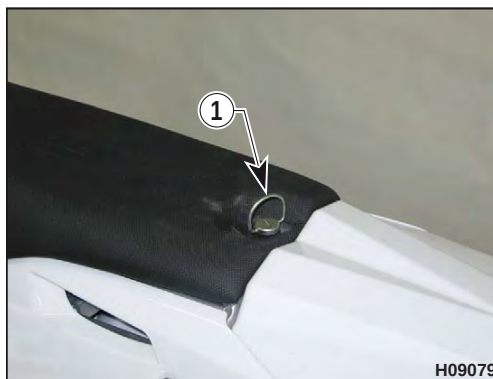
Shock absorber spring preload adjustment

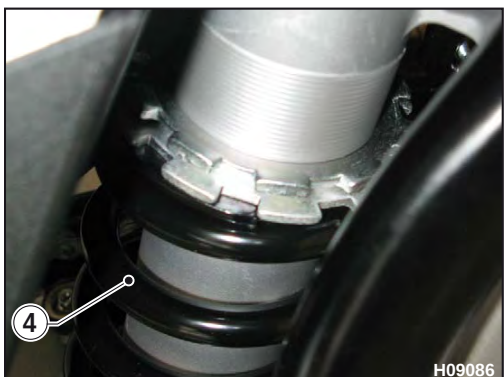
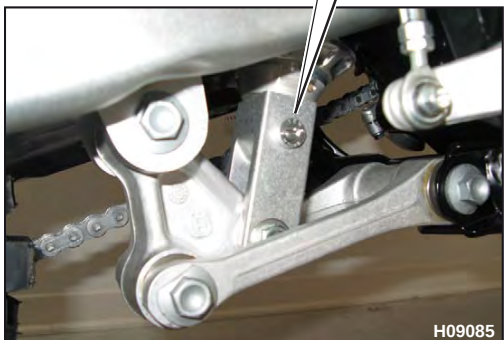
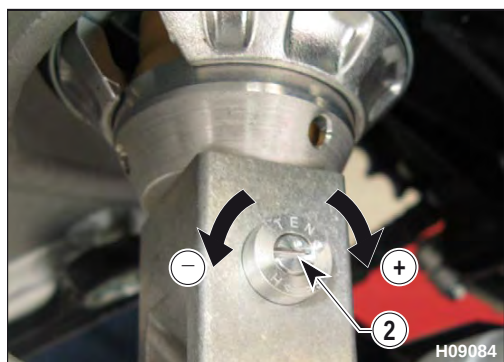
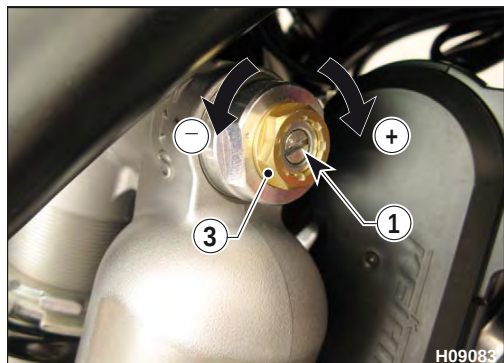
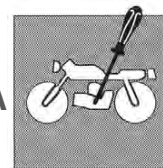
Proceed as follows:

1. Turn the rear fixing (1) counter clockwise and remove the saddle, unscrew the retaining screws (2) and remove the right-hand side panel (3).
2. Clean lock ring nut (4) and adjuster ring nut (5) of the spring (6).
3. Either with a hook wrench or an aluminium punch, loosen the lock ring nut.
4. Turn the adjuster ring nut as required.
5. Adjust preload to suit your weight or riding style and tighten the lock ring nut firmly (tightening torque 50 Nm - 5 Kgm - 67.8 ft/lb).
6. Reassemble the R.H. side panel and the saddle.



Be careful not to touch hot exhaust pipe while adjusting the shock absorber.





Shock absorber compression and rebound damping adjustment

Adjustment of the compression stroke is independent from the rebound stroke.

A) COMPRESSION - Standard setting:

- 1) Low damping speed:
- TE: 14 clicks;
- TC - TXC: 12 clicks;
- TC 250 USA: 10 clicks.
(adjuster 1)

- 2) High damping speed:
- TE: 1+1/2 turns;
- TC - TXC: 1+1/4 turns.
(adjuster 3)

To reset the standard setting, turn upper adjusters (1) and (3) clockwise until reaching fully closed position. Then turn them back the number of clicks / turns specified above.

In order to obtain a smooth braking efficiency, turn the adjusters counter clockwise. Vice versa to obtain a harder braking action.

B) REBOUND - Standard setting:

- 10 clicks (+1 / -2 clicks)

To reset the standard setting, turn lower adjuster (2) clockwise until reaching fully closed position. Then turn it back by the mentioned clicks.

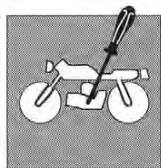
In order to obtain a smooth braking action, turn the adjuster counter clockwise. Vice versa to obtain a harder braking action.

Shock absorber springs (4)

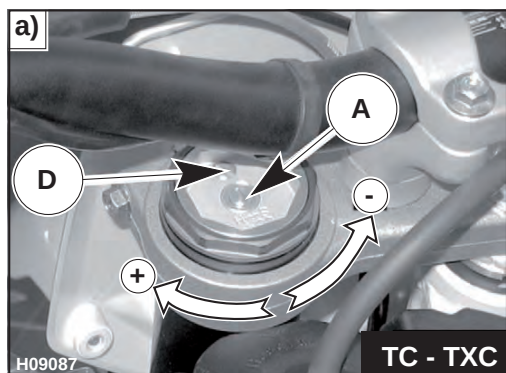
STANDARD

$K=5,2 \text{ kg/mm (TC - TXC)}$

K=5,2 - 5,8 kg/mm (TE)



SETTINGS AND ADJUSTMENTS TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA



KAYABA front fork adjustment

- COMPRESSION (Fig. a)
(TC - TXC: TOP ADJUSTER; TE: LOWER ADJUSTER)

KAYABA: -9 clicks (TC EU - TXC);
KAYABA: -12 clicks (TE);
KAYABA: -10 clicks (TC 250 USA).

To reset the standard setting, turn cap nut (A) clockwise to reach the fully closed position; then, turn it back by the mentioned clicks. In order to obtain a smooth braking action, turn the adjuster counter clockwise. Vice versa to obtain a harder braking action.

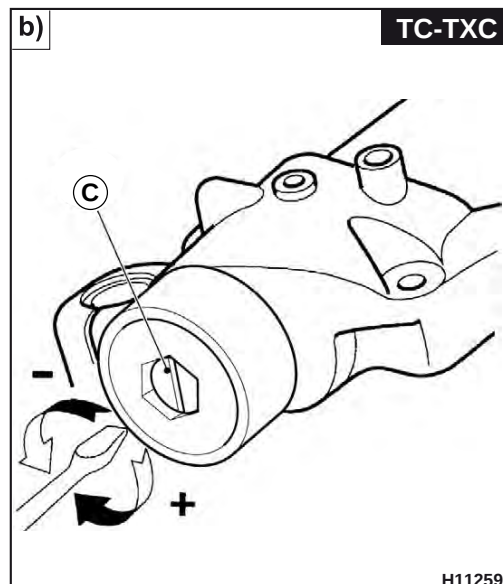
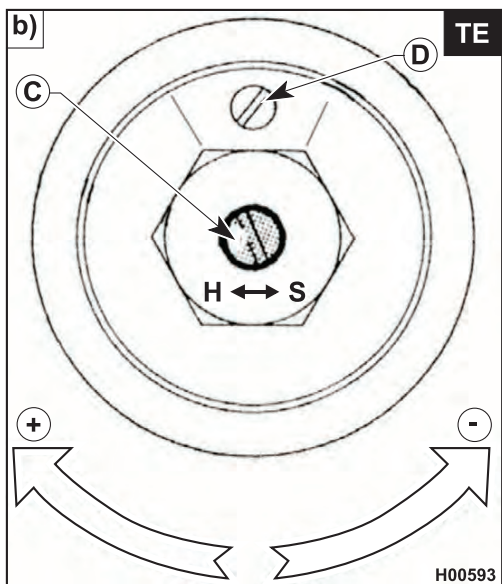
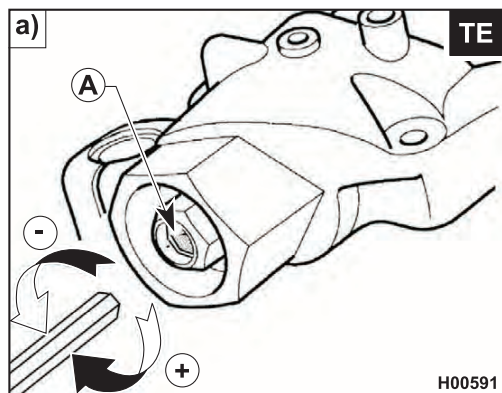
- REBOUND (Fig. b)
(TC - TXC: LOWER ADJUSTER; TE: TOP ADJUSTER)

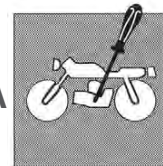
KAYABA: -13 clicks (TC EU - TXC);
KAYABA: -8 clicks (TE);
KAYABA: -12 clicks (TC 250 USA).

To reset standard setting, turn adjuster (C) clockwise to reach the fully closed position; then, turn it back by the mentioned clicks. In order to obtain a smooth braking action, turn the adjuster counter clockwise. Vice versa to obtain a harder braking action.

- BLEEDING (Fig. a/b) (to carry out after each competition, or monthly).
Set the motorcycle on a central stand, release the fork fully extended and loosen the bleed valve (D). Once this operation is over, tighten the valve.

NOTE: Never force the adjuster screws beyond the maximum open and closed positions.

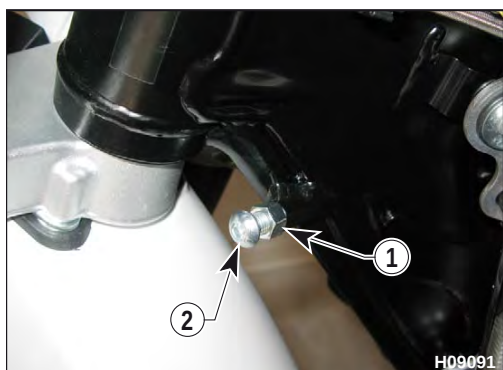
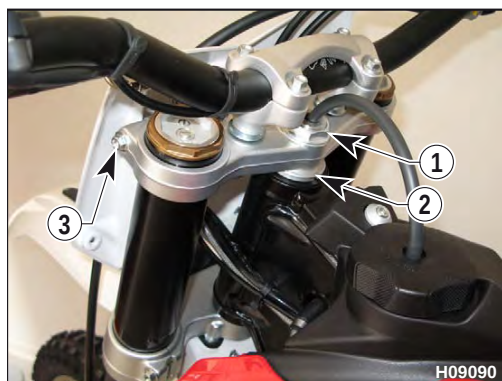




Steering bearing clearance adjustment

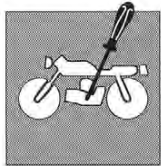
For safety reasons, the steering should always be adjusted so that the handlebar turns freely and without play. To check steering adjustment, set a stand or a block under the engine and see that the front wheel is lifted from the ground. Press lightly on the handlebar grips to cause the front end to rotate; the handlebar should turn smoothly. Sit on the ground in front of the front wheel and hold the lower ends of the fork legs. Push and pull in a front to rear motion to feel for play. If any play is detected, adjust as follows:

- Loosen the steering head tube nut (1);
- Loosen the four bolts (3) that secure the fork legs to the steering head; - Turn the steering head tube ring nut (2) clockwise using the special key until achieving correct play adjustment;
- Tighten the steering head tube nut (1) to 8÷9 Kgm. (78.4÷88.3 Nm);
- Tighten the four bolts (3) on the steering head to 22.5-26.5 Nm (2.3-2.7 Kgm).

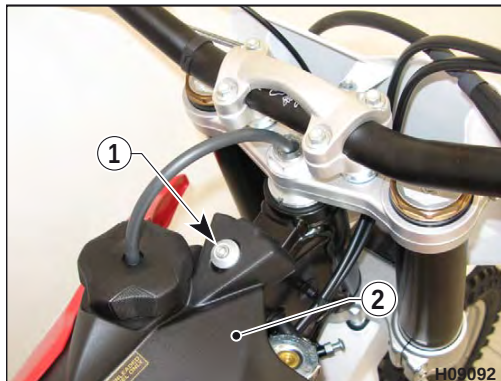


Steering angle adjustment

Steering angle can be modified by means of the adjuster assemblies located on either side of the steering head tube as follows: loosen the check nut (1), turn the adjuster screw (2) until setting the desired steering angle and then re-tighten the check nut (1). Make the same changes on both sides.



SETTINGS AND ADJUSTMENTS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Supply hose check



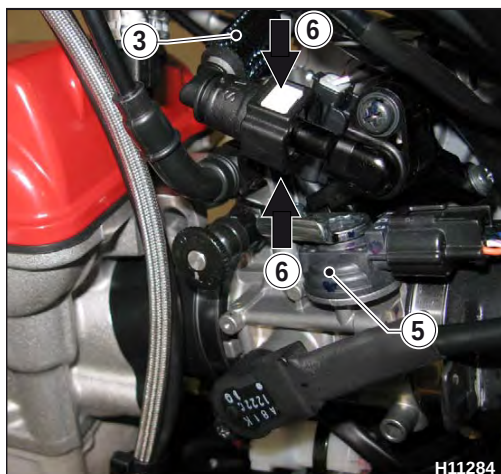
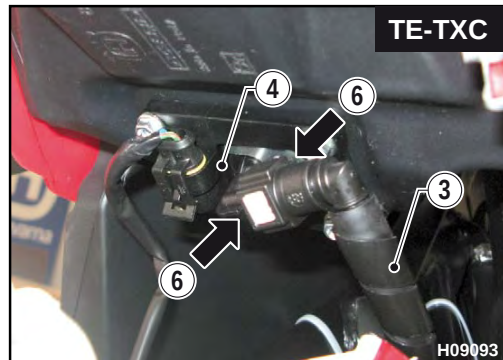
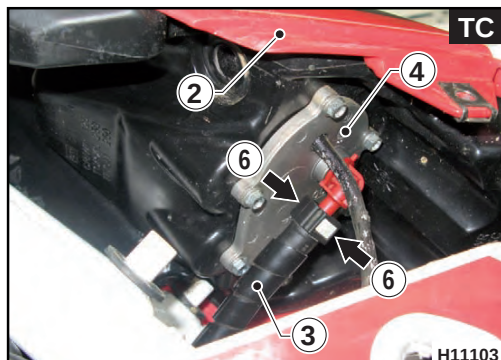
During the fuel tank removal operations, pay particular attention to the couplings of the fuel hose on the pump body and on the throttle body in order to prevent possible breakage / damages to the parts.

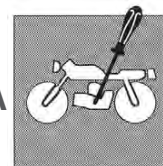
Remove saddle and side panels as described in Section "E".

Remove the tank (1) retaining screw (2).

Lift the tank (2) and check the hose (3) running from the pump (4) to the throttle body (5).

To replace the hose, squeeze the two retainer tabs (6) at one end of the hose and detach hose. Repeat at the other end of the hose.





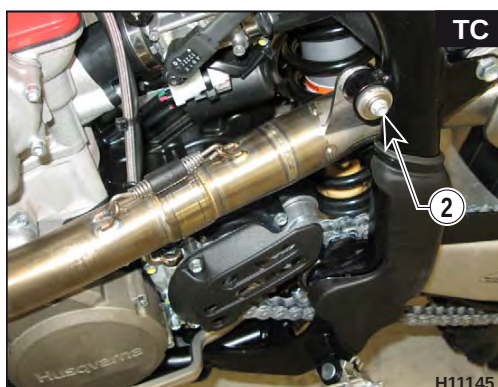
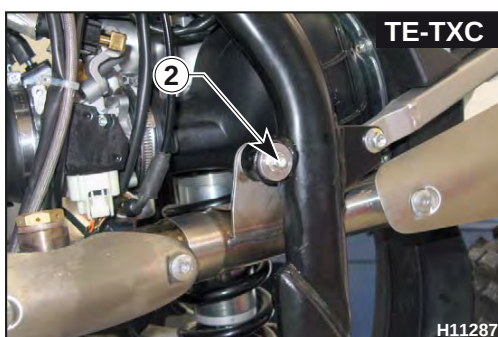
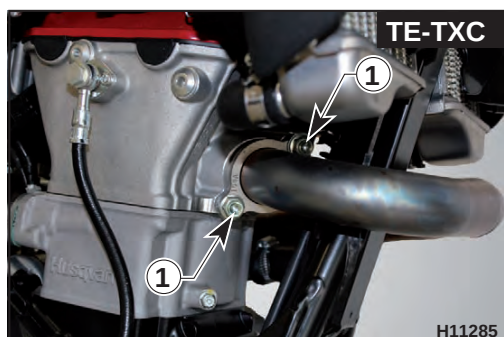
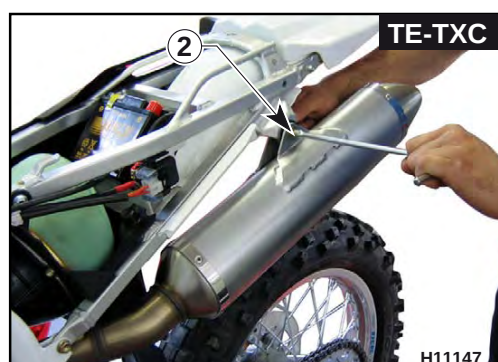
Exhaust system check

Perform a visual inspection of the exhaust system first, in order to identify possible gas leaks from the sealing elements (gaskets), and to ensure that the Silent-Blocks are not damaged.

Subsequently, inspect the single components by disassembling the exhaust system.

In addition to this, check the tightening of the screws (1) of the flanges and the tightening of the screws (2) that strap the silencer to the respective supports.

The damaged or broken parts must be replaced.



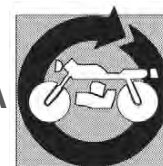


GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section

E



Foreword	E.3
Saddle removal.....	E.4
Side panel removal.....	E.4
Battery removal (TE-TCX).....	E.4
Rear chassis with mudguard and air box removal (TC)	E.5
Rear chassis with mudguard and air box removal (TE-TXC)	E.5
Exhaust system removal	E.8
Fuel tank, scoops and spoiler removal.....	E.12
Fuel pump removal (TC).....	E.16
Fuel pump removal (TE – TXC).....	E.17
Start-up relay removal (TE-TXC).....	E.18
Condenser	E.18
Electronic control unit removal CDI	E.19
Voltage regulator removal (TE-TXC)	E.19
Voltage regulator removal (TC)	E.20
Coil / Stick-Coil removal	E.20
Clutch hose removal.....	E.21
Horn removal (TE).....	E.21
Electric cooling fan removal (TE-TXC).....	E.22
Secondary drive chain removal	E.22
Removal of engine from motorcycle	E.23
Radiator removal	E.28
Thermostat removal (TE-XC)	E.29



GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Foreword

This section describes the operations preliminary to engine removal.

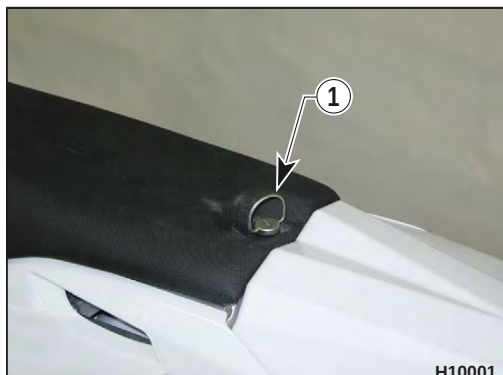
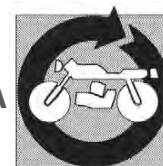
Please note that, in order to gain access to certain motorcycle components (rear shock absorber, electrical parts, wiring, etc.), it may be necessary to partially remove some parts.



RIGHT-HAND SIDE

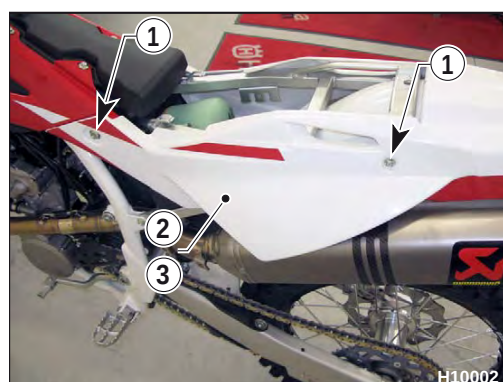


LEFT-HAND SIDE



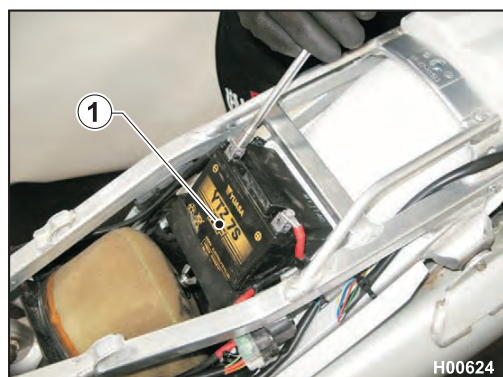
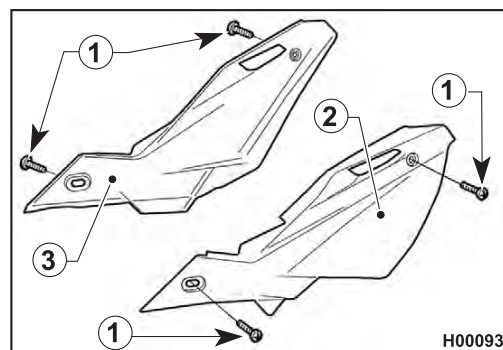
Saddle removal

- Turn the rear fixing (1) counter clockwise and remove the saddle.



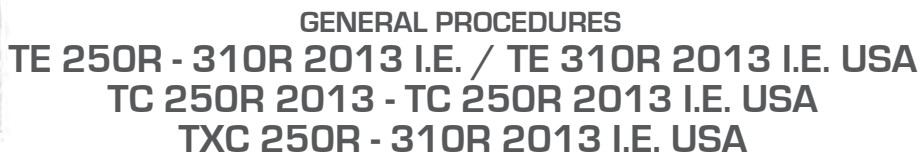
Side panel removal

- Remove the saddle as described in the relevant paragraph.
- Loosen the retaining screws (1) and remove the side panels (2) and (3).

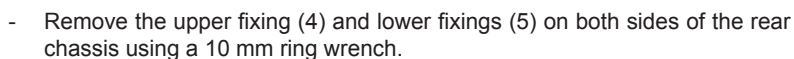


Battery removal (TE-TCX)

- Remove the saddle as described in the relevant paragraph.
- First remove the BLACK negative cable (8 mm Allen wrench), then the RED positive cable (when reassembling, first connect the RED positive cable, then the BLACK negative cable); remove the battery (1) from its housing.



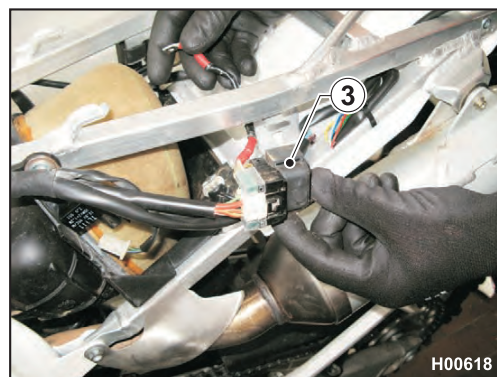
- Remove the saddle as described in the relevant paragraph.
- Remove the side panels as described in the relevant paragraph.
- Lift the tank at the rear end.
- Disconnect the air temperature sensor (1).
- Remove the exhaust silencer as described in the relevant paragraph.
- Slacken clamp (2) that secures the rubber coupling of the air box (3) to the throttle body.
- Remove the upper fixing (4) and lower fixings (5) on both sides of the rear chassis using a 10 mm ring wrench.
- Pull the rear chassis (6) rearwards together with mudguard and air box, and detach it from the main chassis.

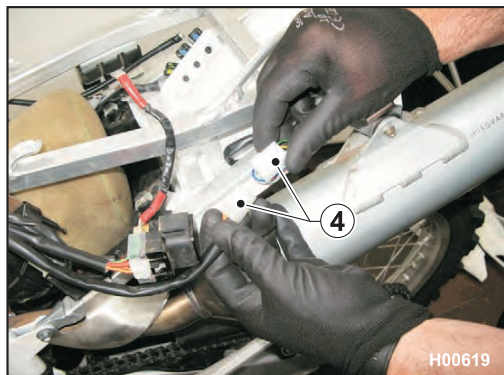
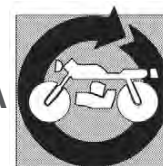


- Pull the rear chassis (6) rearwards together with mudguard and air box, and detach it from the main chassis.

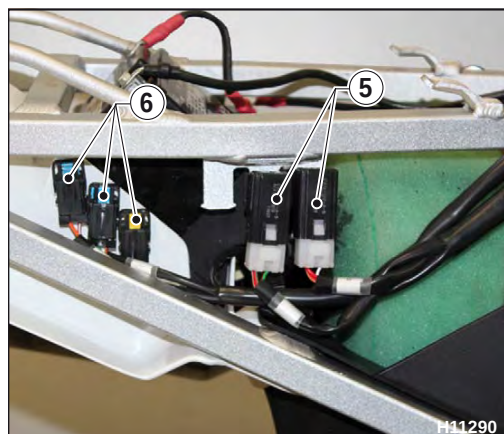


- Remove the following parts in the order given: saddle, side panels, fuel tank, silencer and battery (see relevant paragraphs for instructions).
- Shear the plastic clips securing wiring to rear chassis.
- Disconnect the connector (1) of the turning indicator relay (2) (TE).
- Remove the solenoid starter (3) from its mount.

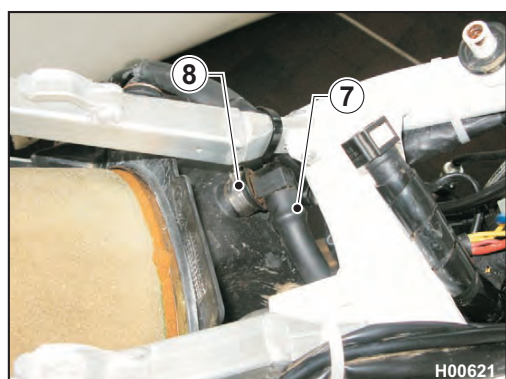




- Disconnect the connector (4) of the tail light unit (TE).



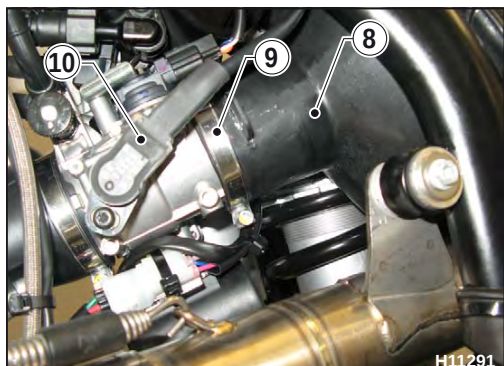
- Detach relays (5) and fuses (6) on the right-hand side of the motorcycle.



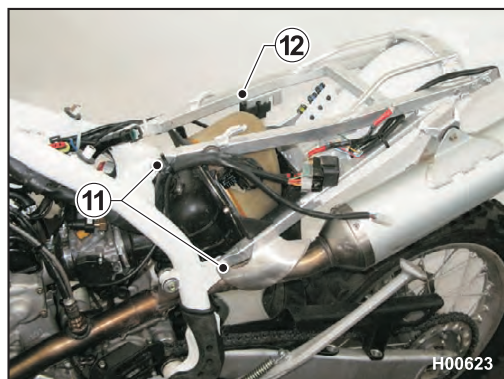
- Detach the breather hose (7) from the air filter (8).



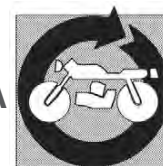
GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



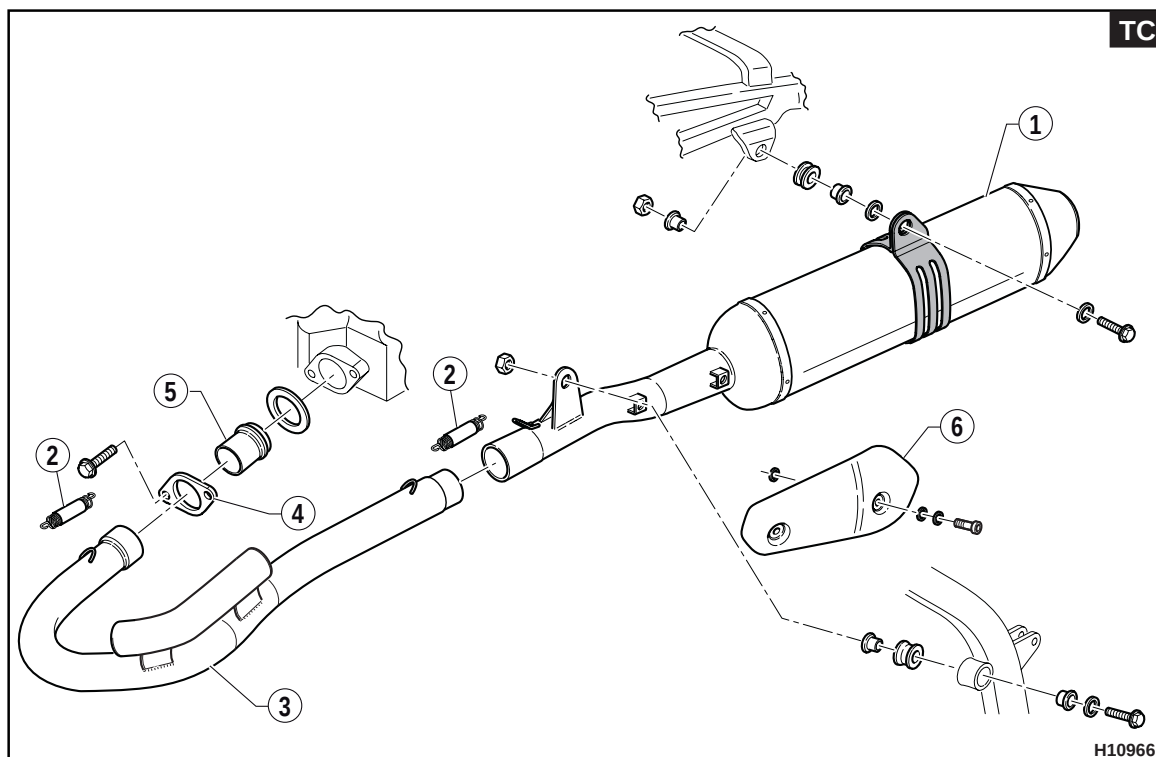
- Unscrew the clamp (9) connecting air filter (8) to throttle body (10).



- Remove the four screws (11) of the rear chassis (12) using a 10 mm ring wrench.
- Pull the rear chassis (12) rearwards together with mudguard and air box , and detach it from the main chassis.



Exhaust system removal

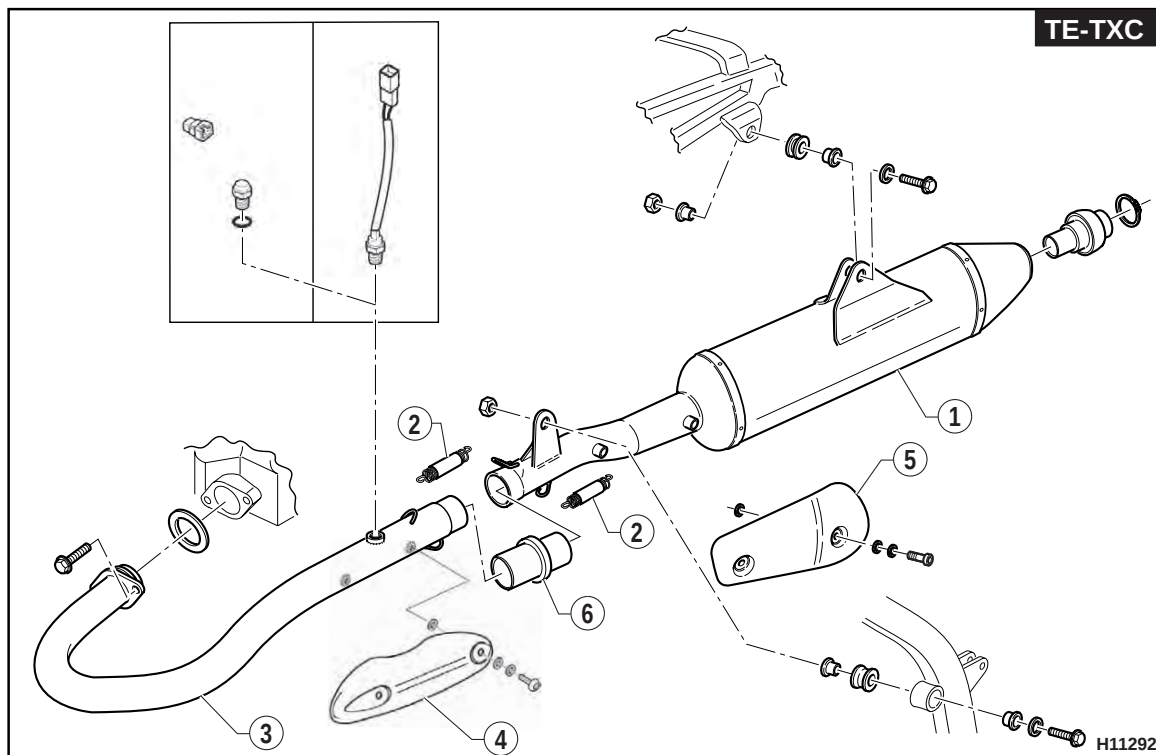


Key:

- 1) Silencer
- 2) Spring
- 3) Exhaust manifold
- 4) Flange
- 5) Nozzle
- 6) Protection

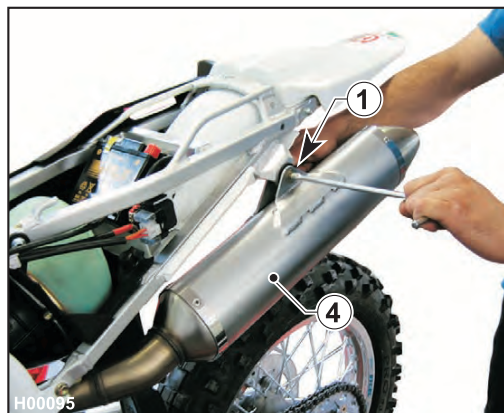
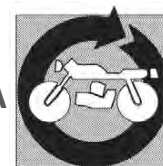


GENERAL PROCEDURES
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TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



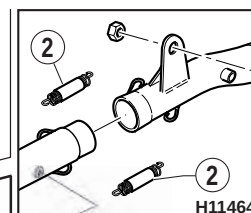
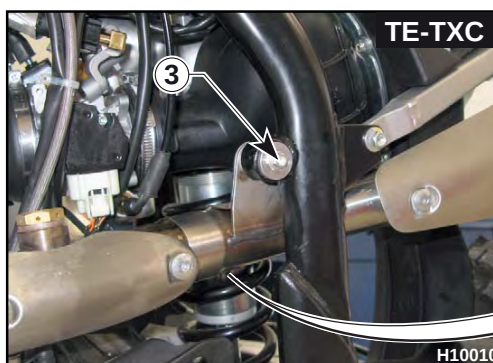
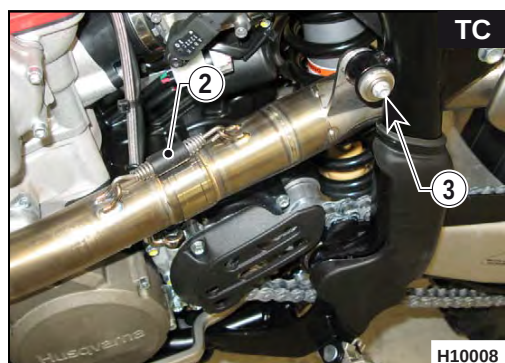
Key:

- 1) Silencer
- 2) Spring
- 3) Exhaust manifold
- 4) Front protection
- 5) Rear protection
- 6) Catalyst



- Remove the saddle as described in the relevant paragraph.
- Remove the left-hand side panel as described in the relevant paragraph.
- Using an 8 mm T-wrench on the outside and a 10 mm T-wrench on the inside, remove the silencer (4) retaining screw (1).

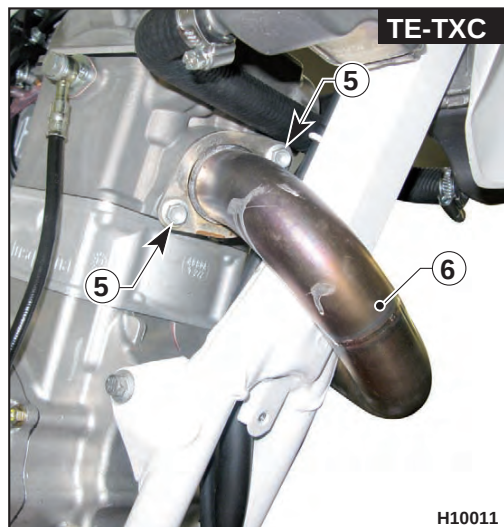
- Remove the spring (2) and the screw (3) using an 8 mm T-wrench; slide out the silencer (4).



- Disconnect the Lambda sensor connector (7) and shear the wiring clips (TE-TXC).

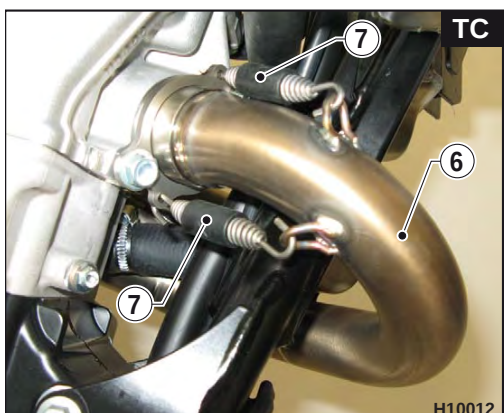


GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



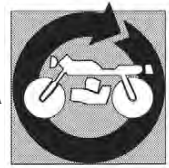
(TE-TXC)

- Loosen the two bolts (5) and remove the exhaust pipe (6).

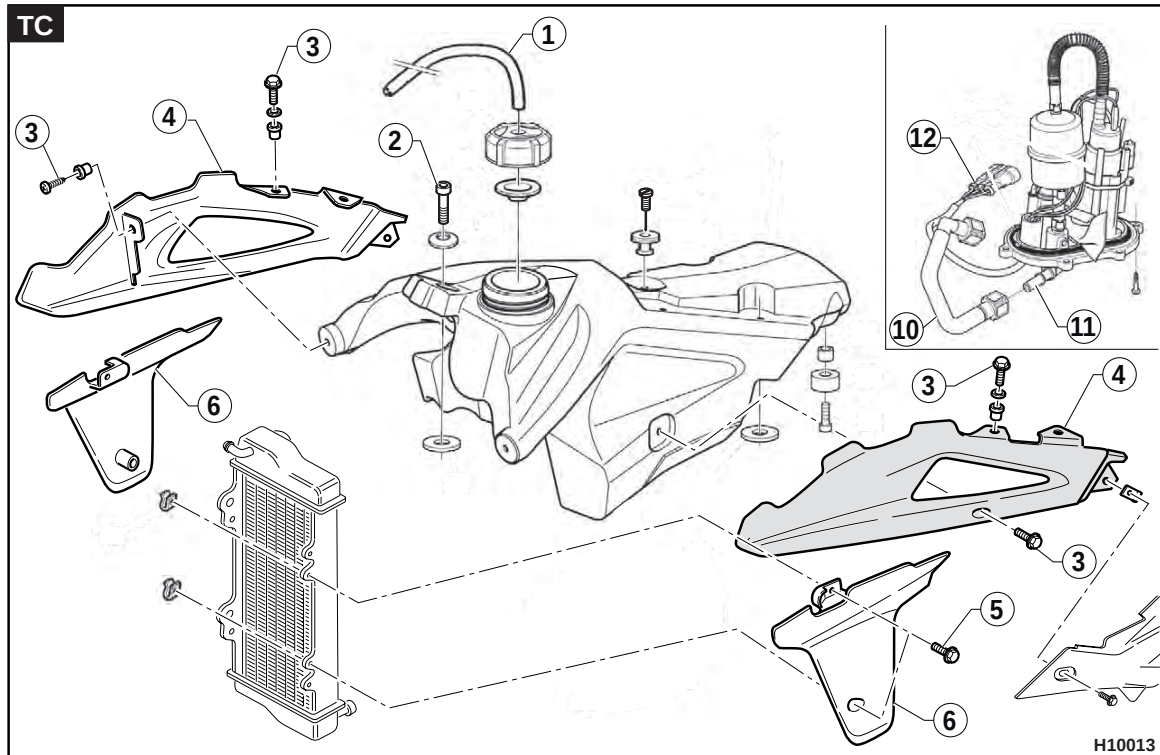


(TC)

- Detach springs (7) and remove exhaust pipe (6).

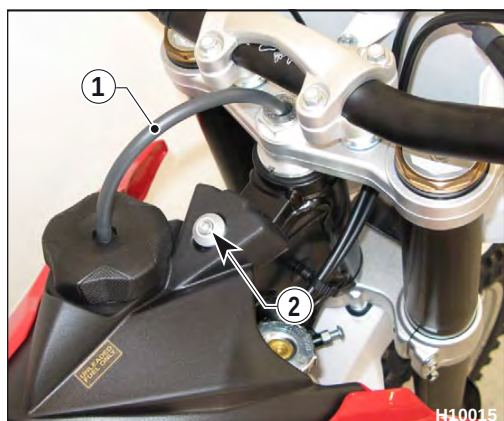
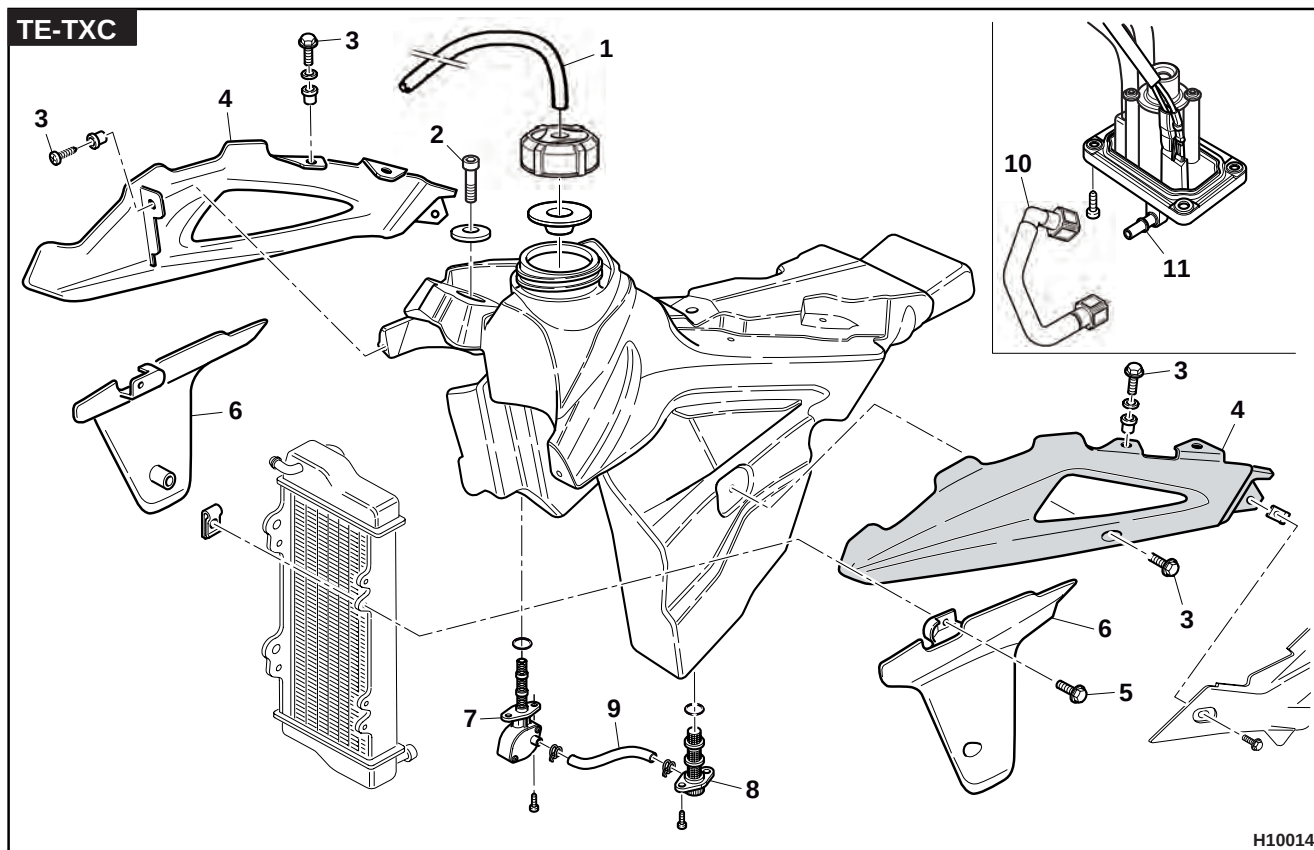


Fuel tank, scoops and spoiler removal

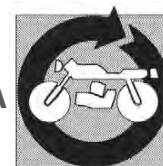




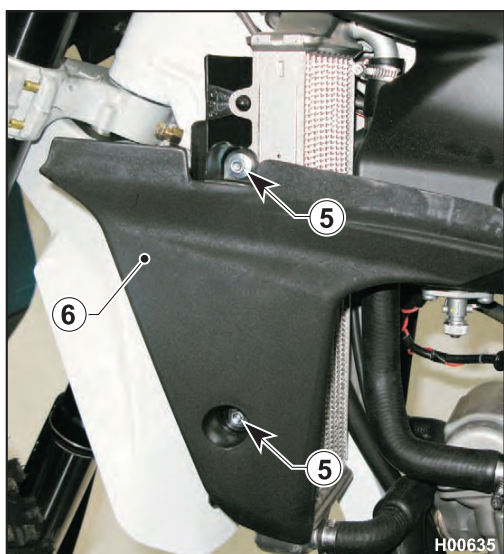
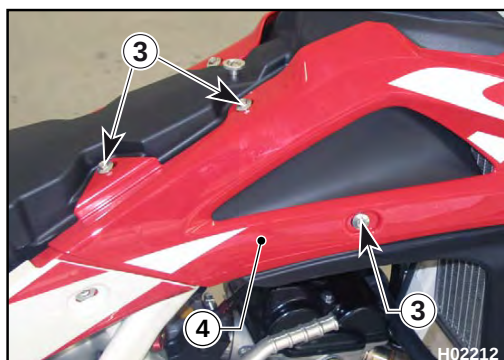
GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



- Remove the saddle as described in the relevant paragraph.
- Remove the side panels as described in the relevant paragraph.
- Remove the breather hose (1).
- Loosen the fuel tank retaining screw (2).

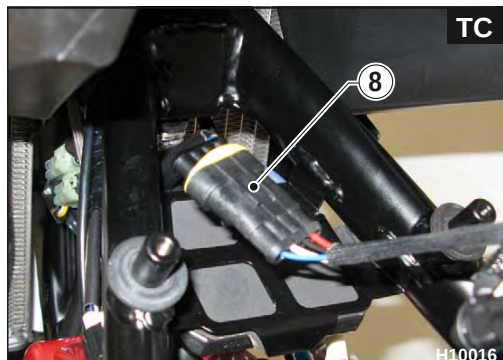


- Remove the screws (3) retaining the scoops to the fuel tank. Remove the scoops (4) and the screws (5) retaining the spoilers (6) to the radiators and then remove the spoilers.





GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Carefully disconnect the fuel hoses from the throttle body or from the fuel pump to prevent damage to the quick coupling.

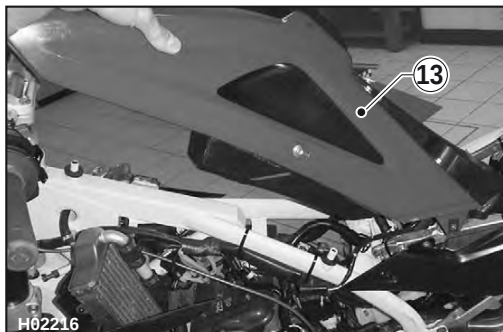
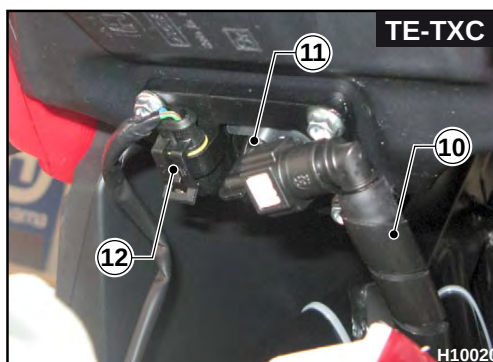
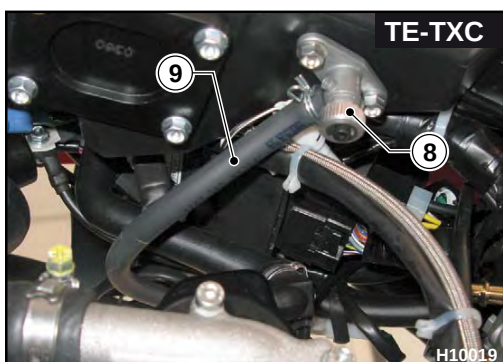
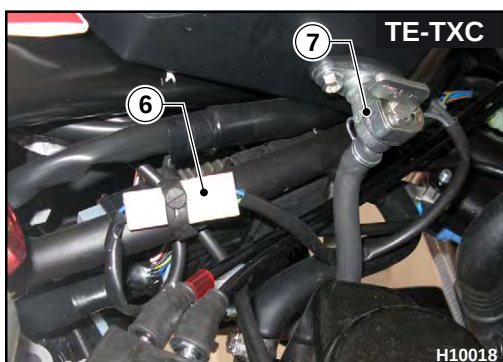
(TC)

- Disconnect the fuel hose (7) from the throttle body.
- Lift the tank and disconnect the fuel pump connector (8) from the main wiring harness.

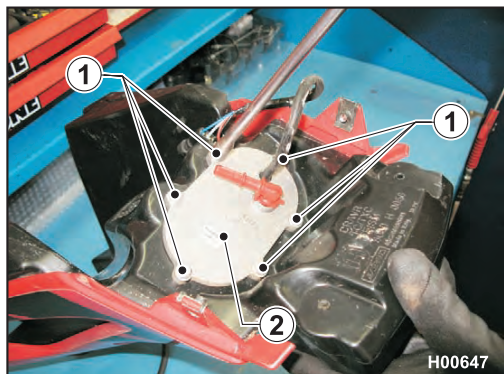
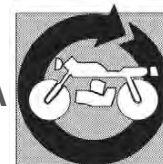


(TE-TXC)

- Close the two taps (7) and (8) and connect the hose (9).
- Disconnect connector (6) of the reserve sensor.
- Lift the tank and disconnect the hose (10) from the fuel pump outlet fitting (11) in the bottom section of the tank.
- Disconnect the fuel pump connector (12) from the main wiring harness.

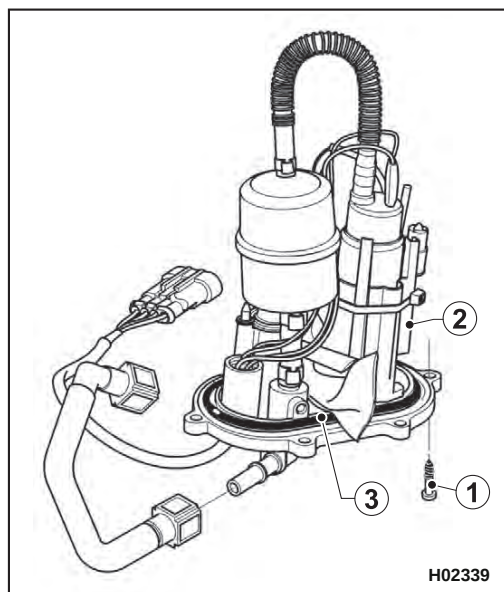
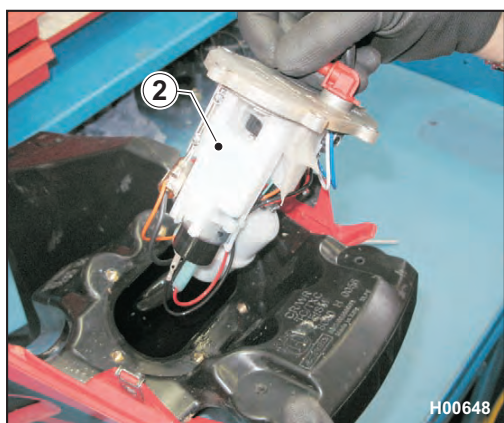


- Slide out the tank (13).



Fuel pump removal (TC)

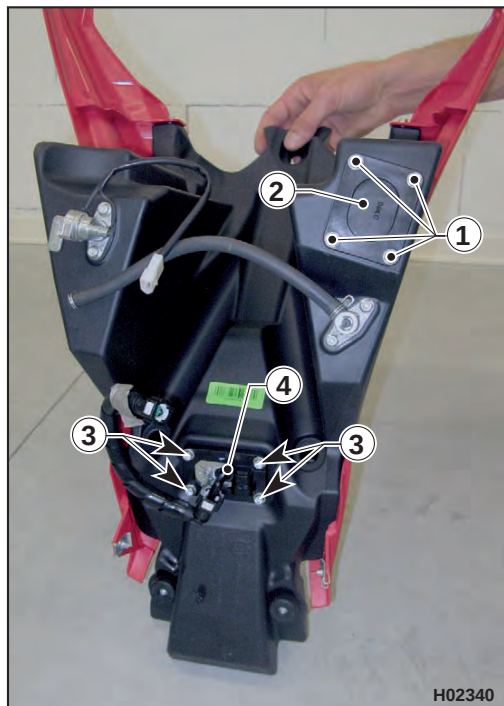
- Remove the fuel tank as described in the relevant paragraph.
- Remove the tank filler cap and pour the fuel contained in the tank into a vessel of adequate capacity.
- Use an Allen wrench to loosen the 6 screws (1) and remove the pump (2).



On assembly, make sure that the pump O-ring (3) is correctly positioned in its seat.

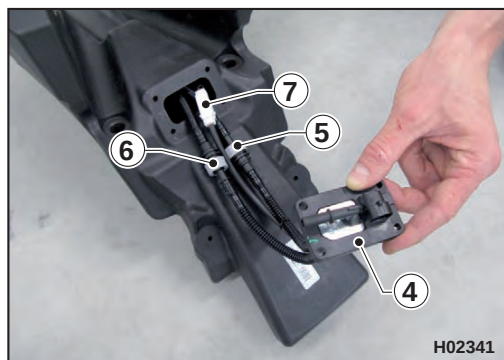


GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

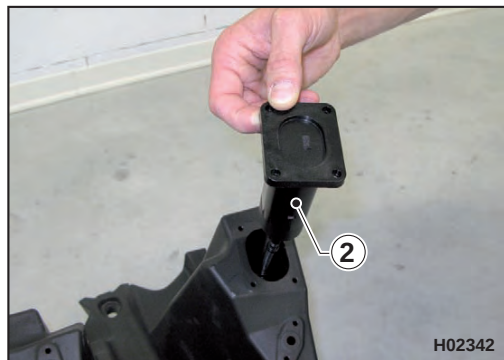


Fuel pump removal (TE – TXC)

- Remove the fuel tank as described in the relevant paragraph.
- Remove the tank filler cap and pour the fuel contained in the tank into a vessel of adequate capacity.
- Make use of a 10 mm wrench to slacken the 4 screws (1) of the pump flange (2) and the four screws (3) of the fitting flange (4).

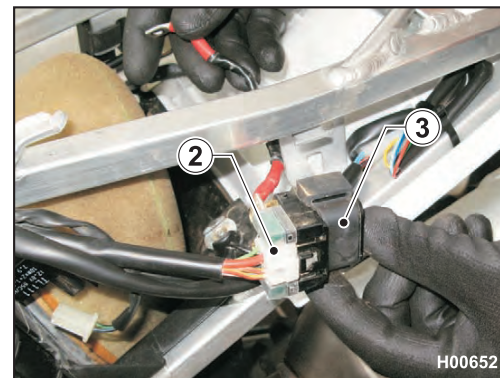
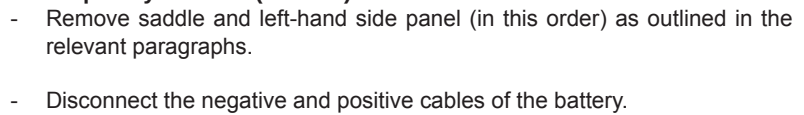


- Slide the fitting flange (4) out of the tank, then remove the delivery and return hoses by releasing the quick fittings (5) and (6).
- Disconnect the pump supply connector (7).

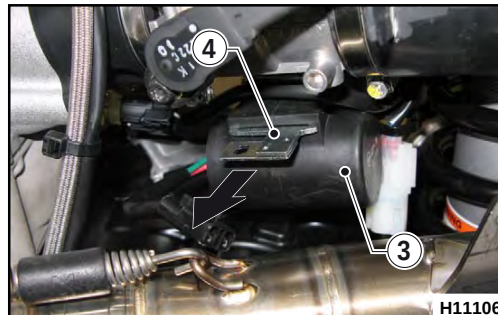


- Slide the pump (2) with relevant small hoses out of the tank.

NOTE: To refit the pump follow the removal reverse procedure and make sure that the seals under the flanges (2) and (4) are not worn.

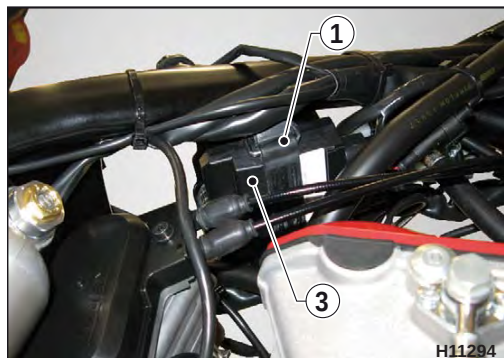


- Cut the clamp (1) and disconnect the connector (2).
- Pull outwards the condenser (3) so that it comes out of the supporting bracket (4).





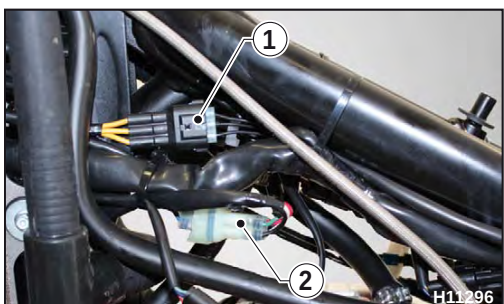
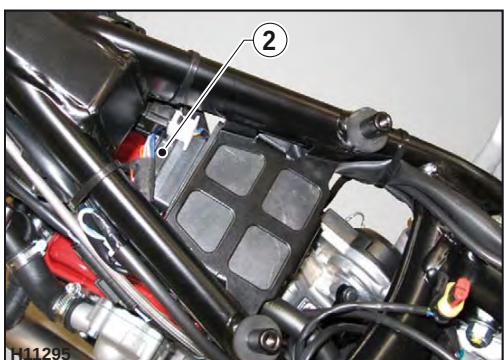
GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Electronic control unit removal CDI

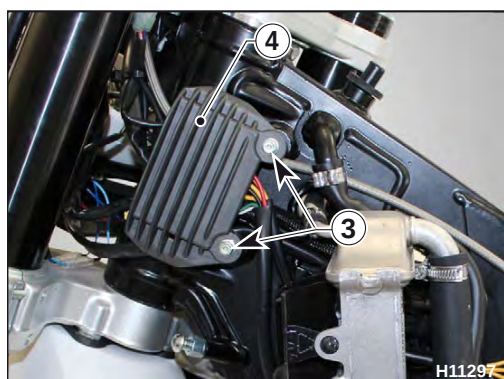
Remove: saddle and fuel tank as described in the relevant paragraphs.

Unhook the support elastic (1) then detach the connector (2) and remove the control unit (3).

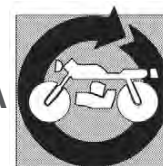


Voltage regulator removal (TE-TXC)

- Disconnect the connectors (1) and (2).

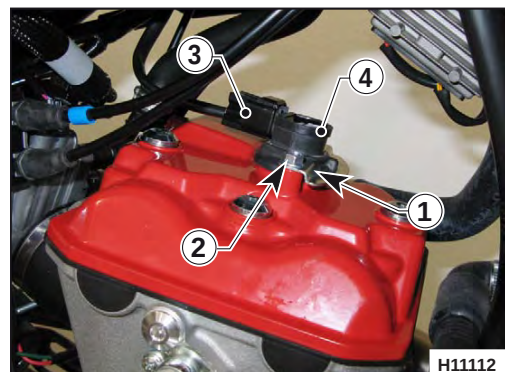
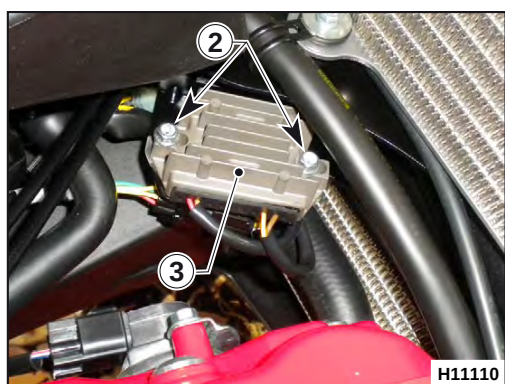


- Loosen the two retaining screws (3) and remove the regulator (4).



Voltage regulator removal (TC)

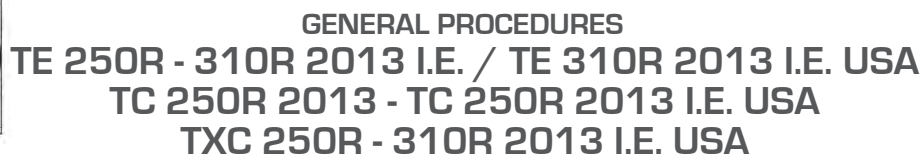
- Remove the fuel tank as described in the relevant paragraph.
- Disconnect the connector (1).
- Loosen the two screws (2) and remove the voltage regulator (3).



Coil / Stick-Coil removal

- With an 8-mm wrench loosen the screws (2), then remove the floater needle (1).
- Disconnect the connector (3) and remove the coil / Stick-Coil (4).
- During the reassembly, pay attention to the positioning of the gasket (5) with respect to the plate (1).

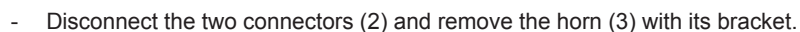


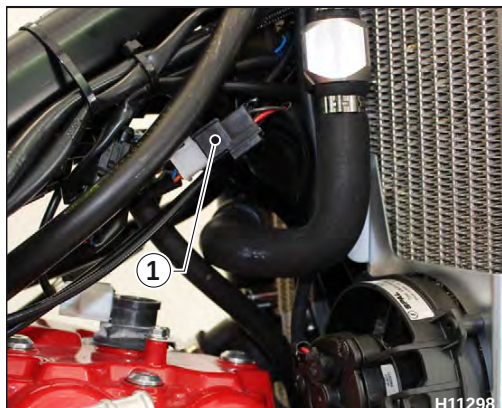
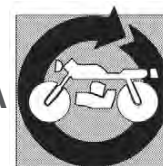


- Loosen the fitting (1) of the clutch hose (2) on the left-hand of the engine.
- Drain any oil left in the hose. On assembly, bleed the clutch system as described in Section "P".



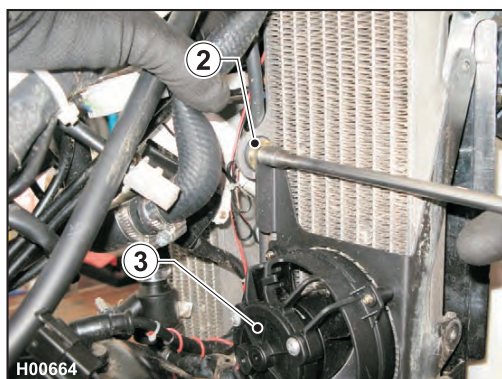
- Remove saddle and fuel tank (in this order) as outlined in the relevant paragraphs.
- Loosen the screw (1) securing the spoiler to the right-hand radiator.



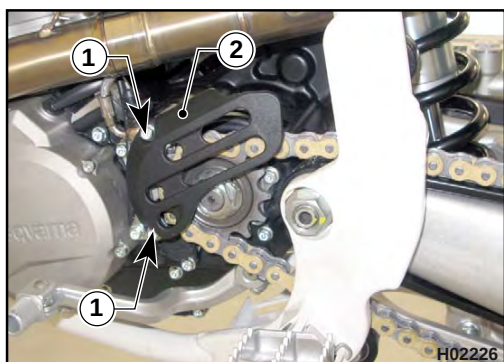


Electric cooling fan removal (TE-TXC)

- Remove saddle, fuel tank and scoops (in this order) as outlined in the relevant paragraphs.
- Disconnect the connector (1).



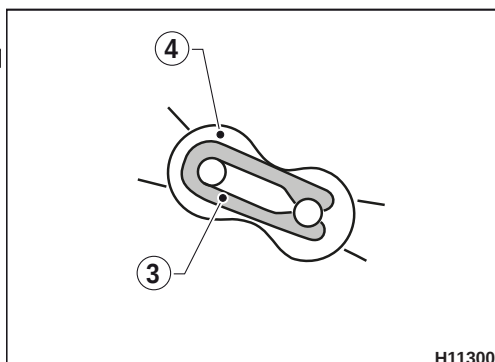
- Loosen the screw (2) and remove the electric fan (3).

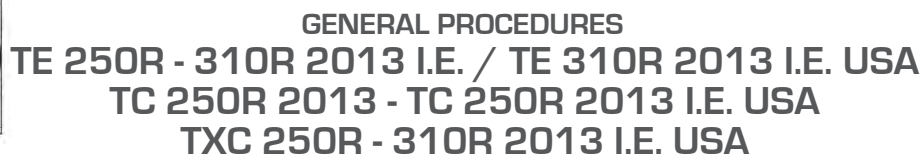


Secondary drive chain removal

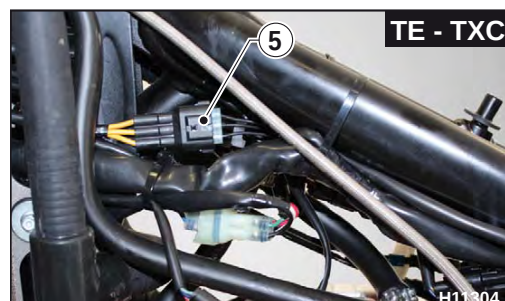
The following procedure applies to both O-ring chains and chains without O-rings:

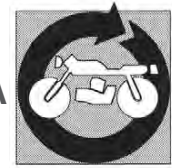
- Remove: screws (1), sprocket guard (2), clip (3), master link (4) and chain (5).



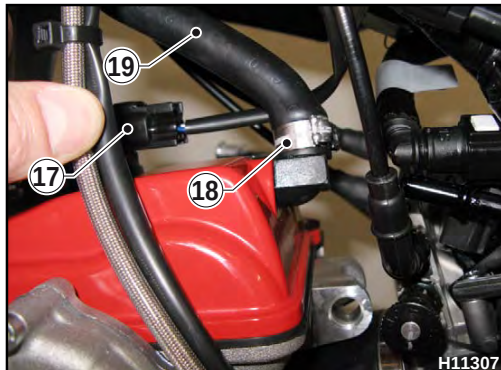
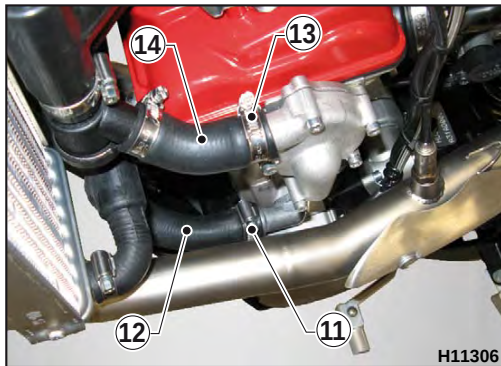


- Remove the saddle as described in the relevant paragraph.
- Remove the side panels as described in the relevant paragraph.
- Remove the fuel tank as described in the relevant paragraph.
- Remove the exhaust system as described in the relevant paragraph.
- Remove the engine guard as outlined in the respective section.
- Loosen the two screws (1) of the intake manifold (2) by removing the throttle body (3) from the head.
- Remove the connector (4) of the coil / Stick-Coil.
- Disconnect the connector (5) of the generator.



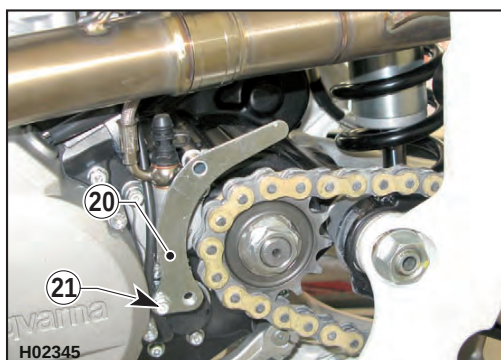


- Place a vessel on the left-hand side of the cylinder, under the engine.
- Slacken the radiator cap (8).
- Slacken the clamp (11) and disconnect the hose (12) connecting the radiators to the engine. Drain all fluid.
- Slacken the clamp (13) and disconnect the hose (14) connecting the radiator to the water pump.



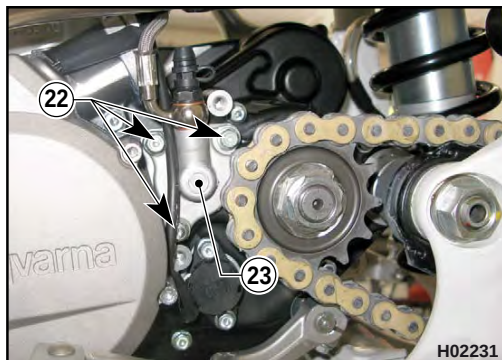
TE 310

- Due to the blow-by circuit structure, engine oil must be drained in the TE 310 version.
For the oil draining operation, follow the instructions outlined in the respective section.
- Disconnect the connector (17) from the coil / Stick-Coil.
- Open the clamp (18) and detach the small blow-by tube (19) from the cylinder head cover.
- Remove the chain as described in the relevant paragraph.
- Remove the chain guide plate (20) unscrewing the screw (21) with an 8 mm wrench.





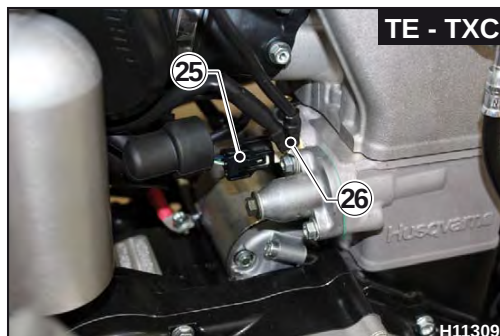
GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



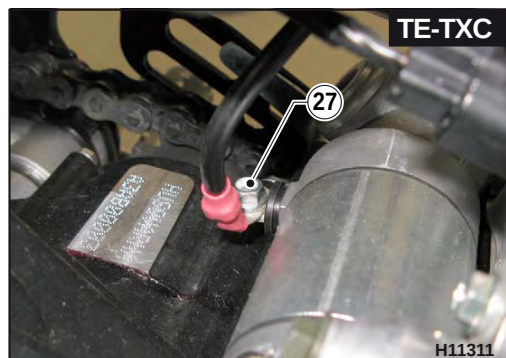
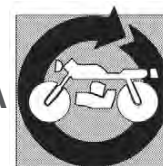
- Loosen the three screws (22) and remove the clutch actuator (23).



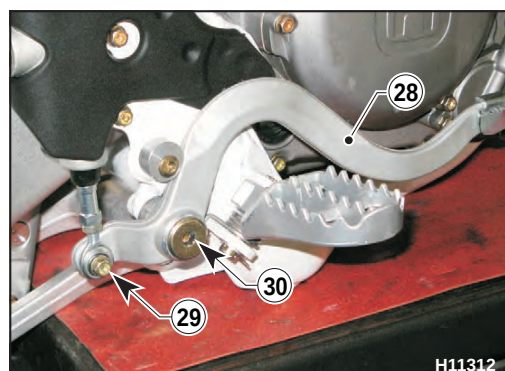
- Remove the clip (24) that holds clutch hose and wiring harness together.



- Remove the water temperature sensor connector (25).
- Remove the ground cables (26) (TE-TXC).



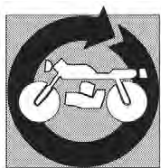
- Remove the positive power supply cable (27) of the starter motor (TE-TXC).



- To remove the brake lever (28), use an 8 mm wrench to loosen the master cylinder linkage (29) and a 6 mm Allen wrench to loosen the central screw (34). Remove the lever.



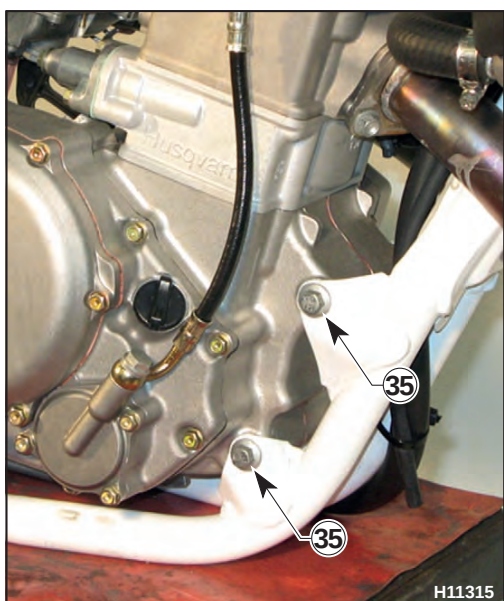
- Loosen the upper retaining screw (31) of the shock absorber (32) with a 14 mm wrench.



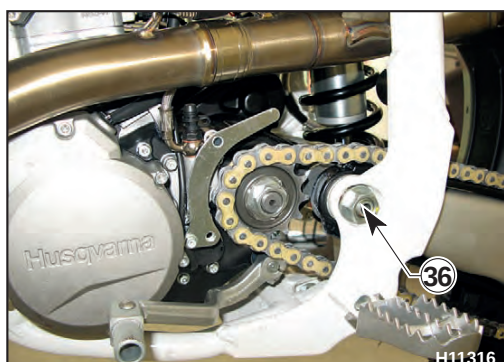
GENERAL PROCEDURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



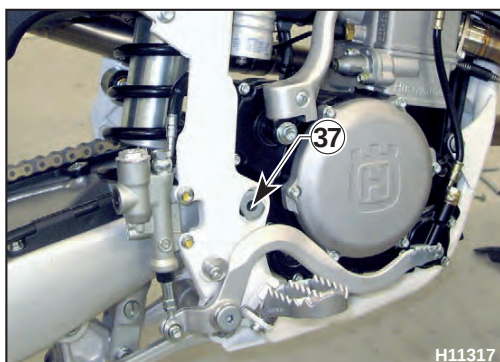
- Remove the guards (33) on both sides shearing the clips (34).

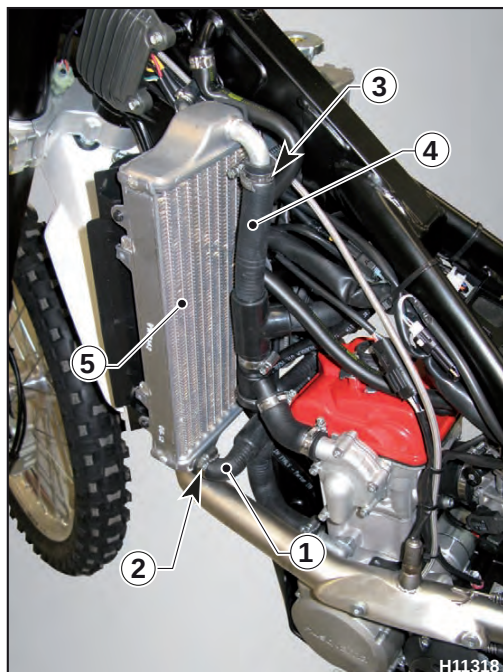
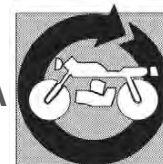


- Remove the engine mounting bolts (35) using a 12 mm wrench on the left-hand side and a 10 mm wrench on the right-hand side.



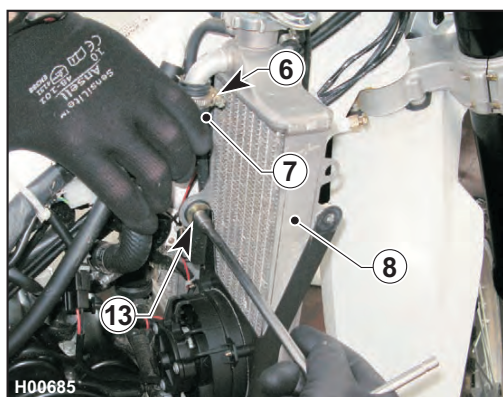
- Loosen the swinging arm axle nut (36) using a 22 mm wrench; pull out the axle (37) from the right-hand side of the engine and pull the swinging arm rearwards to facilitate engine removal.
- Lift the engine, tilt it to the left and remove it from the motorcycle.
- Place the engine on a rotating stand to perform the procedures described in Sections F-G-H.



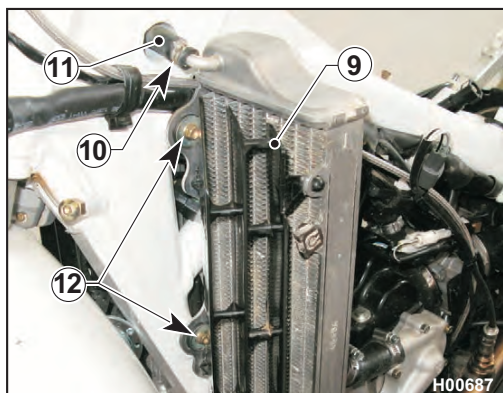


Radiator removal

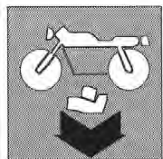
- Remove the fuel tank together with scoops and spoilers as outlined in the relevant paragraphs.
- Remove the electric cooling fan (TE – TXC) as described in the relevant paragraph.
- Place a pan under the hose (1) to collect coolant, then loosen the clamp (2), detach the hose (1) and drain all coolant.
- Loosen the clamp (3) and disconnect the hose (4) from the left-hand radiator (5).



- Loosen the clamp (6) and disconnect the hose (7) from the right-hand radiator (8).



- Remove the plastic grids (9) from the radiators.
- Remove the clamp (10) and disconnect the radiator connecting hose (11).

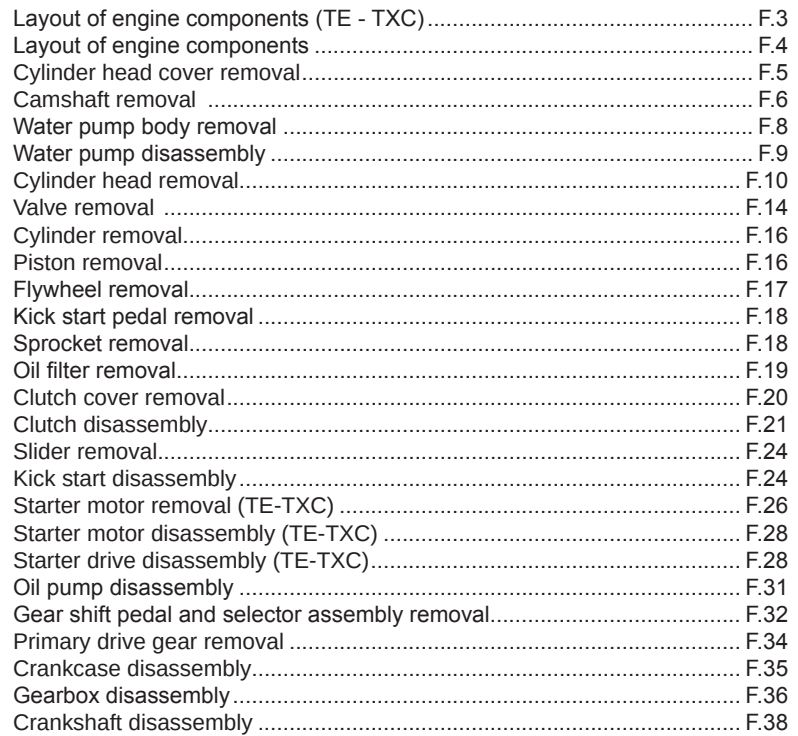
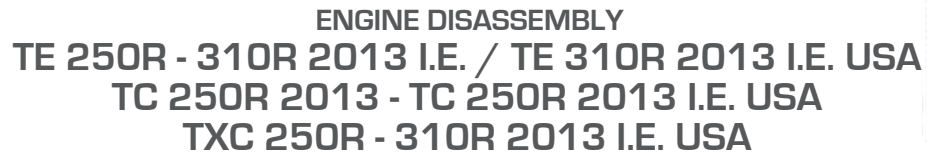


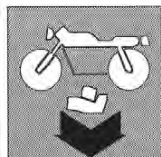
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section

F



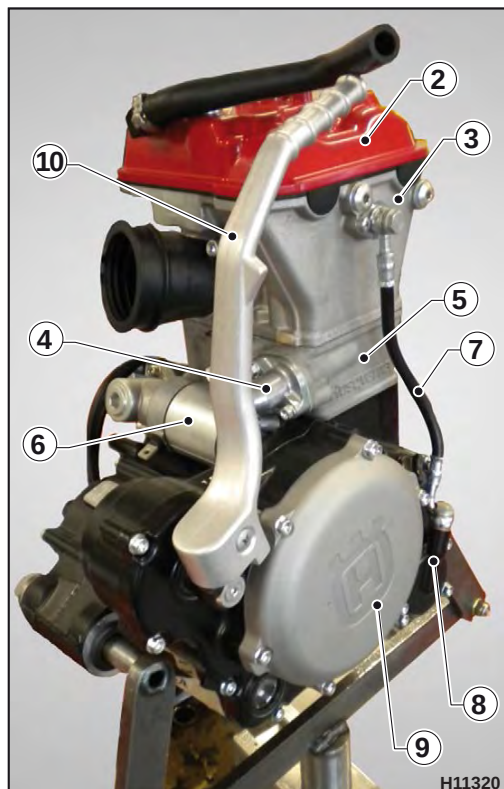


ENGINE DISASSEMBLY

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA

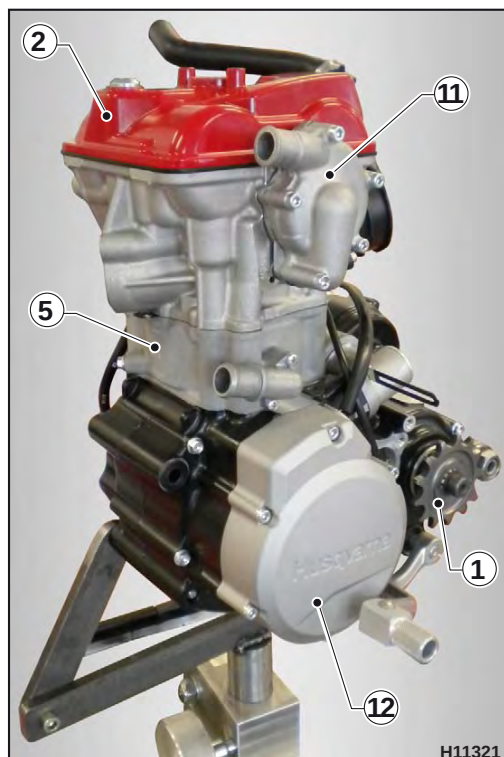
TC 250R 2013 - TC 250R 2013 I.E. USA

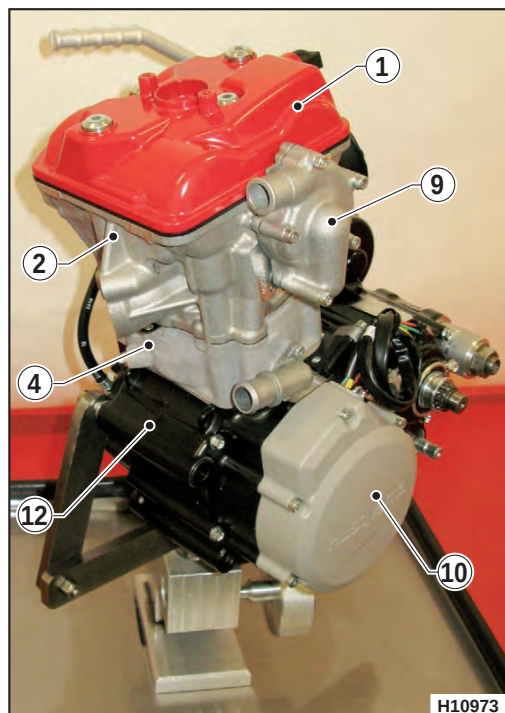
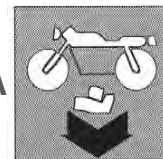
TXC 250R - 310R 2013 I.E. USA



Layout of engine components (TE - TXC)

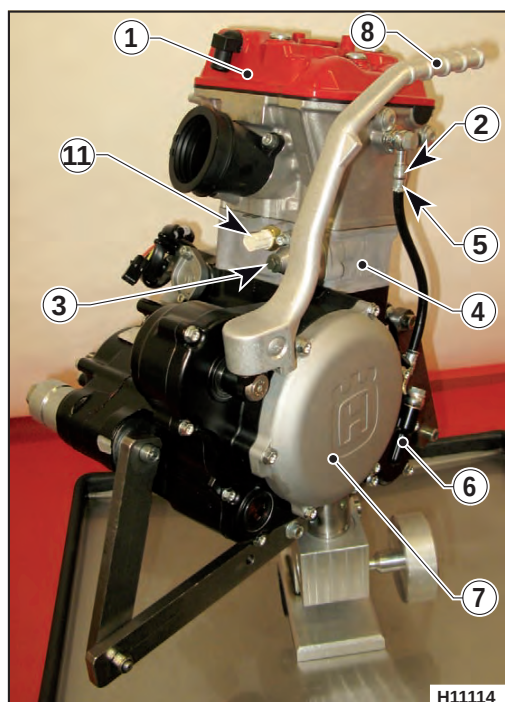
- 1 Sprocket
- 2 Cylinder head cover
- 3 Cylinder head
- 4 Chain tensioner
- 5 Cylinder
- 6 Starter motor
- 7 Head lubrication pipe
- 8 Oil filter
- 9 Clutch cover
- 10 Kick start lever
- 11 Water pump
- 12 Alternator cover

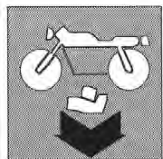




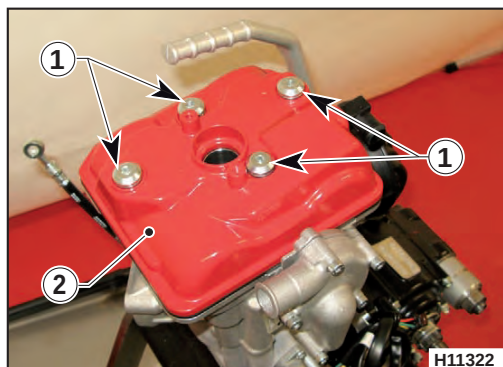
Layout of engine components

- 1 Cylinder head cover
- 2 Cylinder head
- 3 Chain tensioner
- 4 Cylinder
- 5 Head lubrication pipe
- 6 Oil filter
- 7 Clutch cover
- 8 Kick start lever
- 9 Water pump
- 10 Alternator cover
- 11 Coolant temperature thermostat



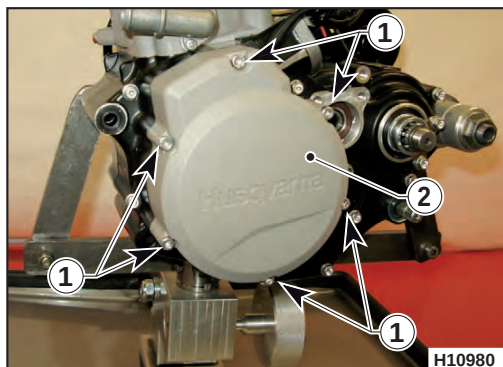
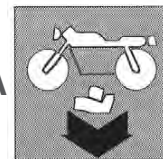


ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



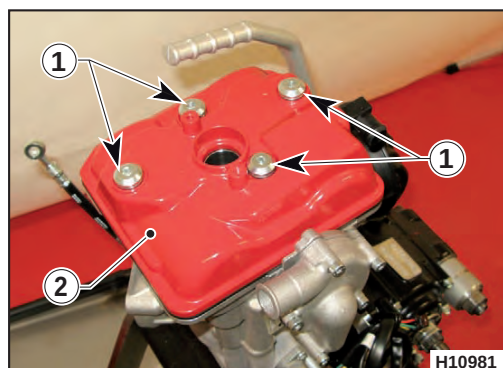
Cylinder head cover removal

- Remove the four retaining screws (1) and remove the head cover (2) with its gasket.

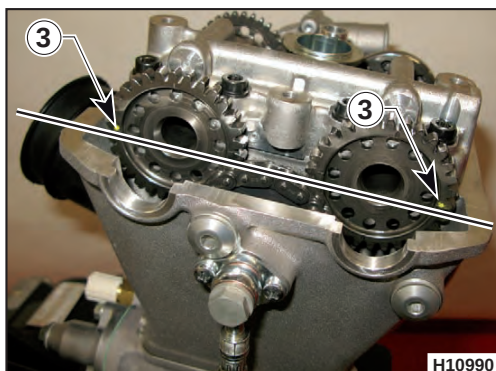
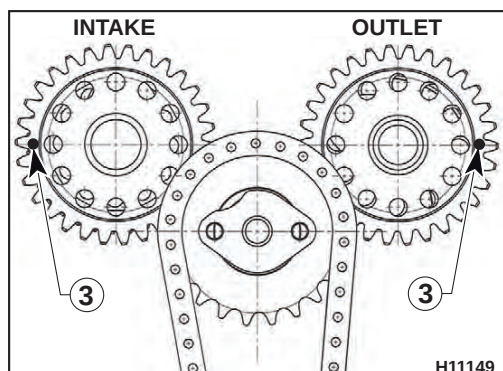
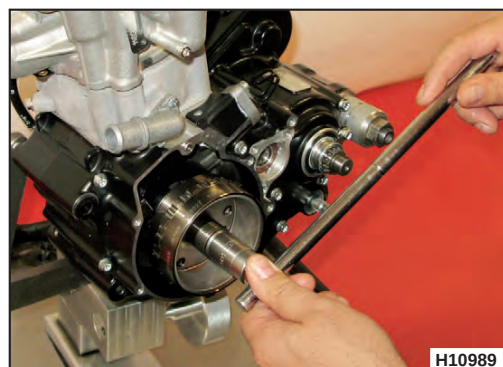


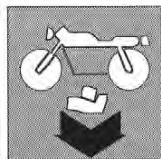
Camshaft removal

- Remove the six retaining screws (1) of the alternator cover (2) (4 mm Allen wrench) and remove the cover with its gasket.

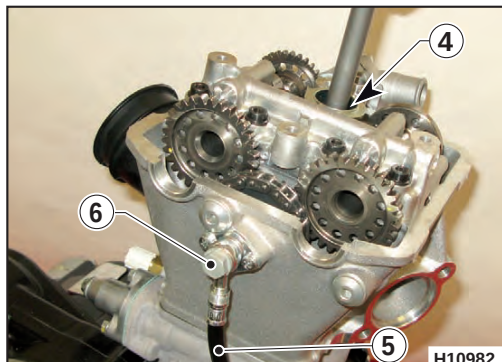


- With a 17mm wrench, position the piston on the TDC at the end of the compression phase. In this condition, the two engraved reference marks (3) on the gears of the camshafts are positioned on the same axle although they are diametrically opposed.





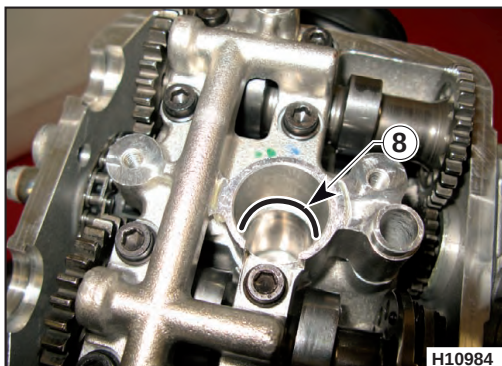
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



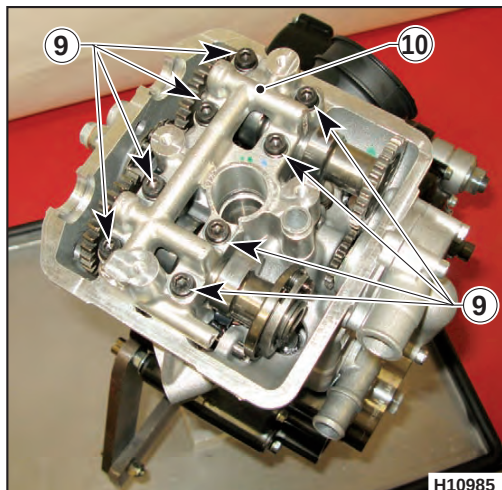
- Remove the spark plug (4) (16 mm wrench) and the head lubrication pipe (5) loosening the drilled screw (6) (12 mm wrench).



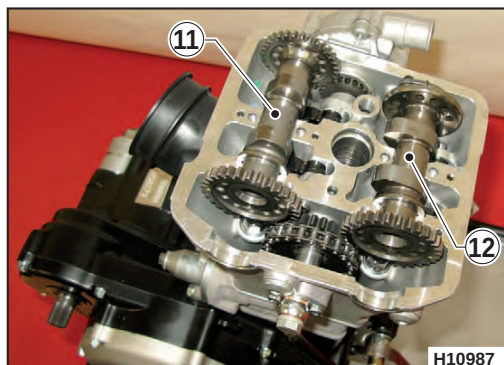
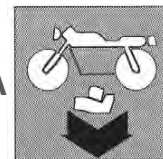
- Remove the bushing (7) from the spark plug recess.



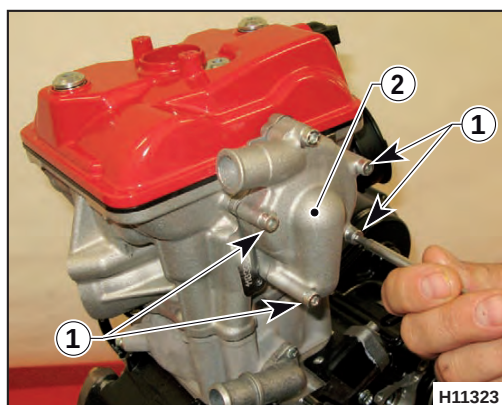
When you refit the bushing (7) make sure not to damage the O-Ring (8).



- Loosen the screws (9) with a 5-mm wrench, and remove the mount (10).

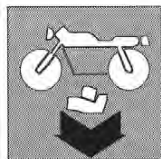


- Remove the intake camshaft (11) and the exhaust camshaft (12).



Water pump body removal

- Remove the four screws (1) securing pump body (2) to head (4 mm Allen wrench) and remove pump body.

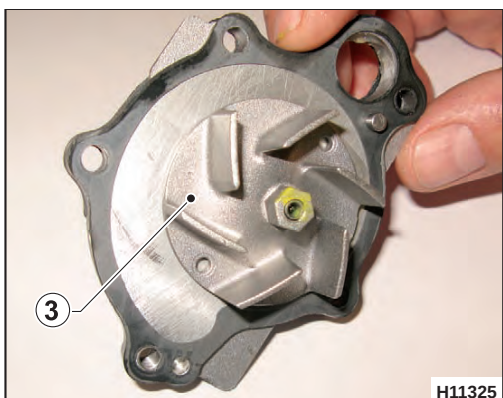


ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Water pump disassembly

- Loosen the screw (1) to disassemble the pump.

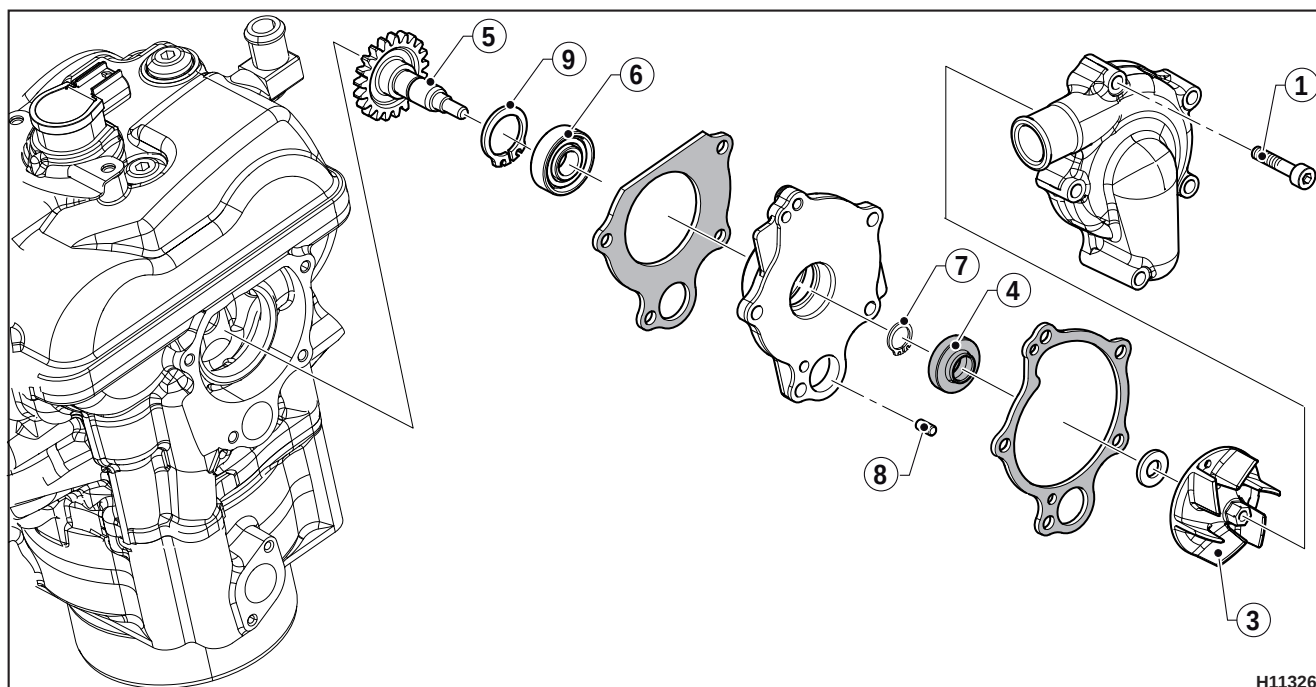


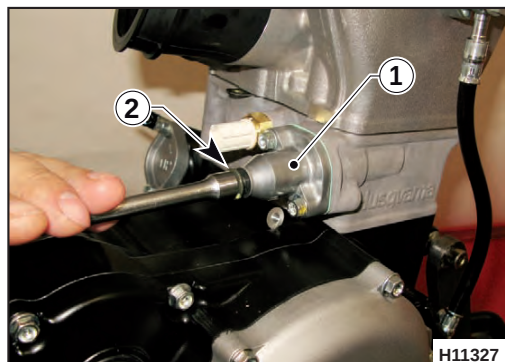
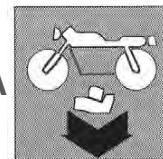
- Loosen the impeller (3) and remove it.

- Remove the oil seal (4), remove the seeger (7) and remove the gear (5).
Remove the seeger (9) and remove the bearing (6).



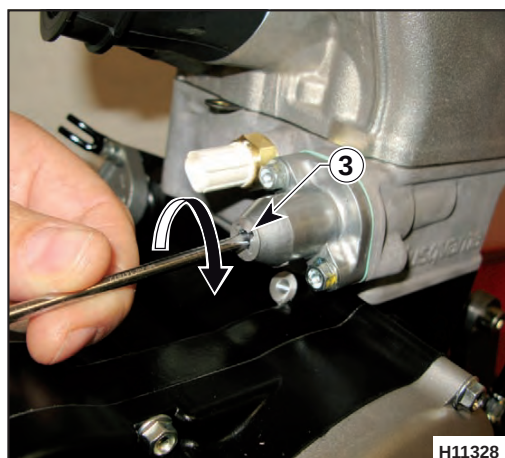
During the refit, make sure that the centring plugs (8) are correctly positioned in their own seat. Make also sure the pump gear (5) and the camshaft gear are correctly timed.



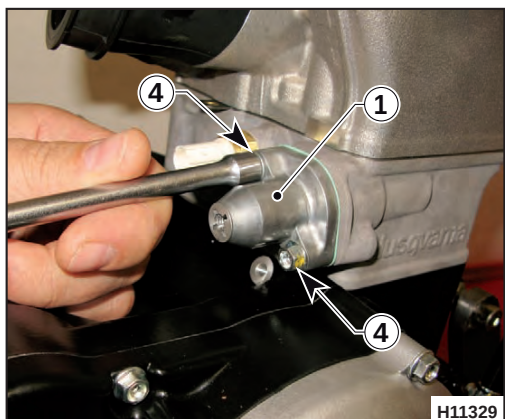


Cylinder head removal

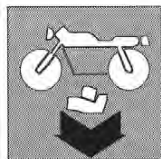
- Remove the head cover as described in the relevant paragraph.
- Remove the camshafts as described in the relevant paragraph.
- Remove the chain tensioner (1) as follows:
 - Loosen the screw (2) with an 8 mm wrench.



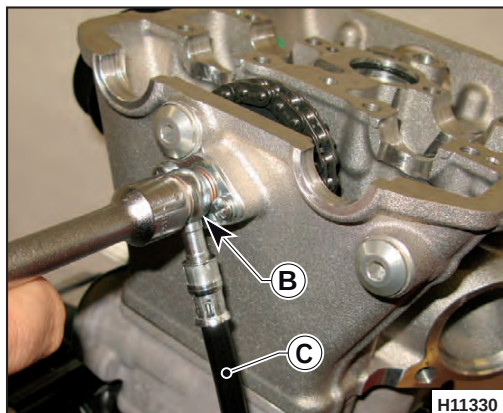
- Turn the screw (3) fully clockwise with a flat head screwdriver until locking it so as to release the spring.



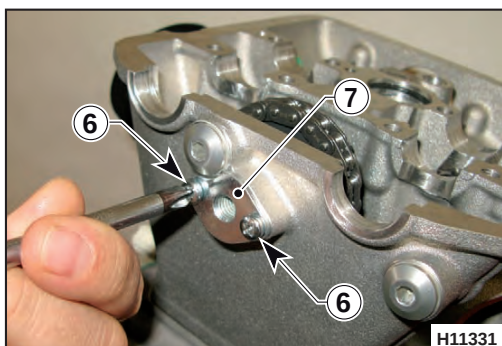
- Loosen the two screws (4) using an 8 mm wrench and remove the chain tensioner (1).



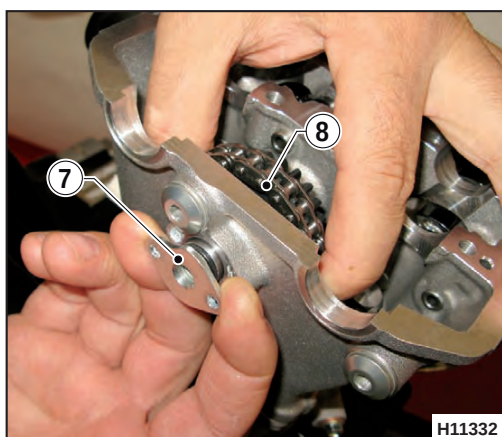
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

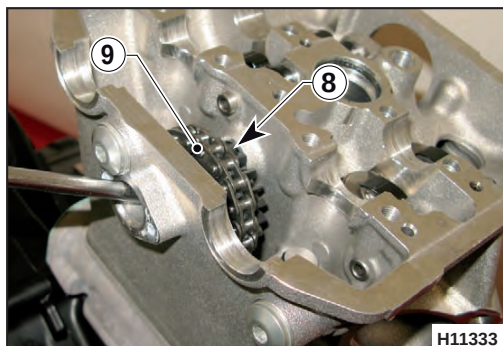
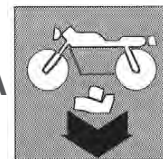


- With a 12-mm wrench, loosen the drilled bolt (B) and remove the tube (C).

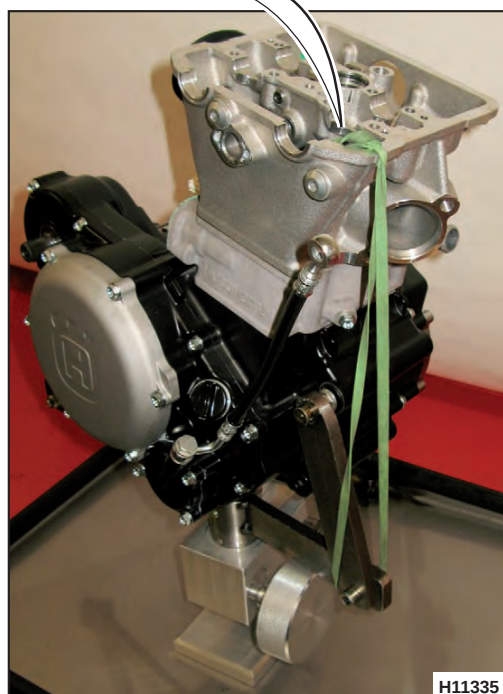
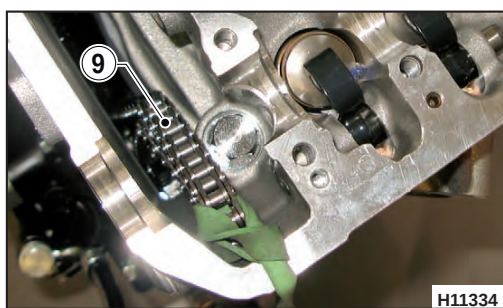


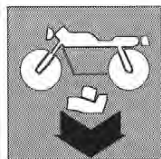
- Loosen the two screws (6) using a Phillips screwdriver and remove the timing drive shaft (7) while holding the gear (8) with your hand.



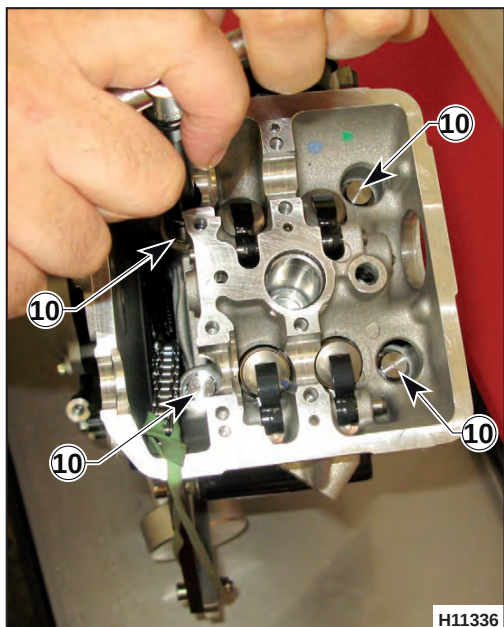


- Support the gear (8) using a screwdriver or a punch, unwrap the chain (9) and remove the gear. Let the chain drop into the engine; otherwise support the chain with an elastic.

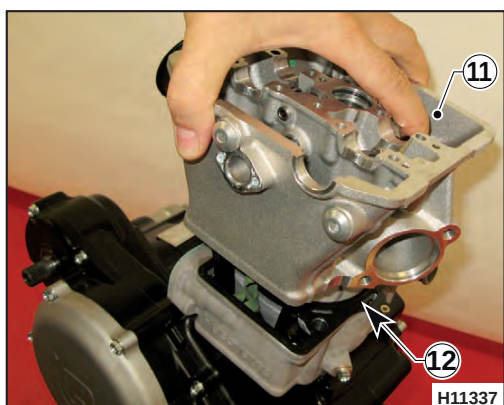




ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



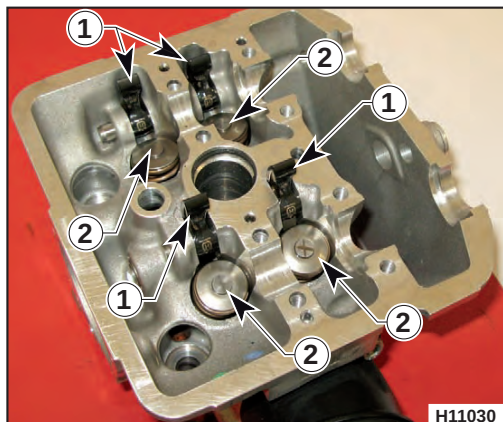
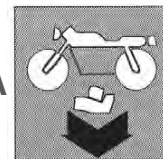
- With a 12-mm socket wrench, loosen the four screws (10) and their washers.



- Remove the cylinder head (11) and its gasket (12).

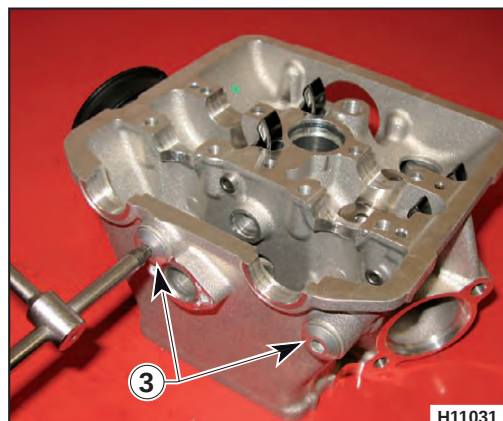


Be careful not to lose the locating pins positioned between head and cylinder.

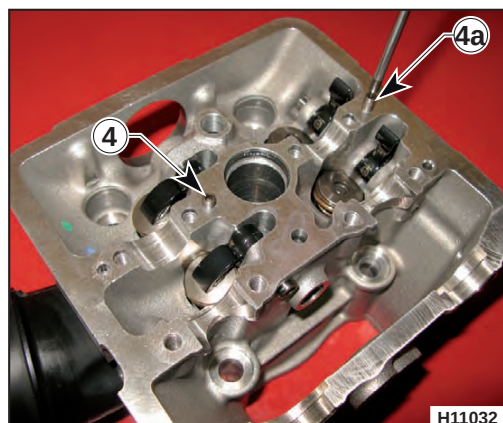


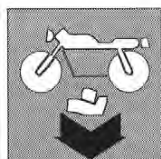
Valve removal

- Lift the rocker arms (1) and remove the pads (2) using a suitable tool.
- Position the pads (2) so that they cannot be reversed during the refit.



- Loosen the plugs (3) then loosen the dowels (4) and (4a) with a 5 mm Allen wrench.
- Remove the pins (5) and the rocker arms (1).



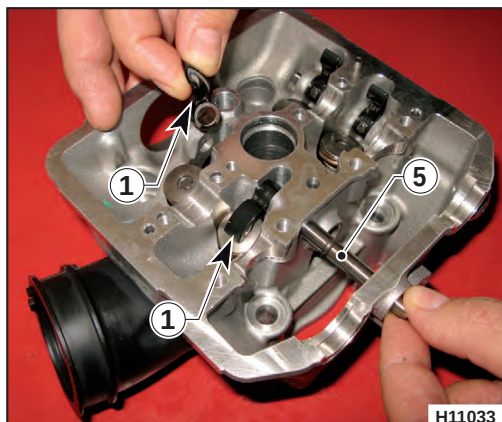


ENGINE DISASSEMBLY

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA

TC 250R 2013 - TC 250R 2013 I.E. USA

TXC 250R - 310R 2013 I.E. USA



Mark the position of the pins (5) and of the rocker arms (1) so that you can refit them exactly in the same position making sure that you centre correctly the dowel on the pin groove.



During the refit, make sure that the longest dowel (4a) is positioned on the rocker arm pin exhaust side.

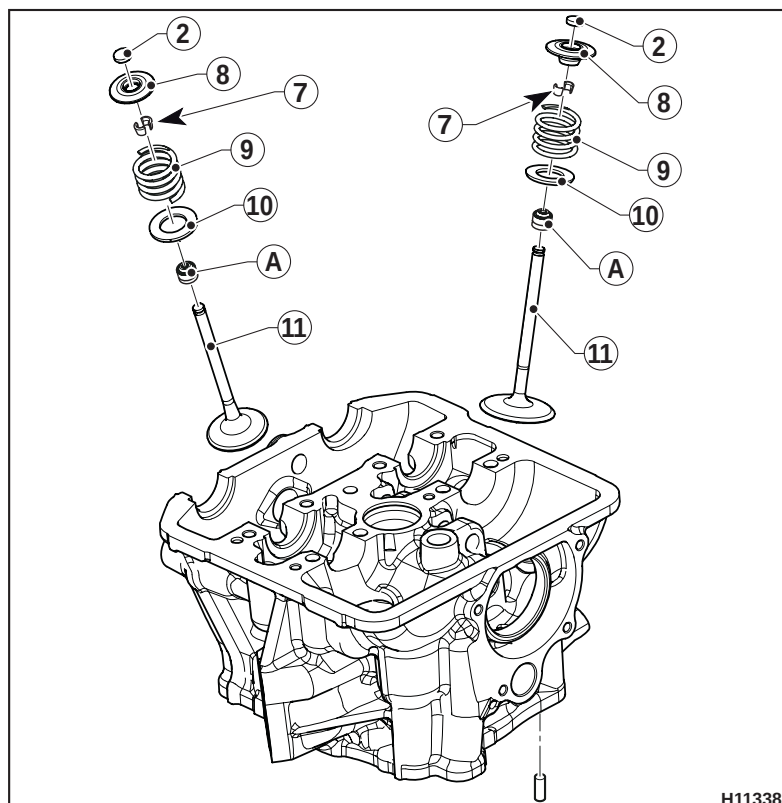
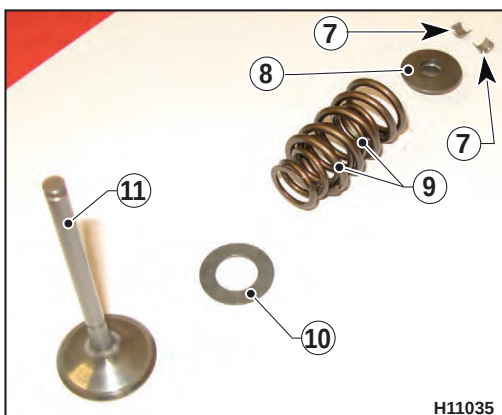
- Use a valve spring compressor to compress the valve springs. Be careful not to damage the mating surfaces that contact the gasket or those of the combustion chamber. Make sure the valve spring compressor is aligned straight on the spring, or you might bend the valve stem. Do not compress the springs too much or they will weaken.
- Mark all parts to ensure that they are refitted in their original positions on assembly. If the valve collets have caused burrs on the valve stems, remove them before removing the valves.
- Remove the seals (A) from the valve guides.
- Remember that seals must be replaced on assembly.
- Compress the springs using the valve spring compressor (6).
- Remove valve collets (7), spring retainer (8), springs (9), spring seat (10) and remove the valve (11) from the opposite end.

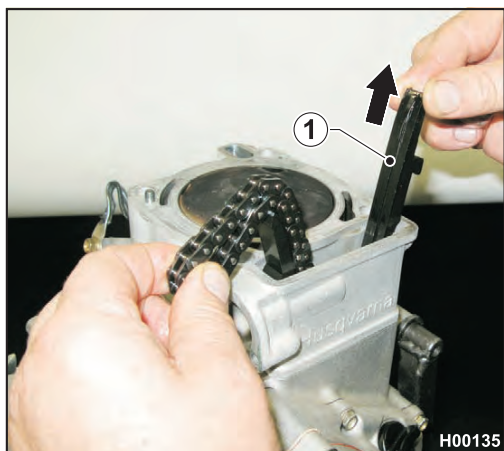
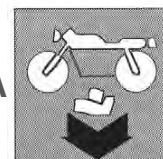


Intake and exhaust valves are different, be careful not to confuse them on assembly.



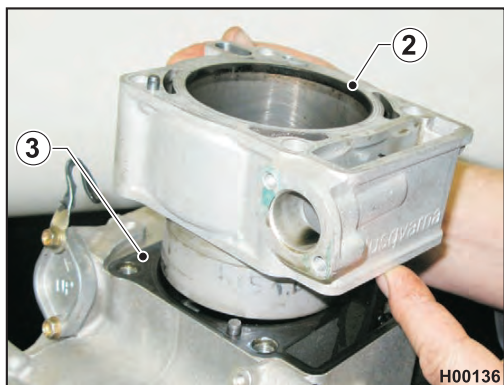
To unlock the valve, you do not need to uninstall the rocker arms.





Cylinder removal

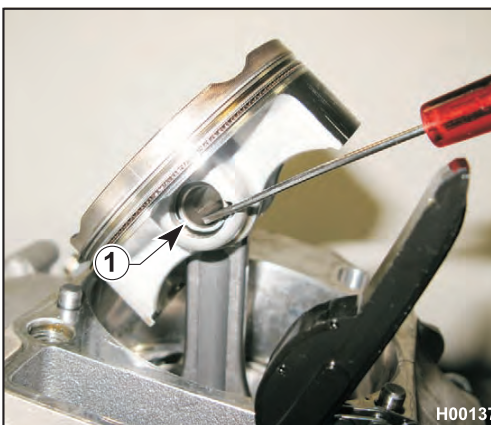
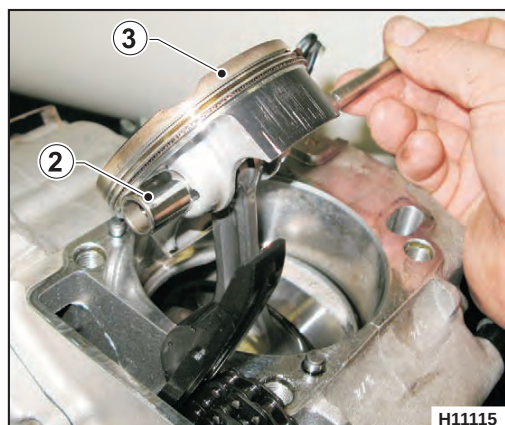
- Remove the front slider (1) of the timing chain pulling it upwards.

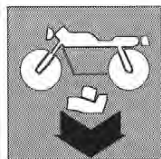


- Remove the cylinder (2) with its gasket (3).

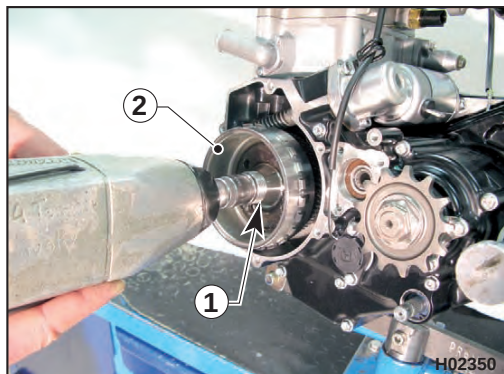
Piston removal

- Remove the piston pin retaining rings (1), slide out the piston pin (2) and remove the piston (3).



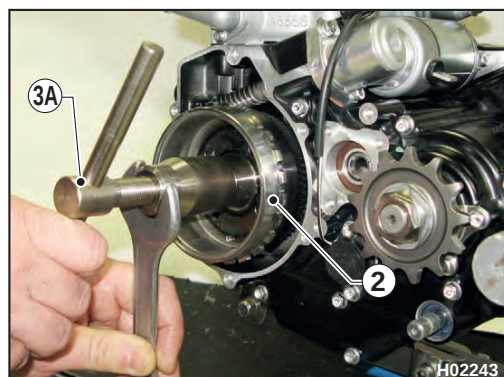


ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

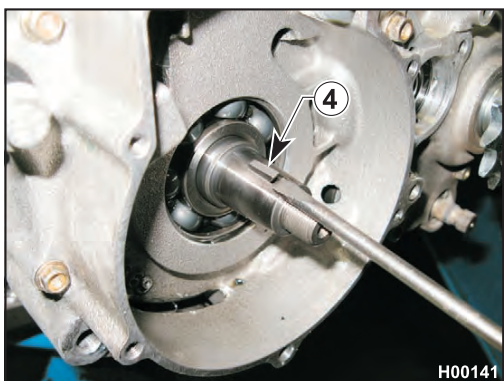


Flywheel removal

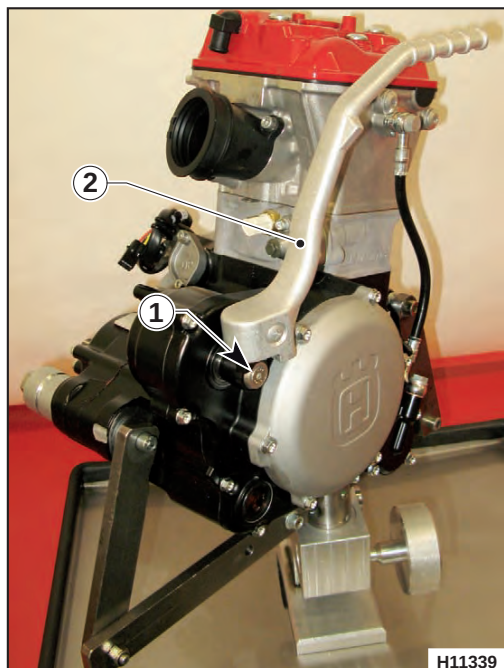
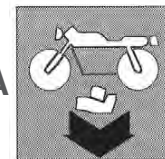
- Loosen the rotor (2) nut (1) (17 mm wrench).



- Remove the rotor (2) using the puller (3A) (part no. 8000 H2146)

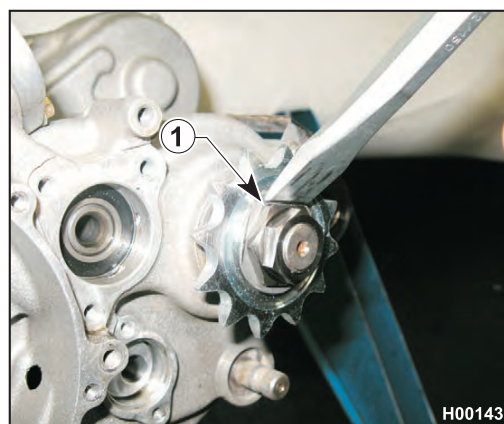


- Remove the key (4) from the crankshaft.



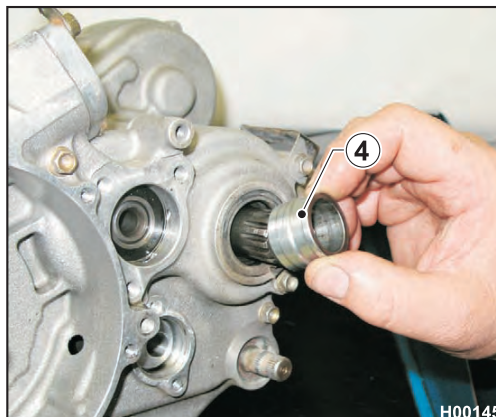
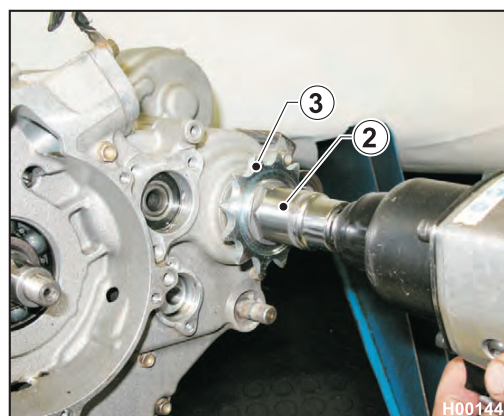
Kick start pedal removal

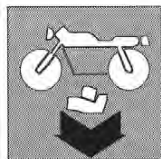
- Remove the pedal retaining bolt (1) (12 mm wrench), the washer and the pedal (2).



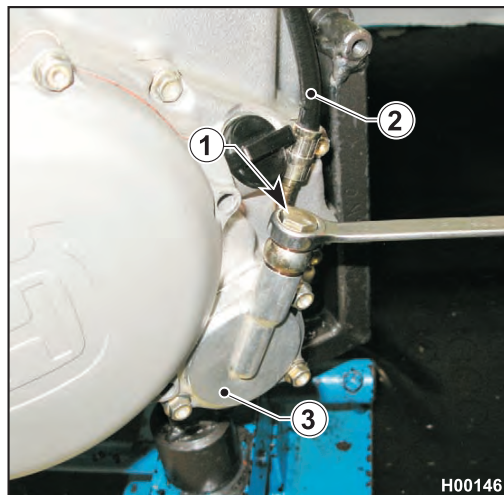
Sprocket removal

- Lift the tab of the lock washer (1) using a chisel.



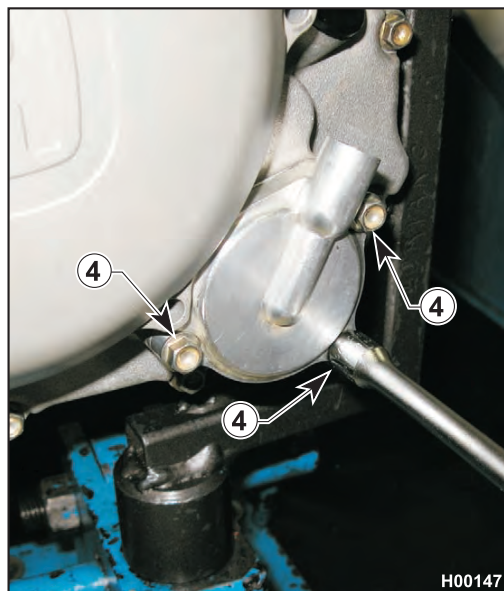


ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

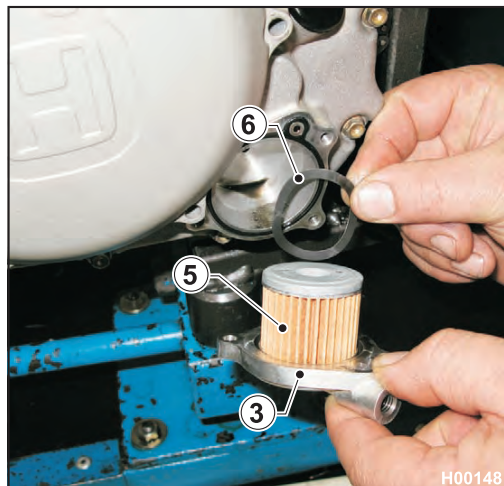


Oil filter removal

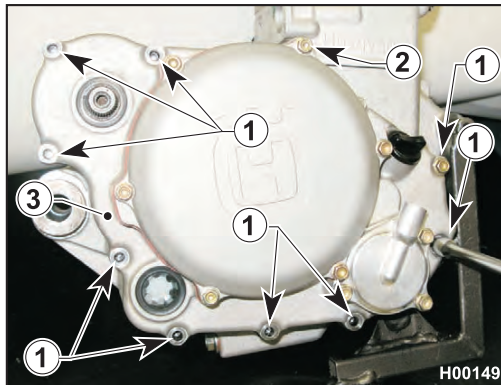
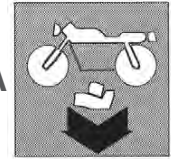
- Loosen the drilled nut (1) and disconnect the hose (2) from the oil pump cover (3).



- Loosen the three screws (4) using an 8 mm wrench.

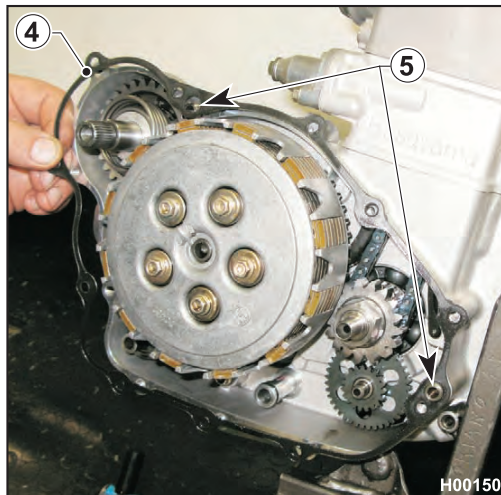


- Remove the cover (3) together with its filter (5) and Belleville washer (6).

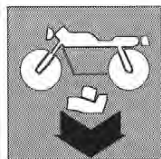


Clutch cover removal

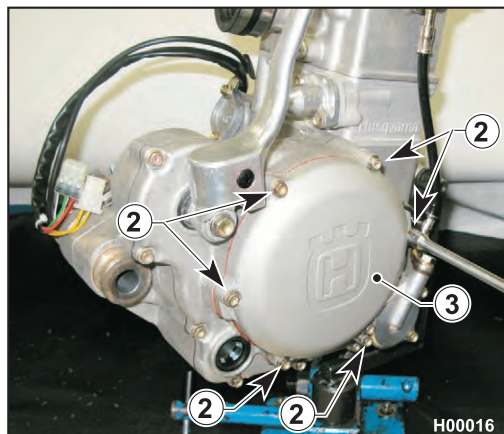
- Remove the nine screws (1) and the screw (2) securing the cover (3) (8 mm wrench) and remove the cover (3).



- Remove the gasket (4) and the bushings (5).

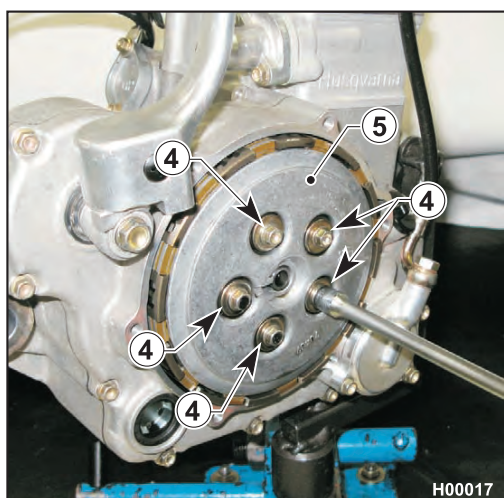


ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

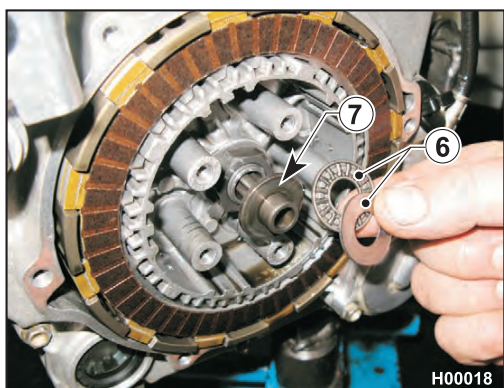


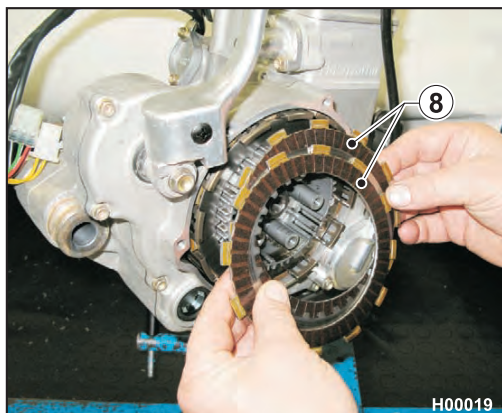
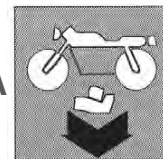
Clutch disassembly

- Remove the six retaining screws (2) and the clutch cover (3).

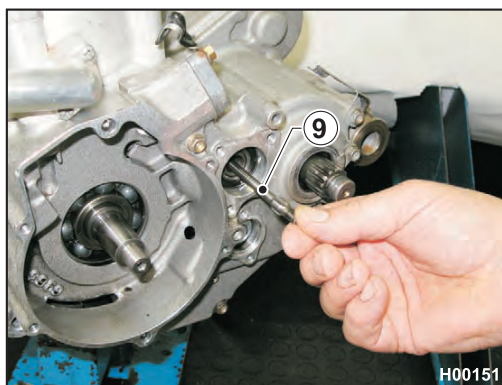


- Using an 8 mm wrench, unscrew the six screws (4) securing the clutch springs. Remove springs, pressure plate (5) with bearing (6) and clutch actuator plate (7).

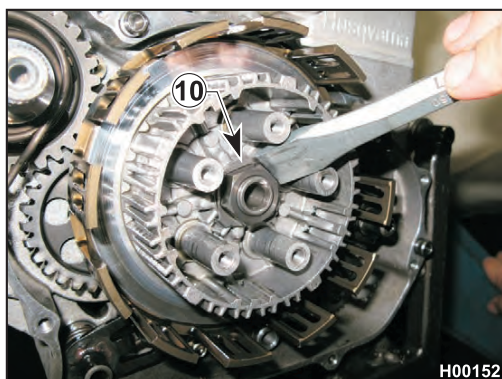




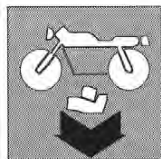
- Remove the plates (8), lubricate the new plates with engine oil and install them (always start with a friction plate).



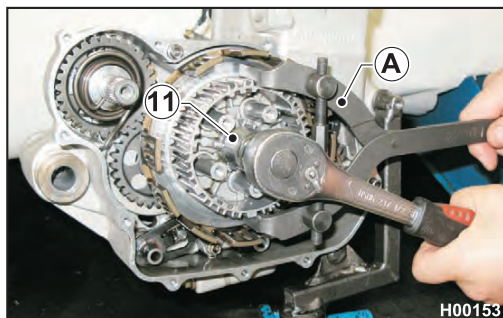
Remove the clutch pushrod (9) from the opposite side of the engine.



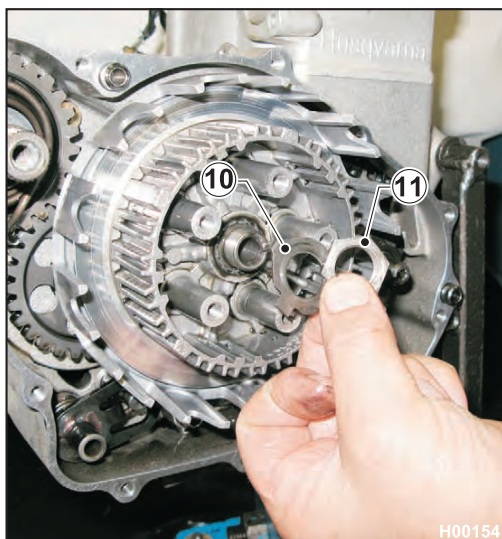
Straighten the tab of the lock washer (10).



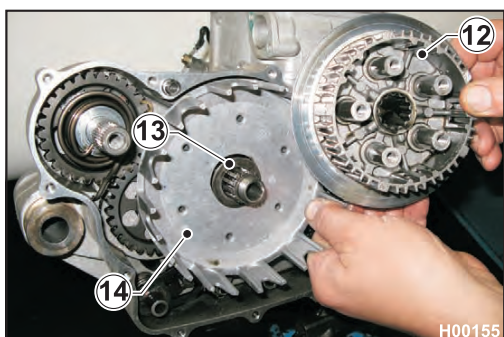
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



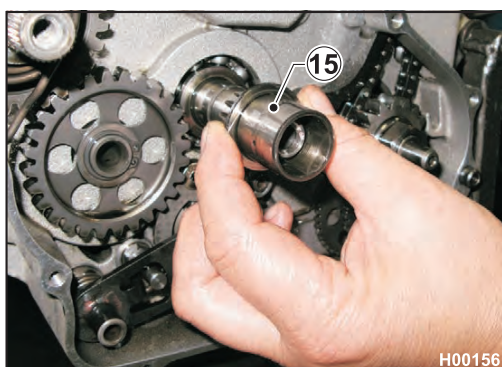
- Remove the nut (11) (22 mm wrench) using the clutch removal tool (A) (part no. 8000 79015).



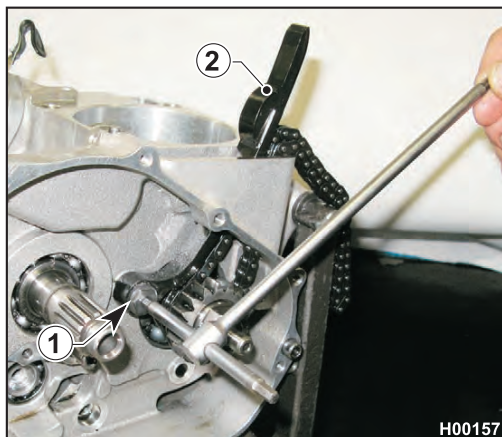
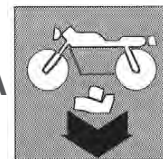
- Remove the washer (10).



- Remove hub (12), washer (13) and clutch housing (14).

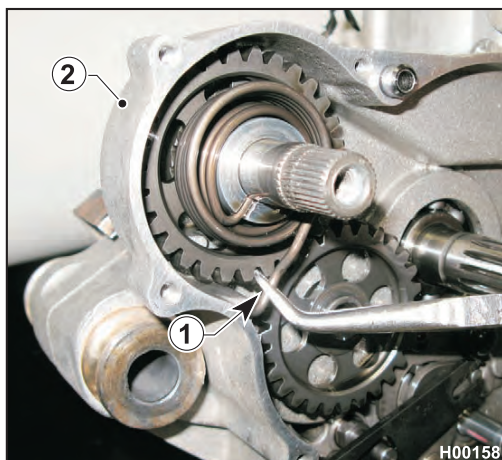


- Remove the bushing (15).



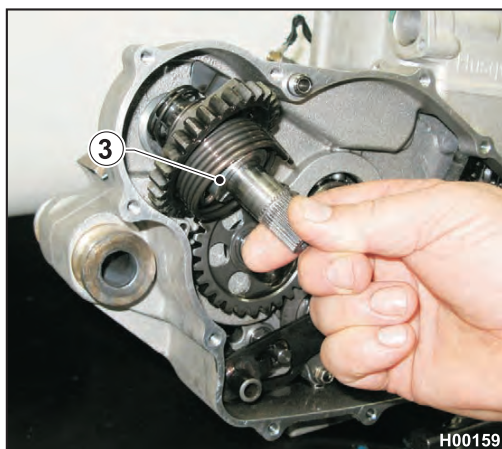
Slider removal

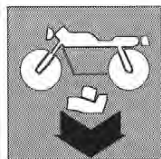
- Use a 5 mm Allen wrench to loosen the screw (1) and remove the slider (2).



Kick start disassembly

- Release the spring (1) from the casing (2) and remove the complete shaft assembly (3). Be careful not to lose the washer (11) located on the crankcase.



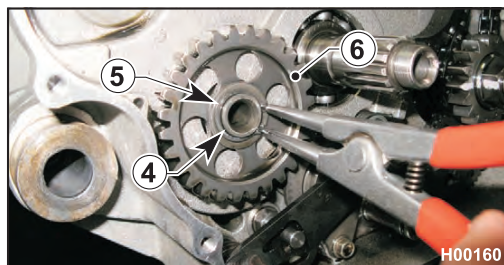


ENGINE DISASSEMBLY

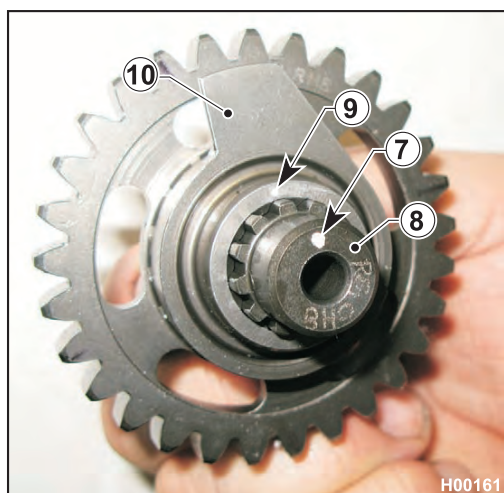
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA

TC 250R 2013 - TC 250R 2013 I.E. USA

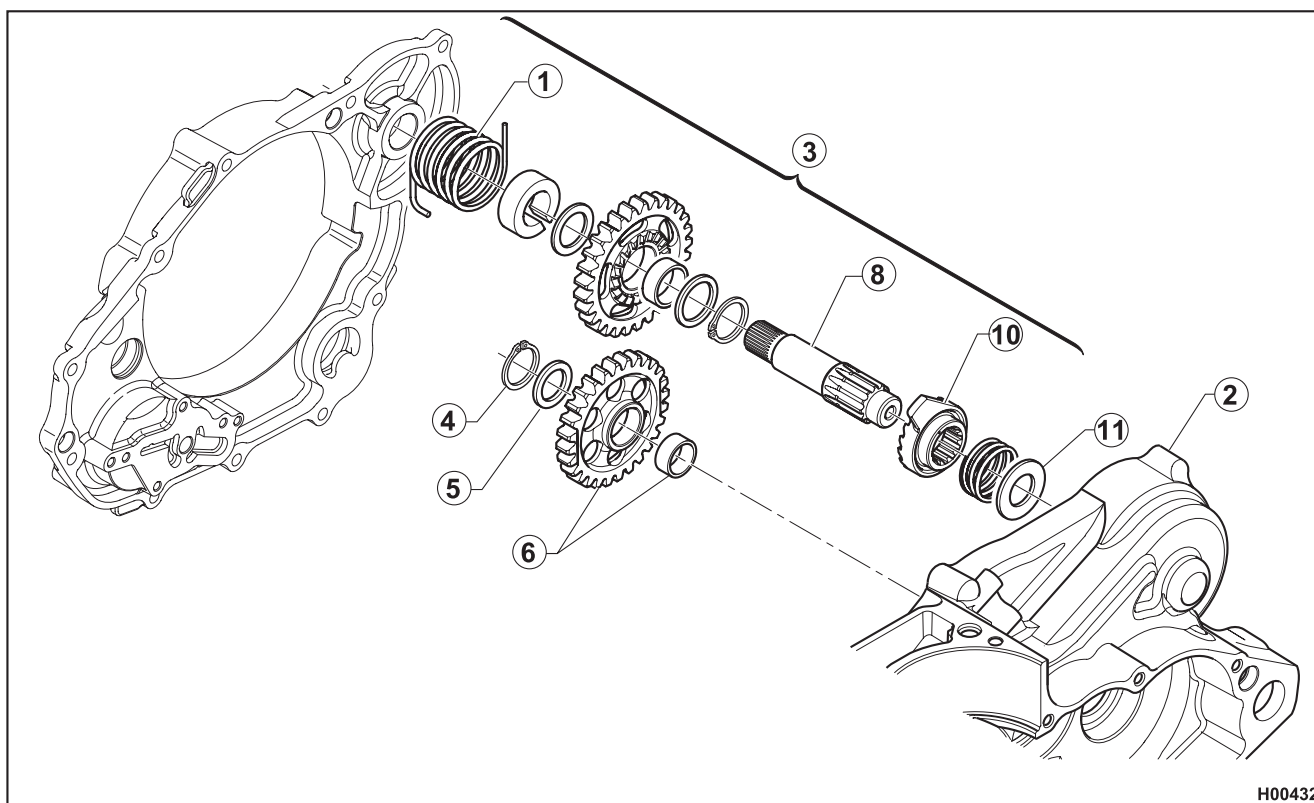
TXC 250R - 310R 2013 I.E. USA

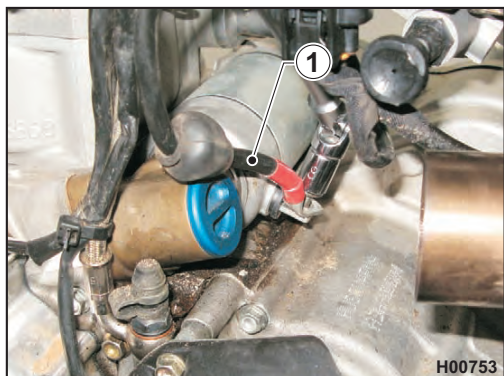
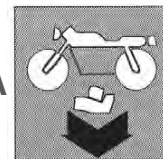


- Remove the snap ring (4), the washer (5) and the timing drive gear (6).



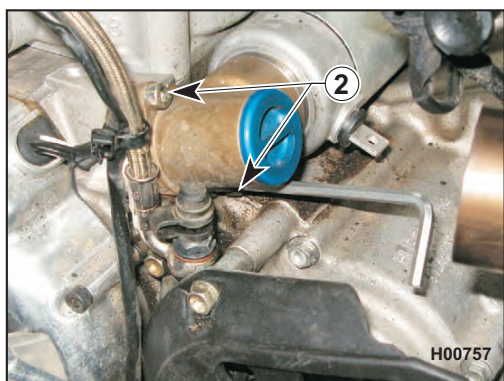
- Disassemble the shaft as shown in the diagram. On assembly, make sure that the dot (7) on shaft end (8) and the dot (9) on the ratchet (10) are aligned.



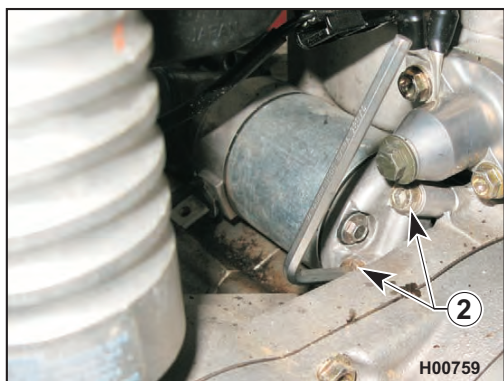


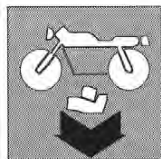
Starter motor removal (TE-TXC)

- Remove the exhaust pipe as described in the relevant paragraph.
- Disconnect the positive power supply cable (1) loosening the hexagonal-head screw (8 mm wrench).

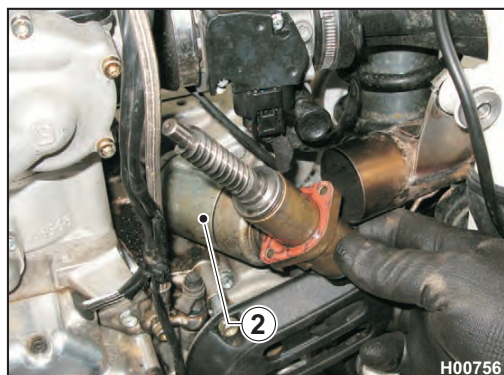


- Unscrew the four screws (2) using a 4 mm Allen wrench.

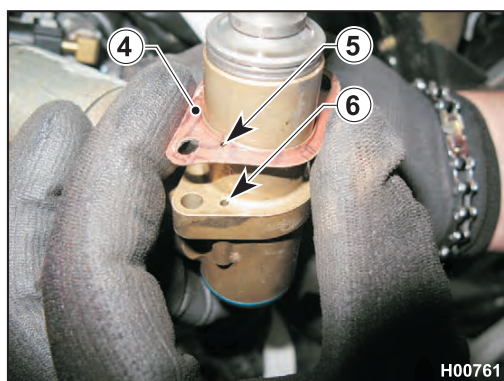
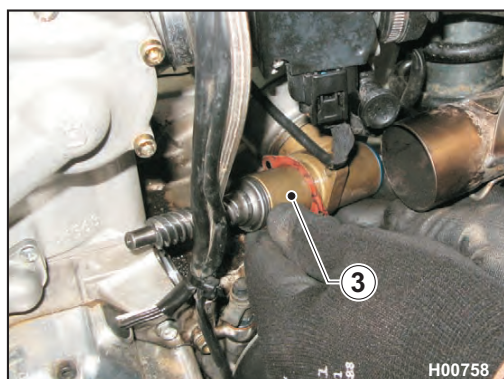




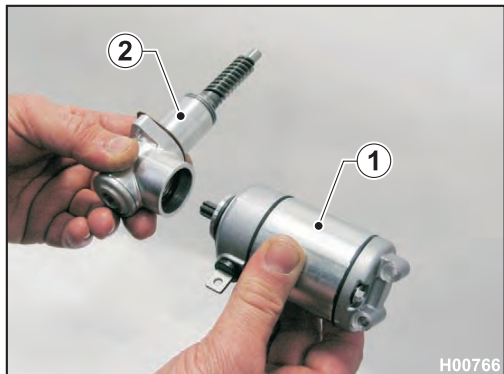
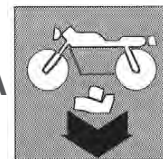
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



- Slide the starter motor (3) towards the rear end of the motorcycle to remove it.



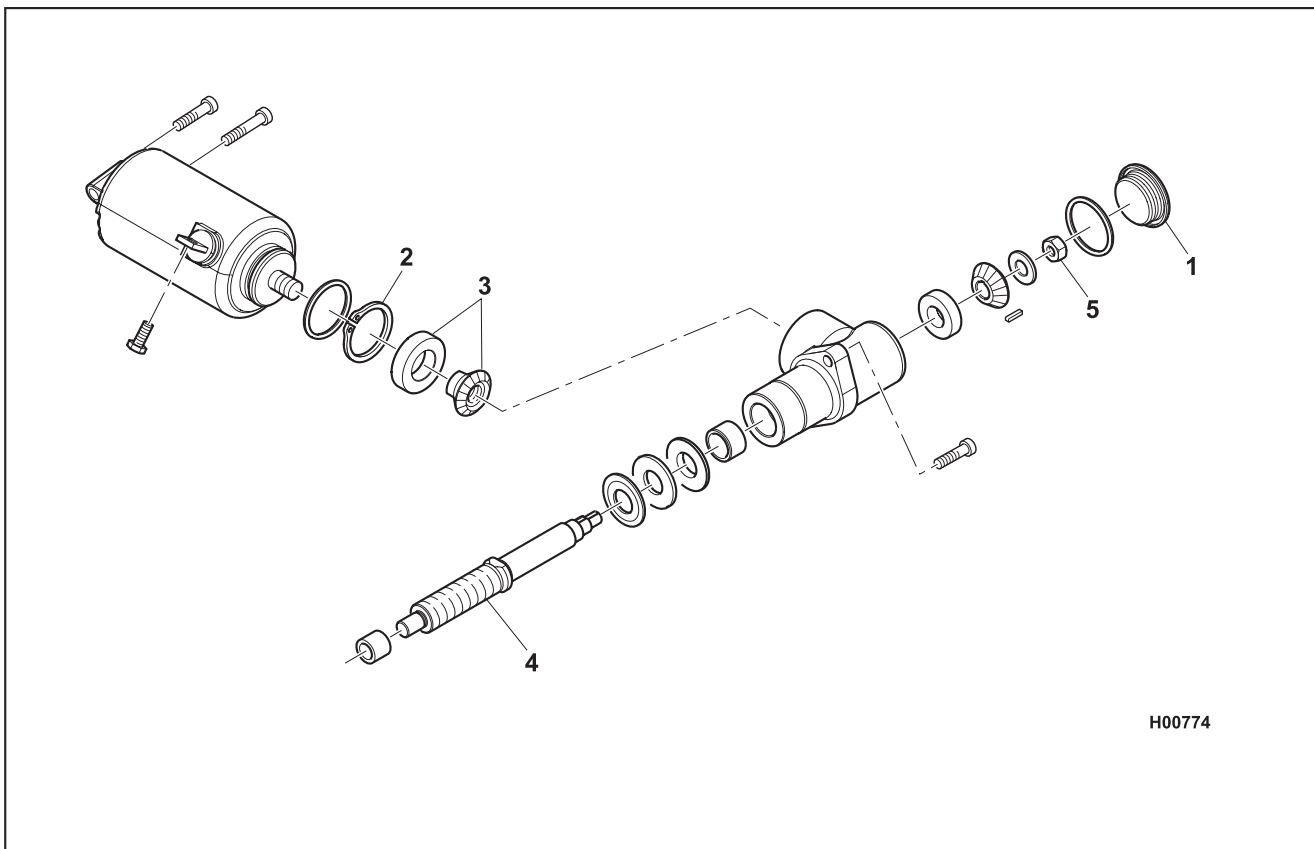
Upon assembly, check the gasket (4) for damage and replace it if needed. Make sure to position it correctly with the gasket hole (5) matching the hole (6) in the starter motor flange.

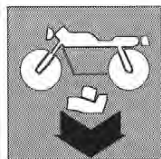


Starter motor disassembly (TE-TXC)

- Separate the starter motor (1) from the starter drive (2).

Starter drive disassembly (TE-TXC)

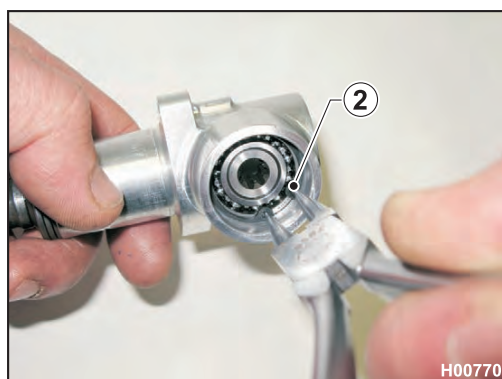




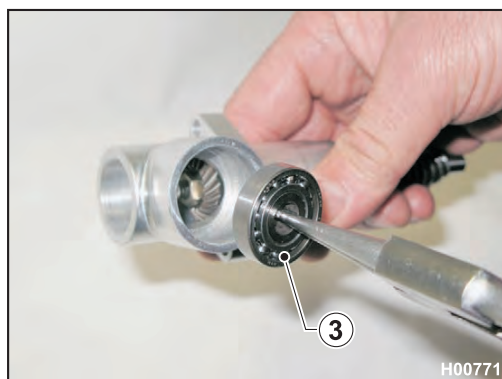
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

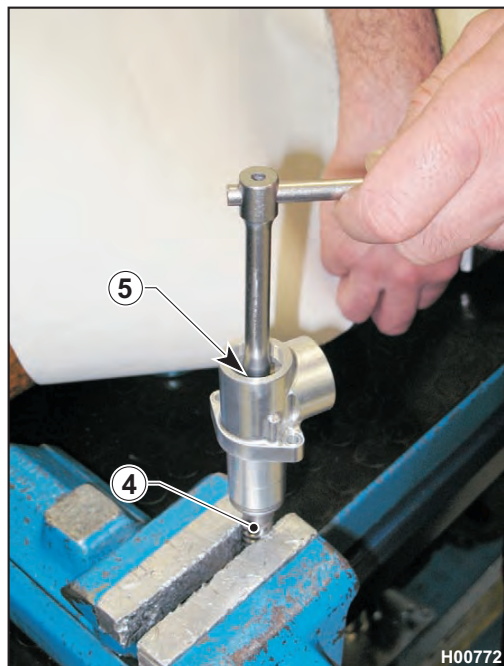
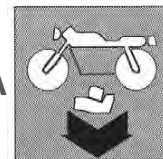


- Remove flywheel and starter motor as outlined in the relevant paragraph.
- Disassemble the starter motor as outlined in the relevant paragraph.
- Remove the cap (1) using a 10 mm Allen wrench.



- Remove the circlip (2) and the bearing (3) with the bevel gear.

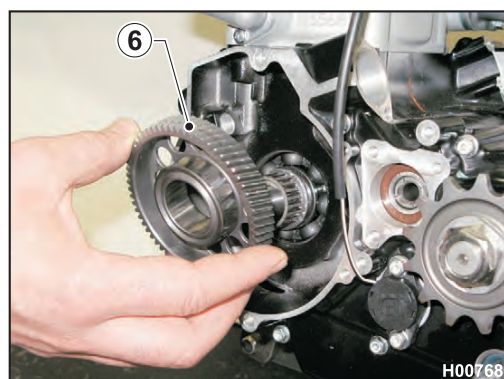
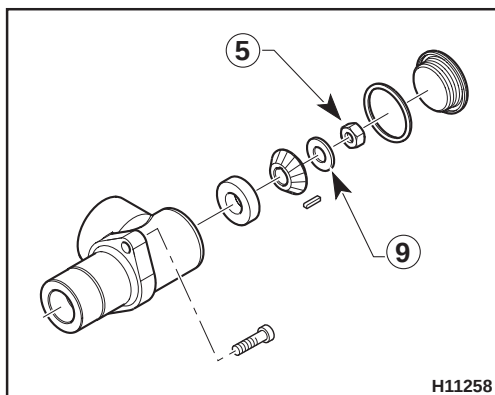




- Place the wormshaft (4) assembly in a vice with aluminium jaws, loosen the nut (5) using a 10 mm T-wrench and slide out the wormshaft (4).



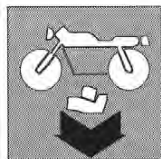
Upon reassembly of the locking nut (5), fit the washer (9) in the right position and tighten the nut (5) to a torque of 8 Nm - 0.8 Kgm - 5.90 ft-lb + Loctite 270.



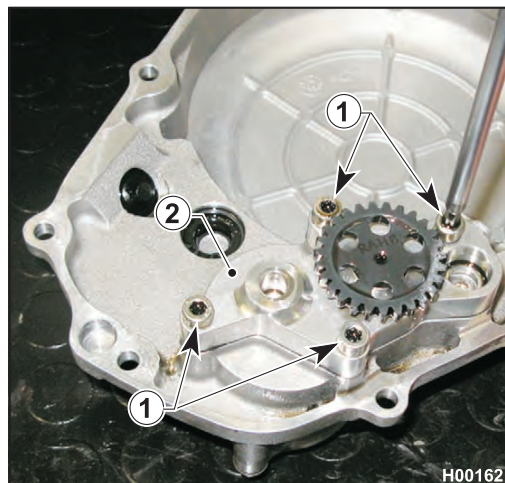
- Remove the freewheel (6).



- Remove the needle roller bearing (7) and the thrust ring (8).

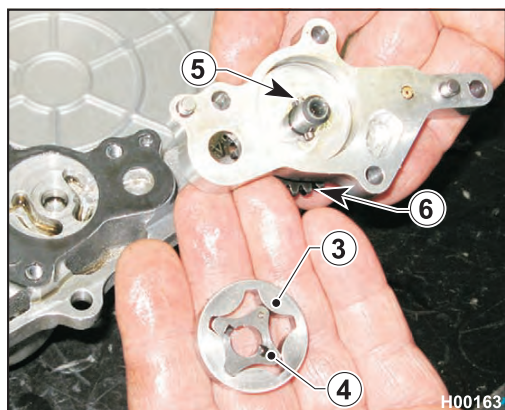


ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

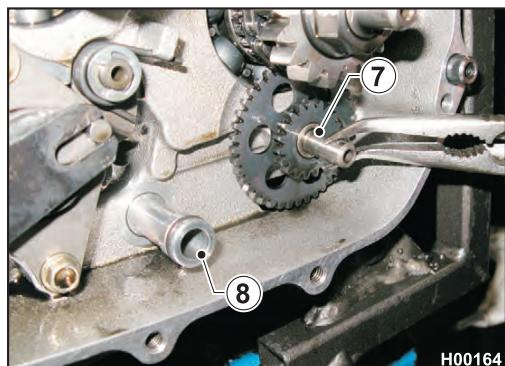


Oil pump disassembly

- Loosen the screws (1) using a 4 mm Allen wrench and remove pump body (2) and gasket.



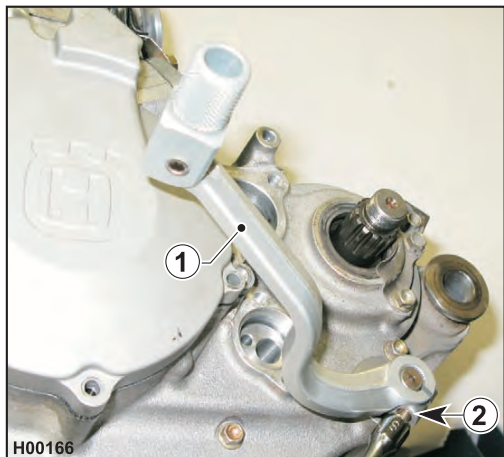
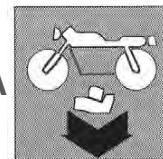
- Remove the pump rotors (3) and (4) and extract the drive pin (5) to release the gear (6).



- Remove drive gear (7) and oil suction stub (8).



Make sure to align the rotor dots (9) on assembly.

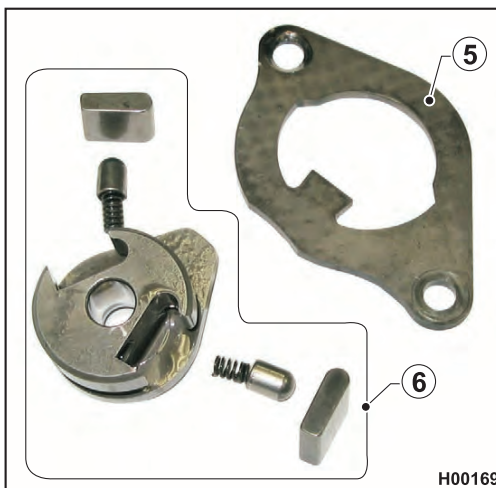
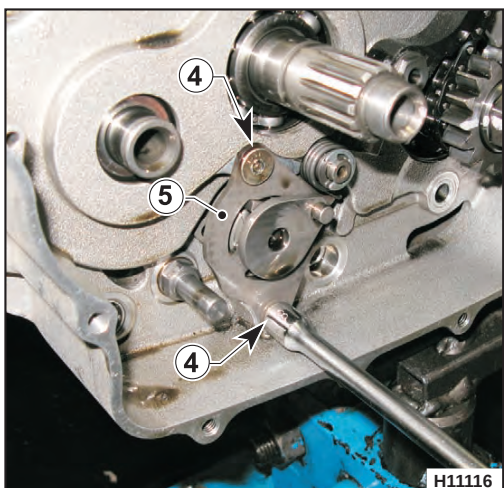


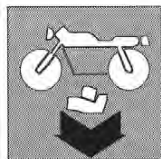
Gear shift pedal and selector assembly removal

- To facilitate assembly, mark the position of the gear shift pedal (1) on the shaft. Remove the retaining screw (2) of the gear shift pedal (1) (8 mm wrench) and slide the pedal from the selector shaft.

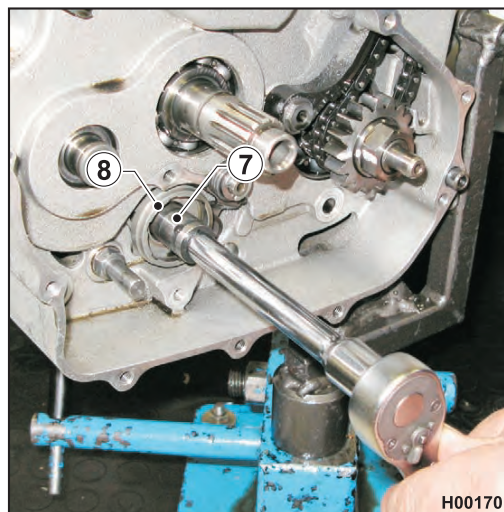


- Remove the selector shaft (3) from the right-hand side.

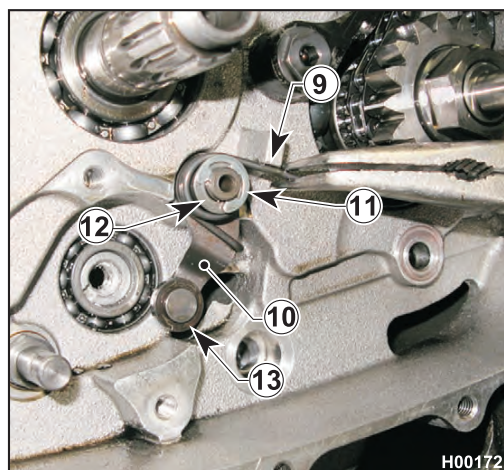
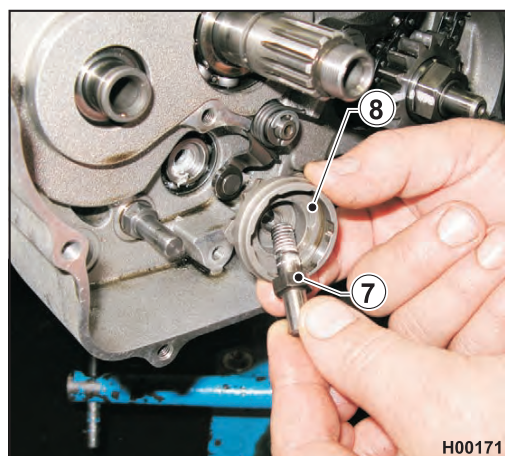




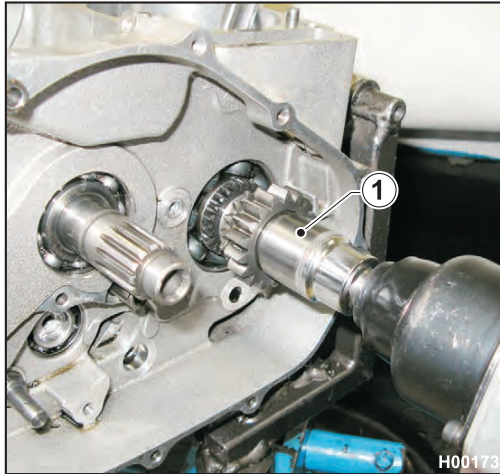
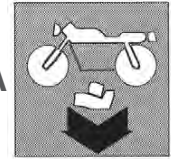
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



- Remove the bolt (7) of the selector drum (8) (12 mm wrench).

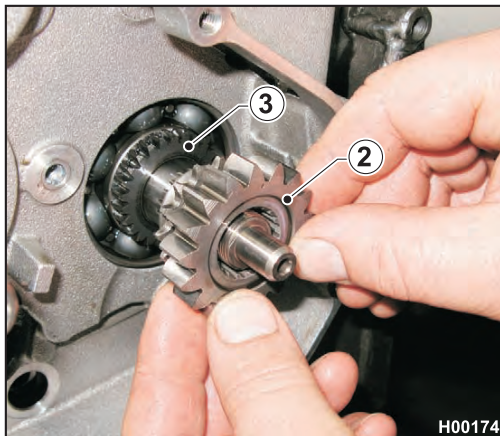


- Release the ratchet (10) spring (9) and remove retaining ring (11), washer (12) and ratchet (10).
Be careful not to lose the roller (13).

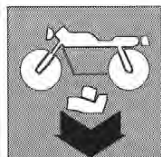


Primary drive gear removal

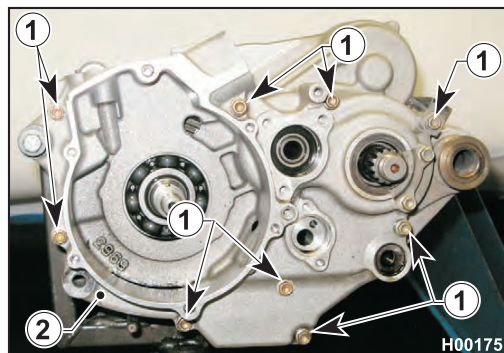
- Loosen the central nut (1) using a 22 mm wrench.



- Remove primary gear (2) and water pump drive gear (3).

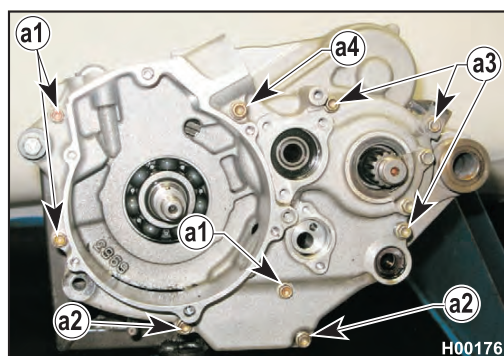


ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Crankcase disassembly

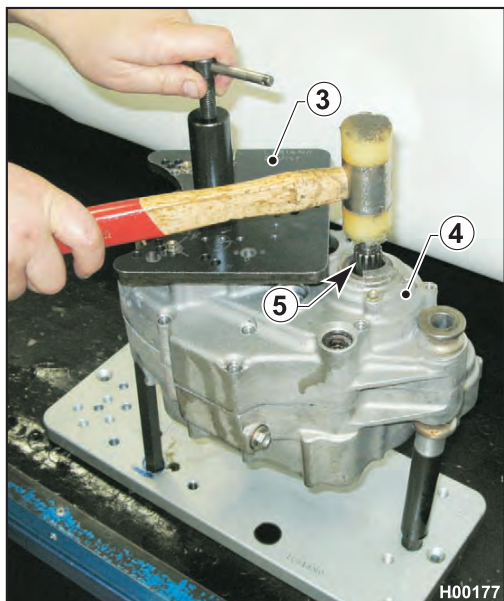
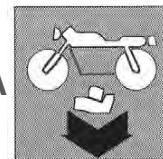
- Remove the nine screws (1) from the left crankcase (2) (8 mm wrench).



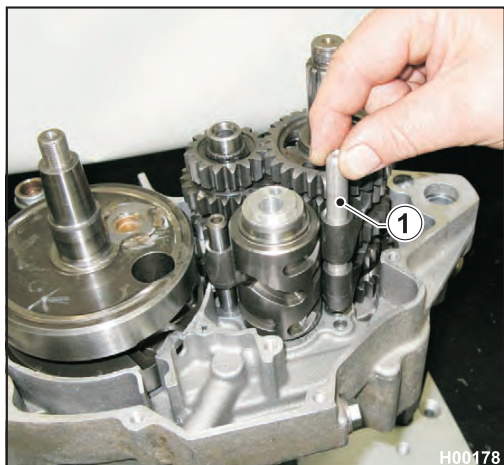
Important: the screws (1) are not all the same length. Refer to figure "A" on assembly to ensure correct installation.

FIG. "A"

a1= 6x60 mm
a2= 6x55 mm
a3= 6x70 mm
a4= 6x90 mm

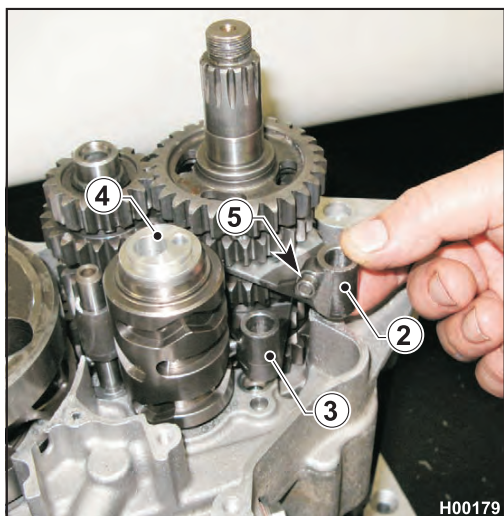


- Install the crankcase puller (3) (part no. 8000 A7015) using the flywheel cover holes and remove the left crankcase half (4).
- Tap the output shaft (5) with a rubber hammer at intervals during removal to keep the crankcase half from getting stuck.

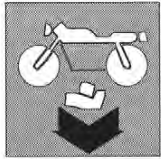


Gearbox disassembly

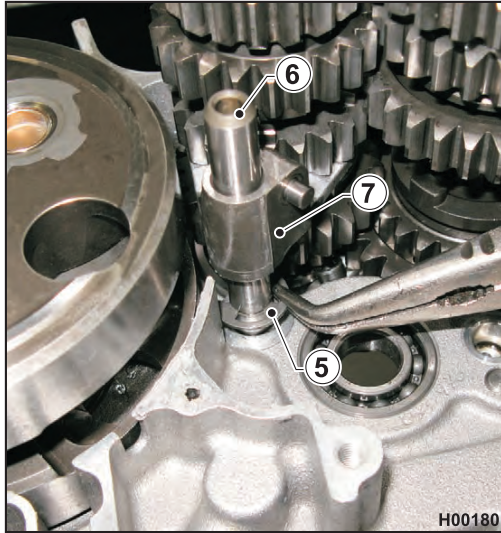
- Remove the shaft (1) of the output shaft shifter forks.



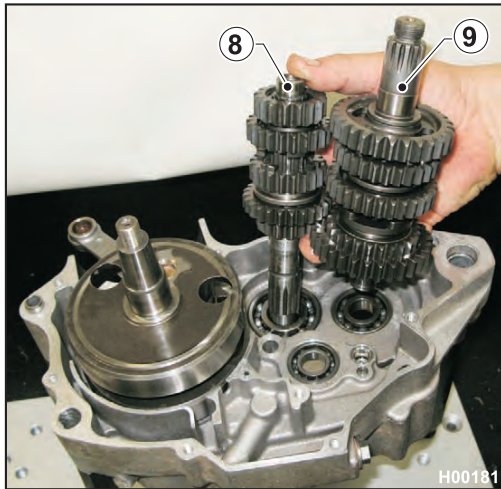
- Release the shifter forks (2) and (3) from the drum (4) and remove the forks making sure to collect the drive bushings (5). Remove the drum (4).



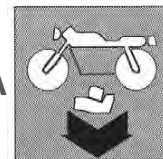
ENGINE DISASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



- Remove the retaining ring (5) and then the shaft (6) of the input shaft shifter fork (7).



- Remove the input shaft (8) and output shaft (9) being careful not to lose any shims (if fitted).

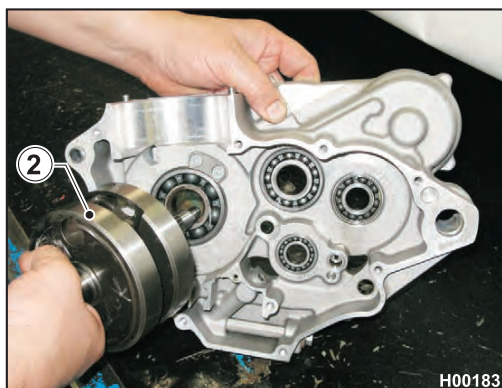


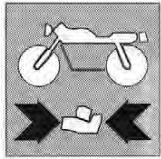
Crankshaft disassembly

- Slide the puller (1) (part no. 8000 A7015) over the right end of the crankshaft.
- Secure the puller to the crankcase half and remove the crankshaft (2) from the opposite side.



In case crankshaft and/or connecting rod are worn it is necessary to replace the whole crankshaft assembly and the connecting rod.





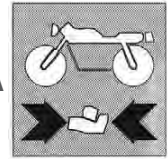
ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



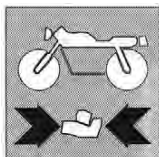
Section **G**



ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Cleaning parts	G.3
Clearances	G.3
Cylinder head	G.3
Valve seat refacing	G.4
Valve	G.5
Valve spring	G.5
Rocker arm check	G.6
Valve installation	G.7
Valve leak check	G.8
Camshaft	G.9
Timing chain and gears	G.9
Timing chain tensioners	G.9
Cylinder	G.10
Piston	G.10
Cylinder to piston clearance	G.11
Piston diameter	G.11
Piston pin	G.11
Piston rings	G.12
Piston ring to cylinder clearance	G.12
Piston ring to cylinder clearance	G.12
Piston ring to groove clearance	G.13
Piston pin to small end clearance	G.13
Big end side clearance	G.13
Big end axial clearance	G.13
Crankshaft	G.14
Crankshaft straightness	G.14
Crankshaft	G.14
Clutch	G.15
Friction plate to clutch housing clearance	G.16
Clutch spring	G.16
Oil pump	G.18
Shifter forks and gears	G.19
Selector drum	G.19
Drive bushing roundness	G.19



ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Cleaning parts

All parts must be cleaned with gasoline and dried with compressed air.



Flammable vapours develop during this procedure and metal filings blown by compressed air may get into your eyes. Perform this procedure away from open flames or sources of ignition and wear an eye protection.

Clearances

To ensure the best operating conditions and maximum performance, all clearances must be within the specified tolerance. A tight fit will lead to seizure as moving parts heat up, whereas a loose fit will cause annoying vibration resulting in early wear of moving parts.

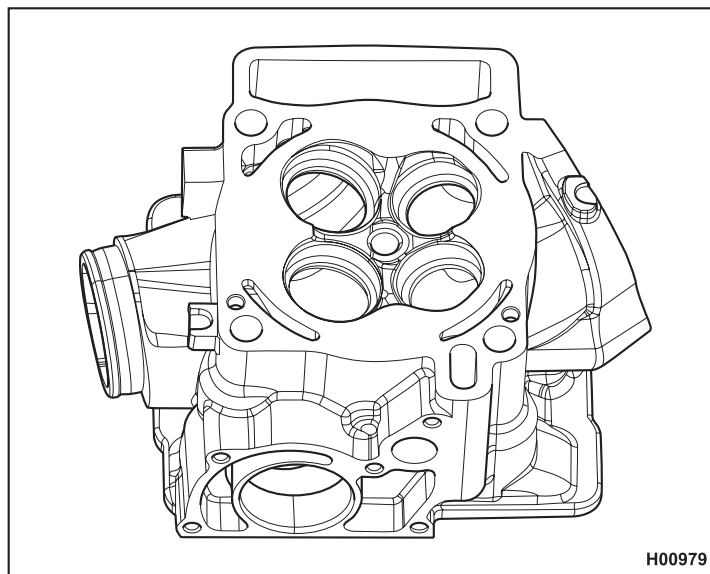
Cylinder head

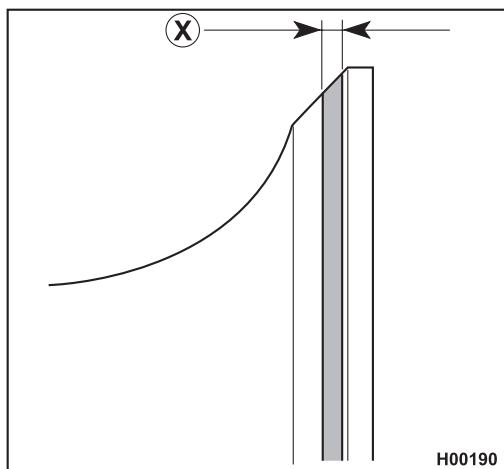
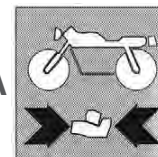
Remove fouling deposits from the combustion chamber using a rounded scraper.



Do not use sharp tools or you might damage valve seats and spark plug thread.

Check the machined surface of the cylinder head for warpage using a straight-edge and a feeler gauge at the positions shown in the figure. If warpage exceeds the service limit at any one point, grind the cylinder mating surface. Head warpage: service limit 0.05 mm (0.0019 in.).





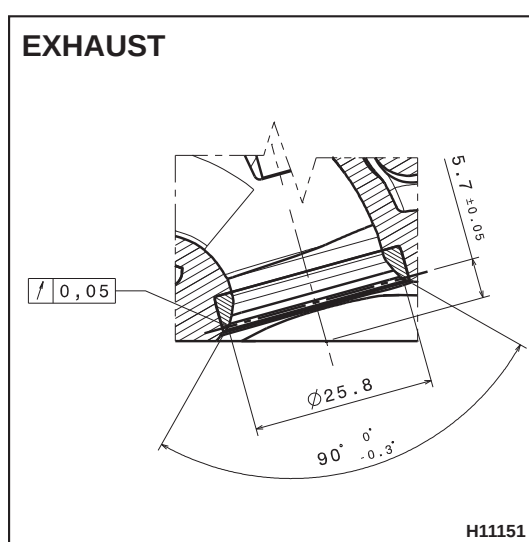
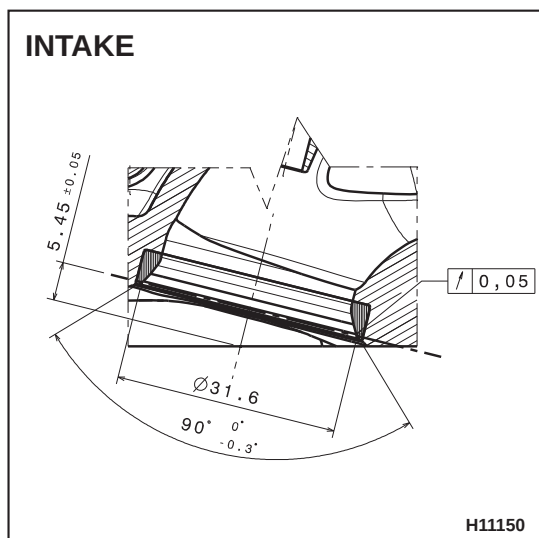
Valve seat refacing

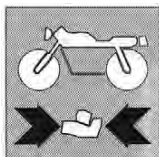
Clean off any fouling deposits from the valve. Apply Prussian Blue to the valve and rotate it in its seat using a rubber hose or other similar tool. Remove the valve and measure the width "X" of the seating face. If width is greater than 1.2 mm (0.0472 in.), the seat needs to be refaced.

The standard width (measured as shown) of the seating face of the valve is:
 $x = 0.6\text{--}0.7\text{ mm}$ (0.0236 - 0.0275 in.) for INTAKE valves
 $x = 0.7\text{--}0.8\text{ mm}$ (0.0275 - 0.0314 in.) for EXHAUST valves

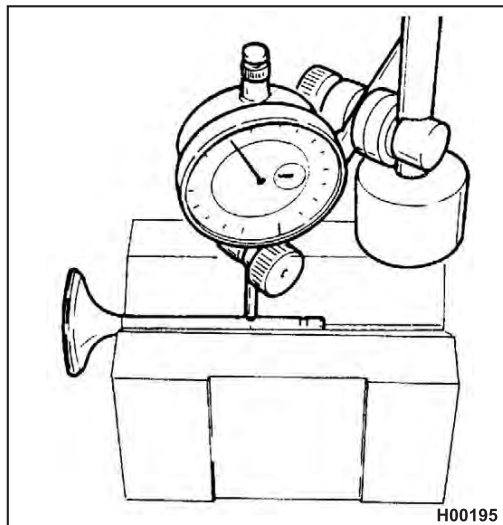


Valves cannot be ground and must be replaced if damaged.





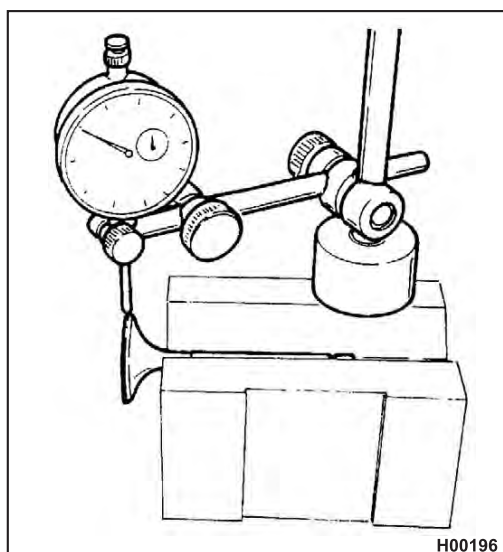
ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



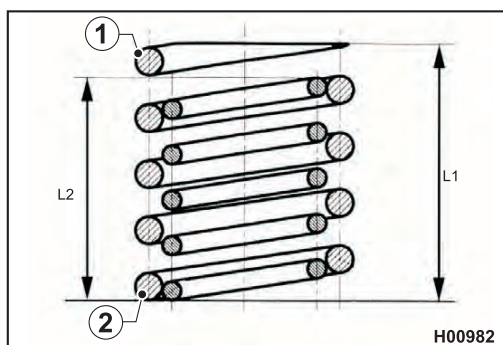
Valve

Inspect valve stem and valve seating face to make sure they are in good condition. There should be no signs of pitting, cracking, distortion or wear. Check for the following:

- Valve stem runout: place valve on a V block and measure runout with a dial gauge. (Service limit: 0.05 mm).



- Valve head out-of-round: place valve on a V block and check with a dial gauge at right angles to the head while turning the valve. (Service limit: 0.03 mm).



Valve spring

Check free length "L". Replace springs if they exceed the service limit.

Intake: Spring 1 - L1 = 25 mm

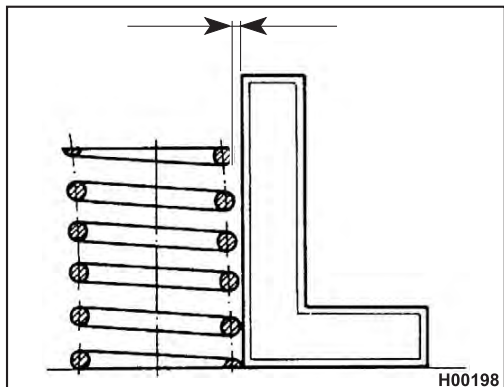
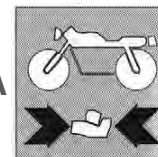
Spring 2 - L2 = 25 mm

Exhaust: Spring 1 - L2 = 25 mm

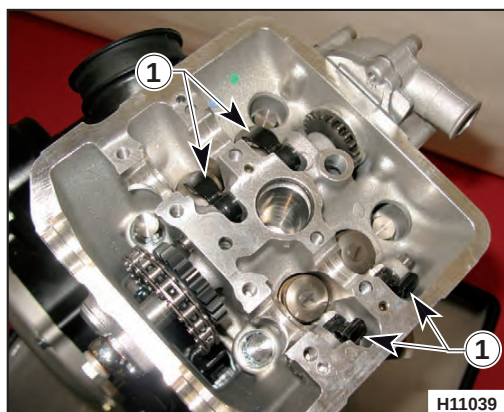
Spring 2 - L2 = 25 mm



Replace all valve springs whenever any one spring exceeds the service limit.

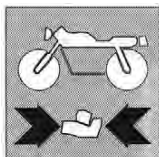


Check the valve springs for proper squareness.
 Maximum acceptable deviation is 1.5 mm on each side.



Rocker arm check

Make sure that the rocker arms (1) can oscillate freely.



ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



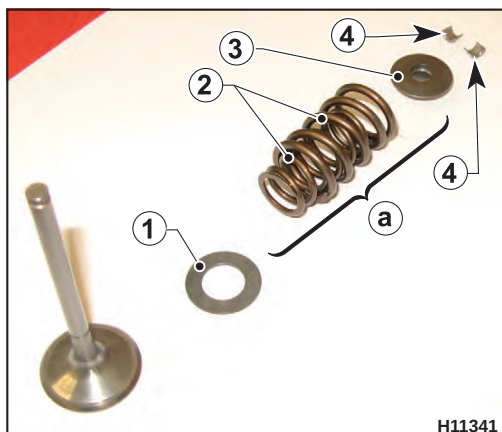
H11340

Valve installation

Smear valve guides and stems with oil before installation.
Install spring seat (1) and springs (2) - place spring (a) at head end - and finally the spring retainer (3).
Use tool to compress the valve springs and install the valve collets (4).



Do not compress the springs too much and avoid damage to the cylinder head.



H11341

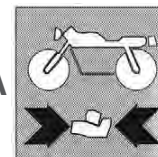


H00201

Tap valve stem lightly with a plastic hammer and an aluminium punch to help the valve collets become seated.

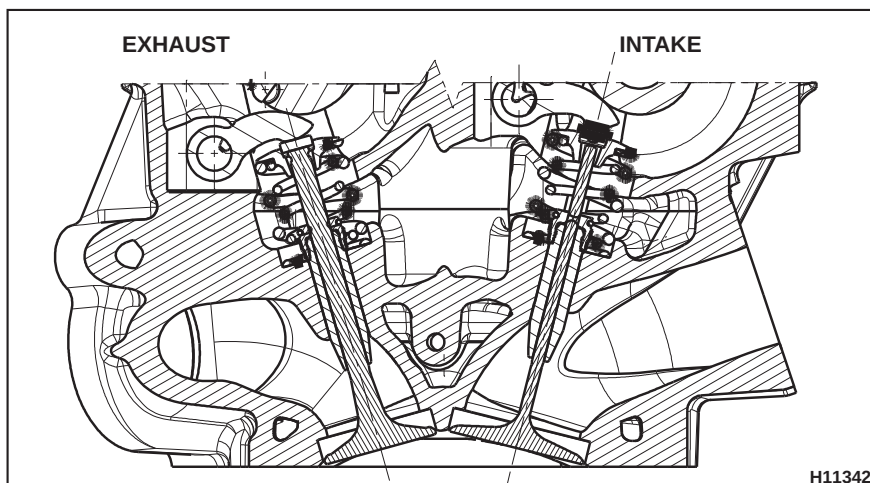


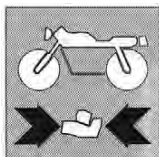
Tap the valve stem tip to avoid pushing the valve off centre.



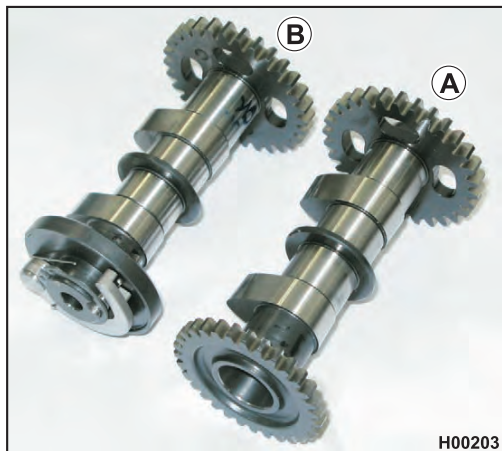
Valve leak check

Check the valves for proper sealing before assembling the cylinder head to the engine.



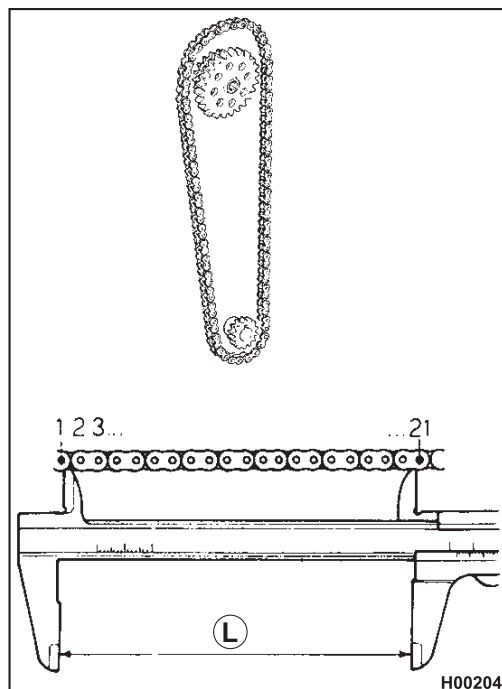


ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Camshaft

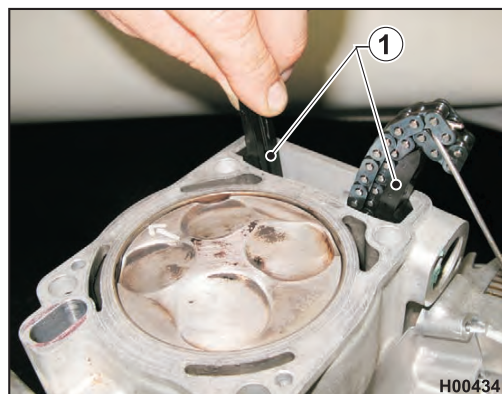
Check the contact faces of the lobes for streaks, scoring, dents and waviness. Clamp the camshaft between centres and check deviation using two dial gauges. Service limit: 0.1 mm. Check that the lobes are in pristine conditions, without signs of scoring or distortion.



Timing chain and gears

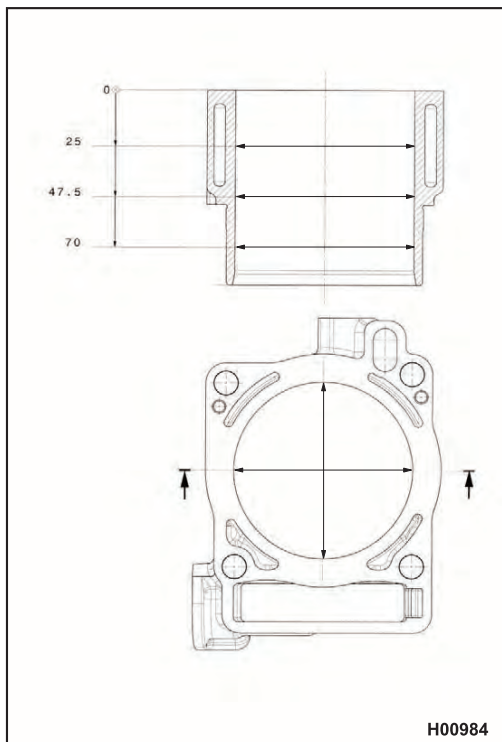
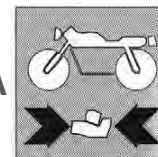
At each engine overhaul, check gear teeth and chain rollers for wear. If gear teeth are badly worn, change both gears and the chain. Hold the chain taut to take out any slack and measure across 20 links (21 pins). If any one gear or the chain is worn beyond the specified limit, replace both gears and the chain as a set.

STANDARD "L"	SERVICE LIMIT
140 mm (5.51 in)	142.5 mm (5.61 in)



Timing chain tensioners

Chain tensioners (1) must be replaced when the wear material is worn out.



Cylinder

Check the walls for dents or scuffing. Measure cylinder bore diameter at three different positions. Measure each diameter in two directions at right angles to each other to determine taper and out-of-round.

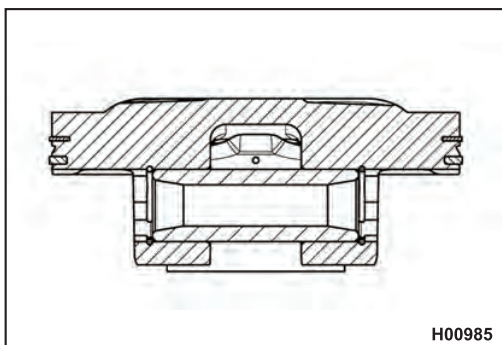
Max. taper: 0.05 mm.

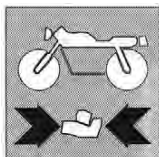
Max. out-of-round: 0.05 mm.

If cylinder is worn beyond these limits, replace both cylinder and piston. The liner undergoes a special hardening treatment and cannot be ground.

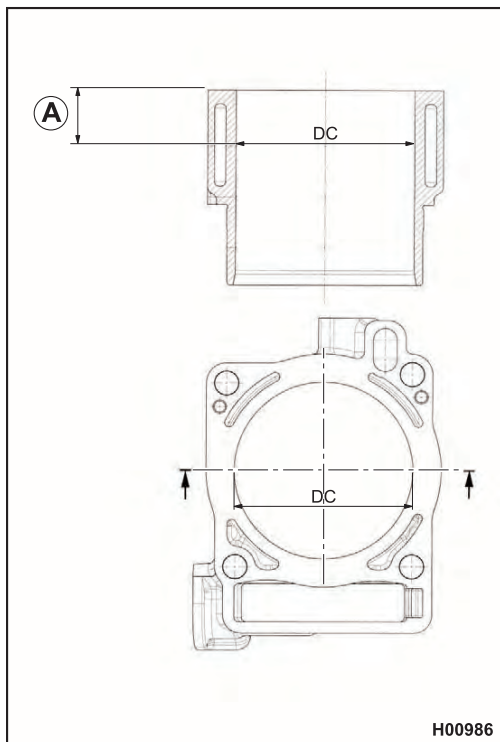
Piston

Clean off any carbon deposits from piston crown and grooves. Perform a careful visual inspection of the piston and check its dimensions. There should be no signs of forcing, scuffing, cracking or other damage.





ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Cylinder to piston clearance

Cylinder diameter

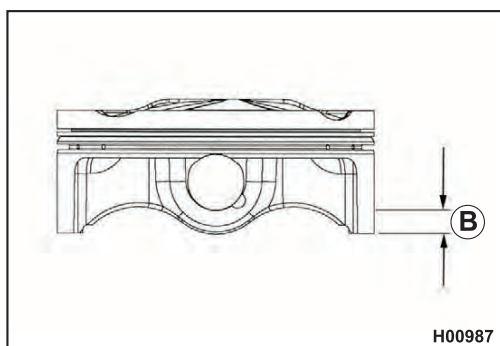
Measure inside diameter (Dc) with an internal bore micrometer 25 mm (0.9842 in.) below the edge (distance "A").

Piston diameter

Measure piston diameter (Dp) 7 mm (0.2755 in.) above skirt edge (distance "B").

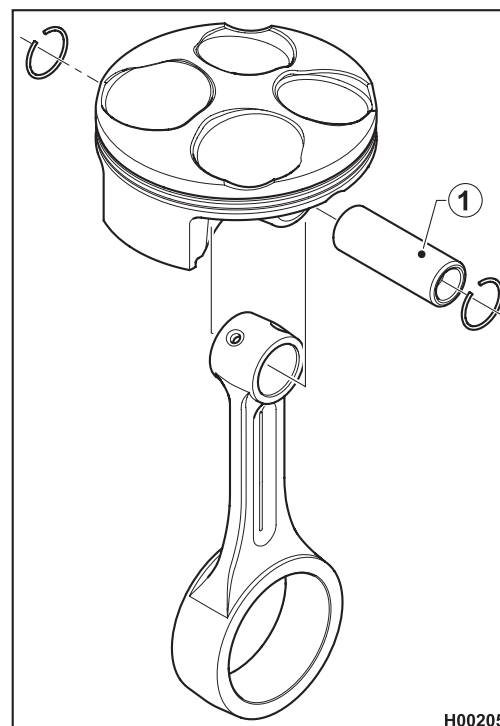
Clearance is calculated as follows = Dc-Dp.

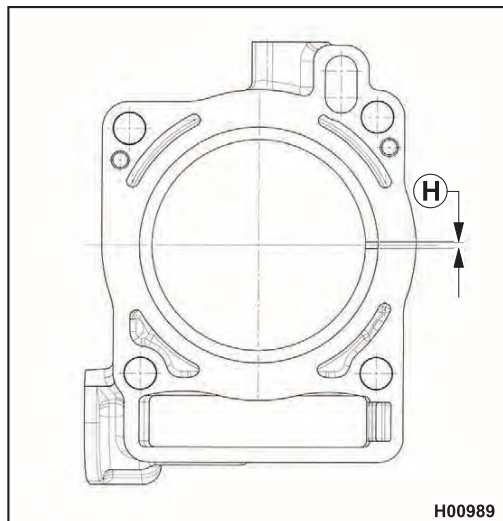
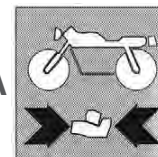
CLEARANCE (Dc-Dp)
0.035-0.065 mm (0.001379-0.002561 in.)



Piston pin

The piston pin (1) must be perfectly smooth, with no signs of scoring, dents or bluing due to overheating.



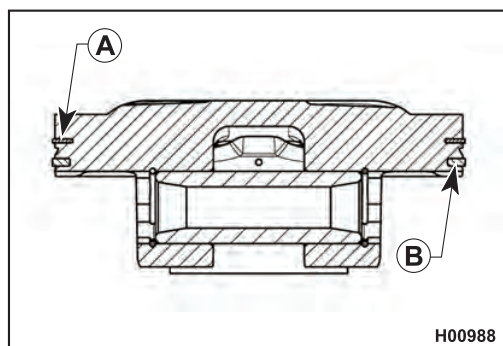


Piston rings

They should show no signs of forcing or scoring.
Replacement pistons come with piston rings and piston pin.

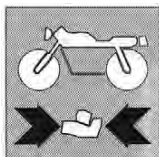
Piston ring to cylinder clearance

Insert the piston ring at the bottom of the bore (where minimum wear occurs) taking care to position it squarely and measure end gap.

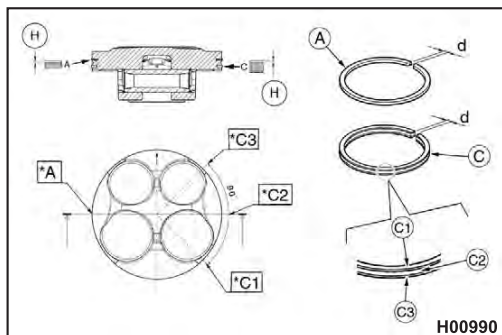


Piston ring to cylinder clearance

PISTON RING	MOUNTING CLEARANCE (H)
"A"	0.15 -0.30 mm (0.00591-0.01182 in.)
"B"	0.2-0.7 mm (0.00788-0.02758 in.)



ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



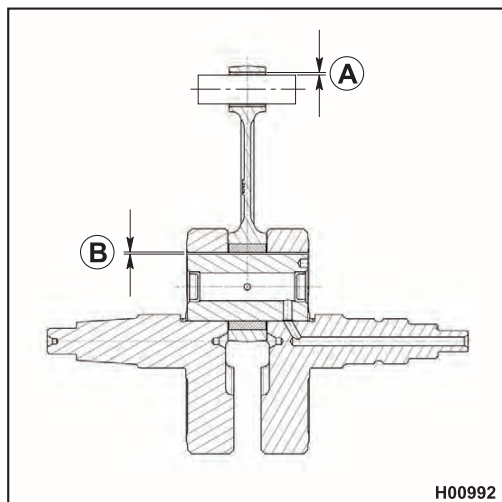
PISTON RING END GAP ALIGNMENT

*: end gap position "d"

Piston ring to groove clearance

Use a feeler gauge to measure the axial clearance (H) of piston rings. If the piston ring is marked on one side, that side must be facing up.

PISTON RING	MOUNTING CLEARANCE (H)
"A"	0.02-0.06 mm (0.00078-0.02362 in.)
"B"	0.01-0.18 mm (0.00039-0.00708 in.)



Piston pin to small end clearance (A):

0,019 ÷ 0,01 mm (0,00075 ÷ 0,00040 in.)

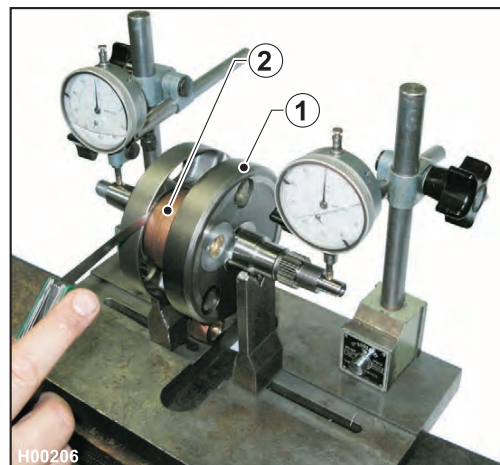
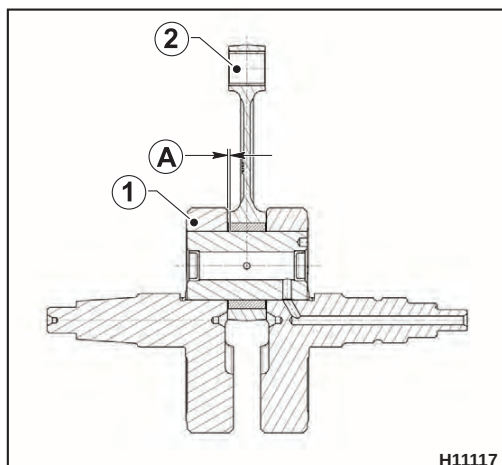
Big end side clearance (B):

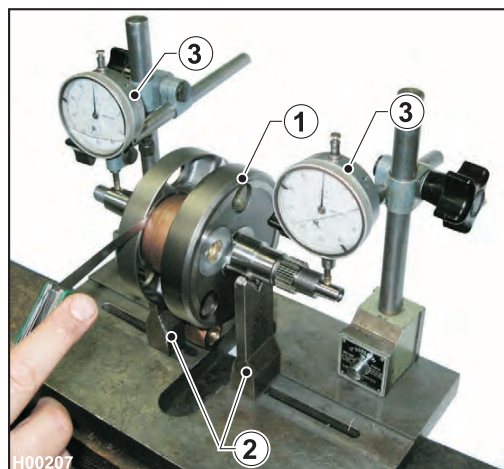
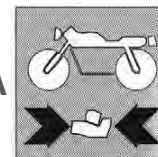
0,018 ÷ 0,030 mm (0,00071 ÷ 0,0012 in.)

Big end axial clearance

Measure axial clearance "A" between crankshaft (1) and connecting rod (2) using a feeler gauge. Compare measured clearance with the table below.

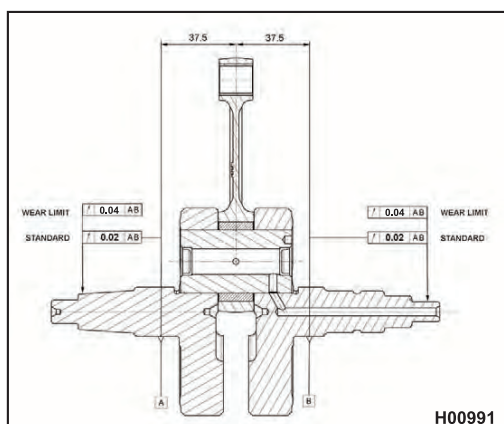
STANDARD
0.29-0.43 mm (0.00985-0.016942 in.)





Crankshaft

Main journals should show no scoring or scuffing. Threads, keyways and splines must be in good condition.



Crankshaft straightness

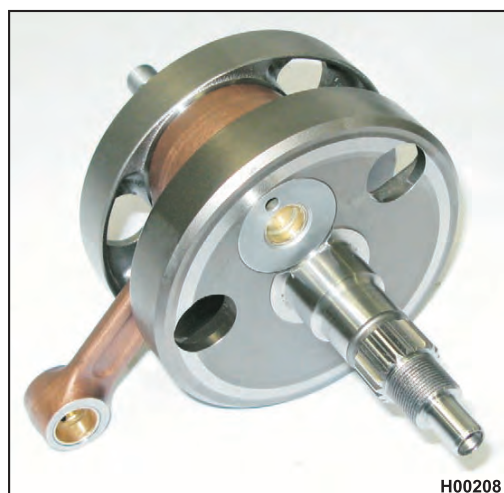
Place the crankshaft (1) on a stand (2) with two dial gauges (3) positioned on the journals.

Turn the crankshaft and measure runout.

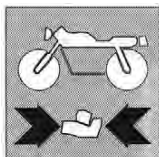
STANDARD
< than 0.02 mm (0.00078 in.)



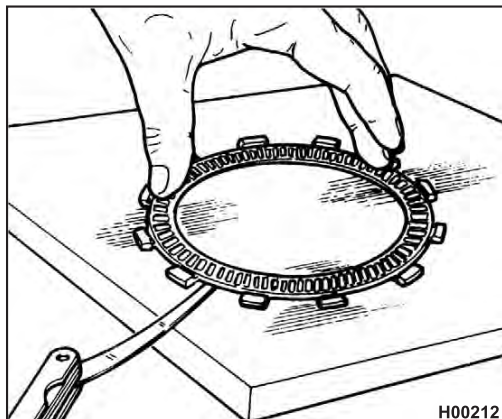
If the detected measure exceeds 0.04 mm (0.0016 in.) replace the crankshaft.



Crankshaft



ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



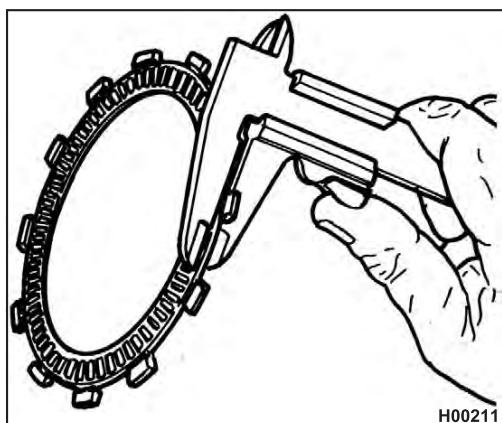
Clutch

Inspect all clutch components to make sure they are in the best conditions. Clutch plates should show no signs of bluing, scoring or distortion. Measure the thickness of friction plates.

Plate thickness when new: 3.0 mm (0.1181 in.).

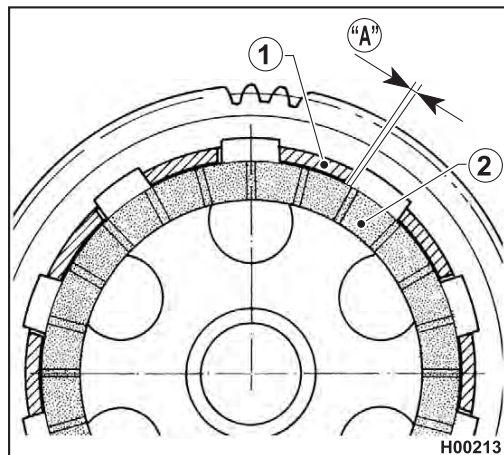
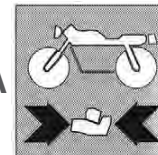
Service limit: 2.9 mm (0.1141 in.).

Clutch pack thickness: 29.4 mm (1.1574 in.).



Place each (friction and steel) plate on a surface plate and check for distortion using a feeler gauge; Use a feeler gauge.

Service limit: 0.2 mm.



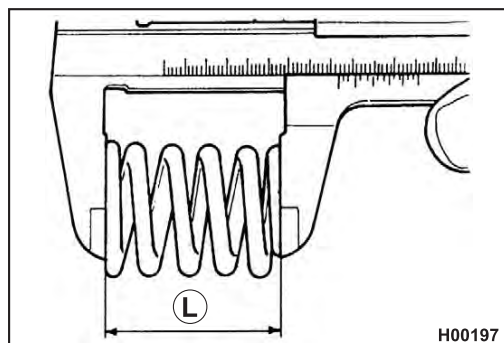
Friction plate to clutch housing clearance

Measure clearance "A" between clutch housing (2) and plate (1) with a feeler gauge and compare measured clearance with the table below.

STANDARD	SERVICE LIMIT
0.30-0.50 mm (0.012-0.020 in.)	0.6 mm (0.024 in.)



If measured clearance exceeds the service limit, replace clutch plates or housing and repeat measurement. If measurement is still outside the service limit, replace the complete clutch assembly.



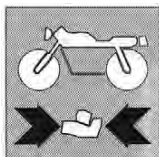
Clutch spring

Measure the free length "L" of each spring with a calliper.

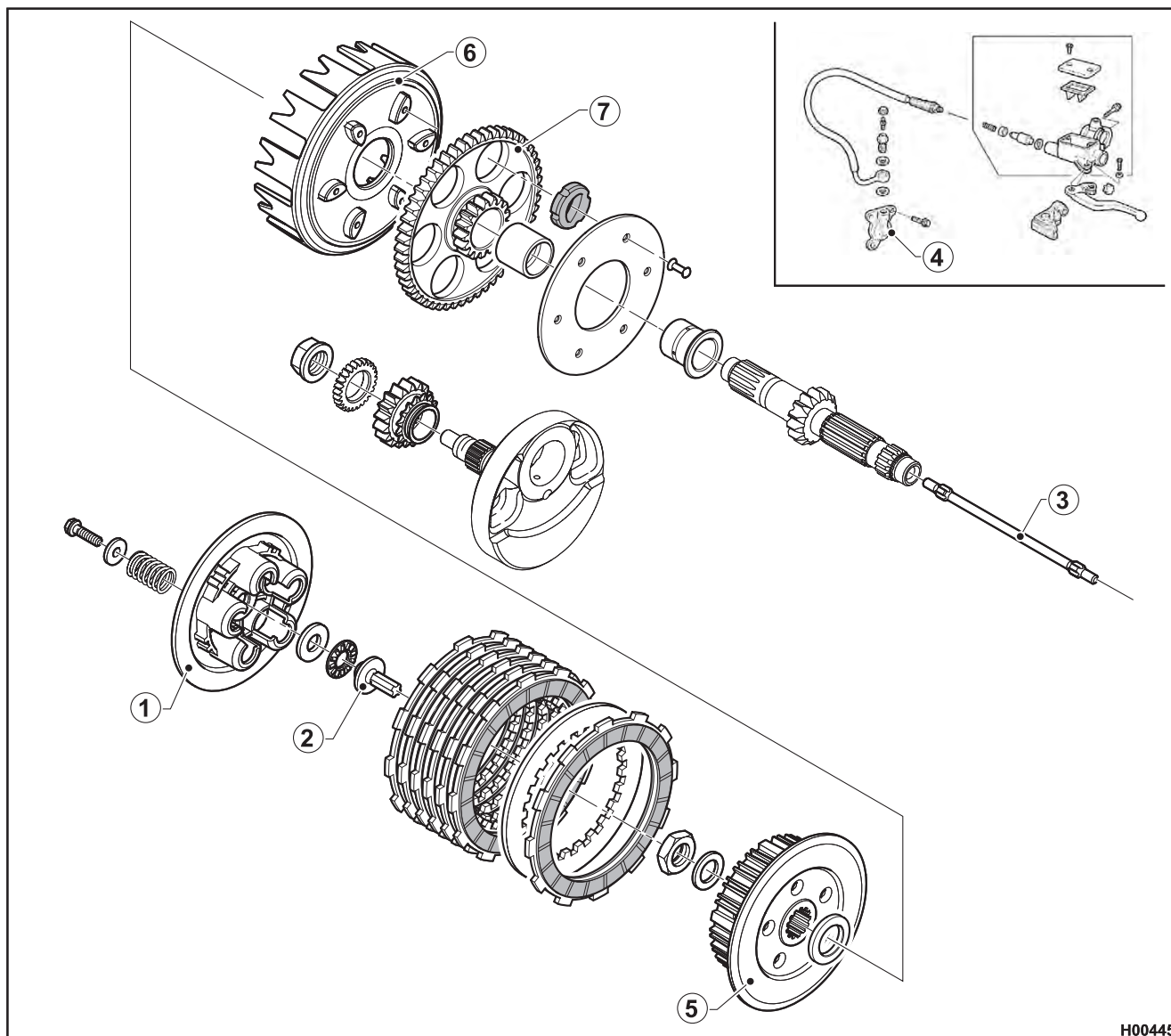
New spring L= 37.3 mm (1.4685 in.).

Service limit: 35 mm (1.3779 in.).

Change any spring that is outside the service limit.



ENGINE OVERHAUL
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



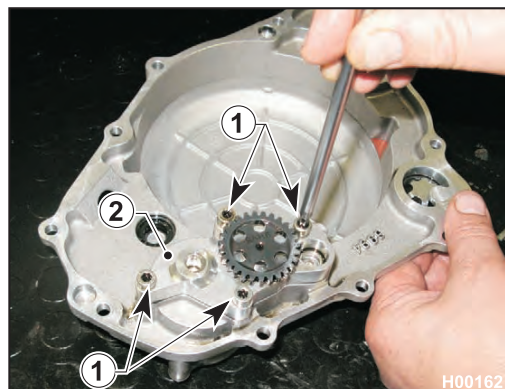
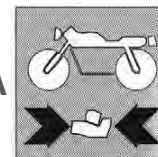
H00445

1- Pressure plate, 2- Clutch actuator plate, 3- Pushrod, 4- Piston assembly: Check these parts for signs of wear or failure. If any are found, replace the part.

5- Clutch hub: Check the steel plate slots for signs of wear or failure. If any are found, replace the part.

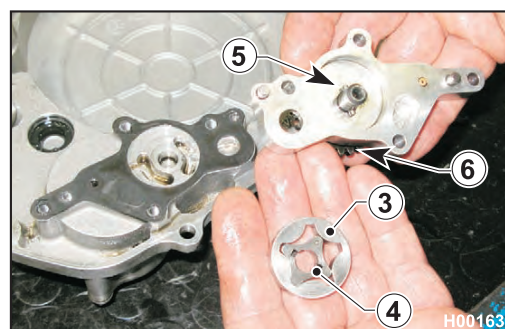
6- Clutch housing: Check the friction plate slots for signs of wear or failure.
Check the needle roller bearing seats for signs of wear. If any are found, replace the part.

7- Primary drive gear pair: Check gear teeth for signs of wear or failure. If any are found, replace the part.



Oil pump

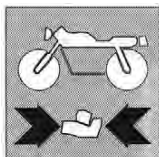
Loosen the screws (1) using a 4 mm Allen wrench and remove pump body (2) and gasket.



Remove the pump rotors (3) and (4), and extract the drive pin (5) to release the gear (6).
 Check gear (6) and rotors (4) for wear. Replace if worn.



Smear the rotors with oil and make sure to align the rotor dots (9) on assembly. Use a new gasket.

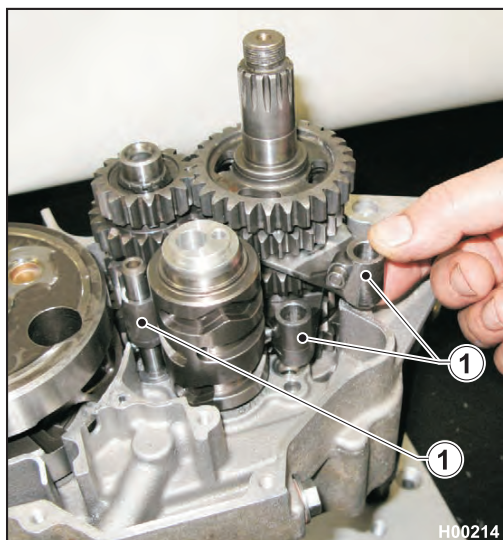


ENGINE OVERHAUL

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA

TC 250R 2013 - TC 250R 2013 I.E. USA

TXC 250R - 310R 2013 I.E. USA

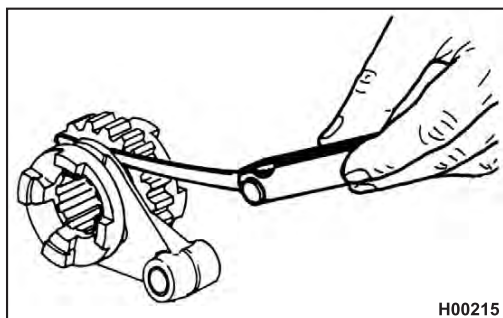


Shifter forks and gears

Visually inspect the shifter forks (1) and replace any bent forks. A bent fork will make gears hard to engage or let the transmission jump out of gear unexpectedly under loading.

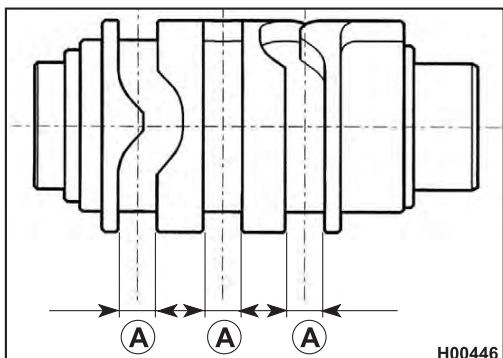
Check the clearance of the each shifter fork in its gear groove using a feeler gauge. If any one of the three gears is outside the service limit, measure the width of gear groove and fork thickness to determine which component needs to be replaced. Shifter fork to groove clearance (new fork and gear): 0.22 - 0.37 mm (0.008661 - 0.014566 in.)

Service limit: 0.5 mm (0.019685 in.).



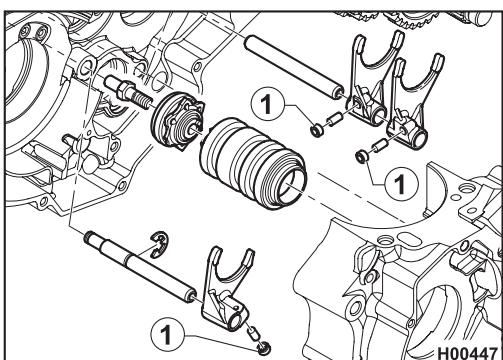
Selector drum

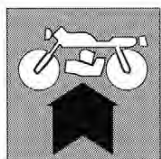
Check the grooves "A" for wear or dents and make sure the selector drum is not bent, worn or damaged.



Drive bushing roundness

Check the drive bushings (1) of the shifter forks for out-of-round and make sure they slide freely in the drum grooves and on the selector shaft.



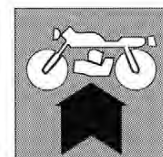
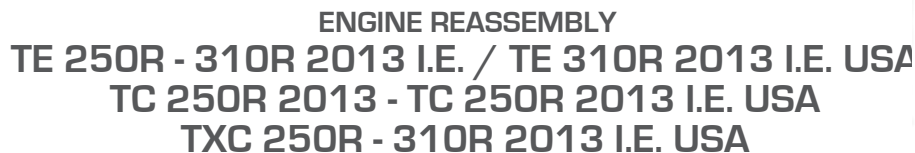


ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

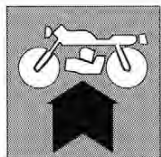


Section

H



■■ Workshop Manual Ed. 07-2012

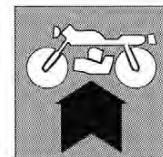


ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



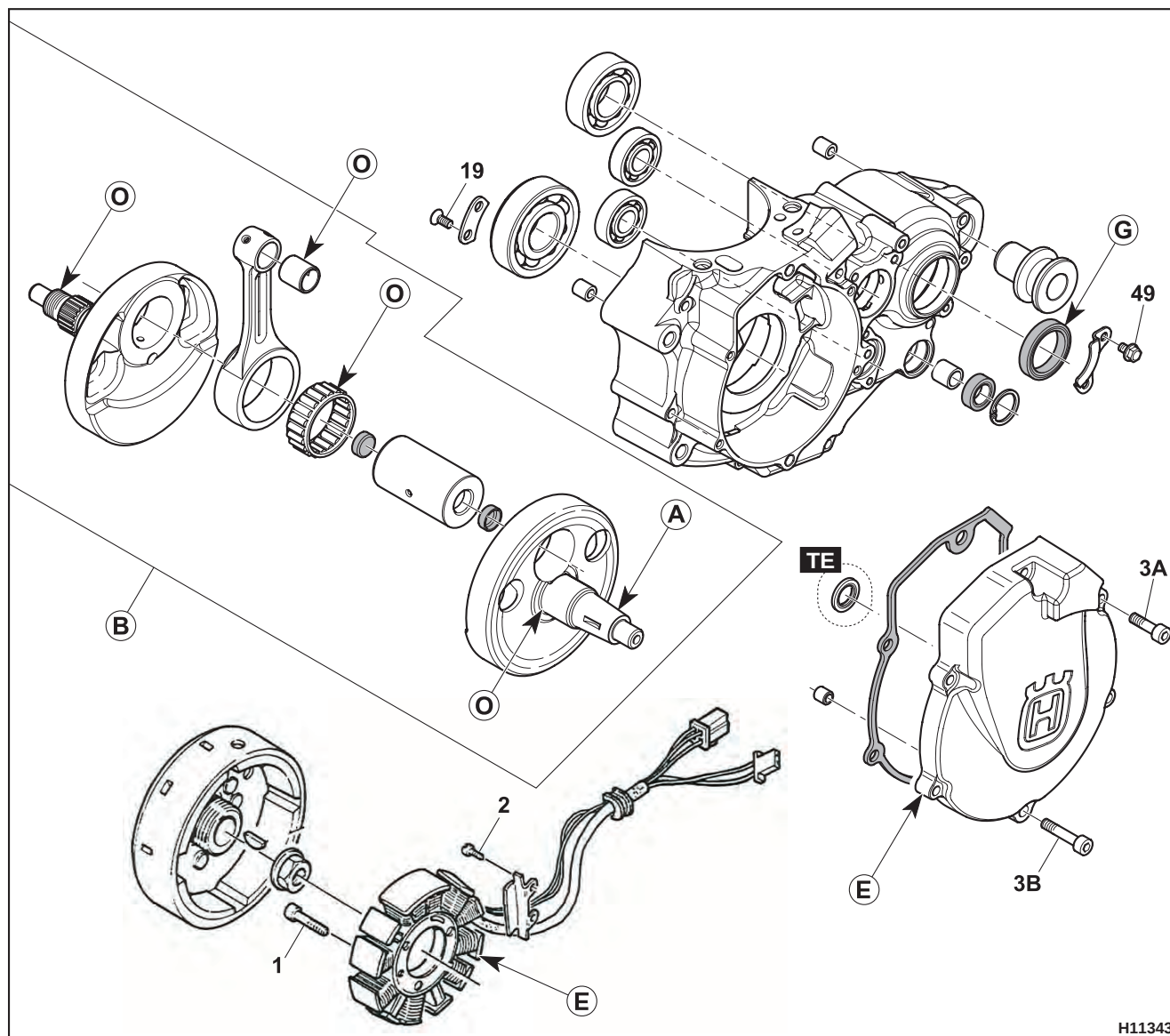
General

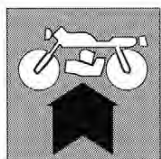
To reassemble, reverse the disassembly procedure. Any special instructions concerning reassembly are expressly highlighted in the text. Always replace gaskets, oil seals, metal retainers, sealing washers made from deformable material (copper, aluminium, fibre, etc.) and self-locking nuts after removal. Bearing specifications and dimensions have been calculated for a certain life. We recommend replacing the bearings - especially those exposed to heavy loading - also considering that checking them for wear is not an easy procedure. These recommendations are in addition to the dimensional checks of individual components specified in the relevant section (see Section G "ENGINE OVERHAUL"). Cleaning all components thoroughly is critical to reliability; bearings and any wear parts must be lubricated with engine oil before assembly. Screws, nuts and bolts must be tightened to the specified torque (see pages H.4-H.15 and Section X "TIGHTENING TORQUE FIGURES").



Assembly and lubrication instructions

CRANK- ALTERNATOR- LUBRICATION- LEFT CRANKCASE HALF





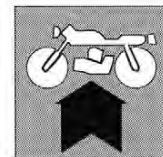
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Tightening torque figures

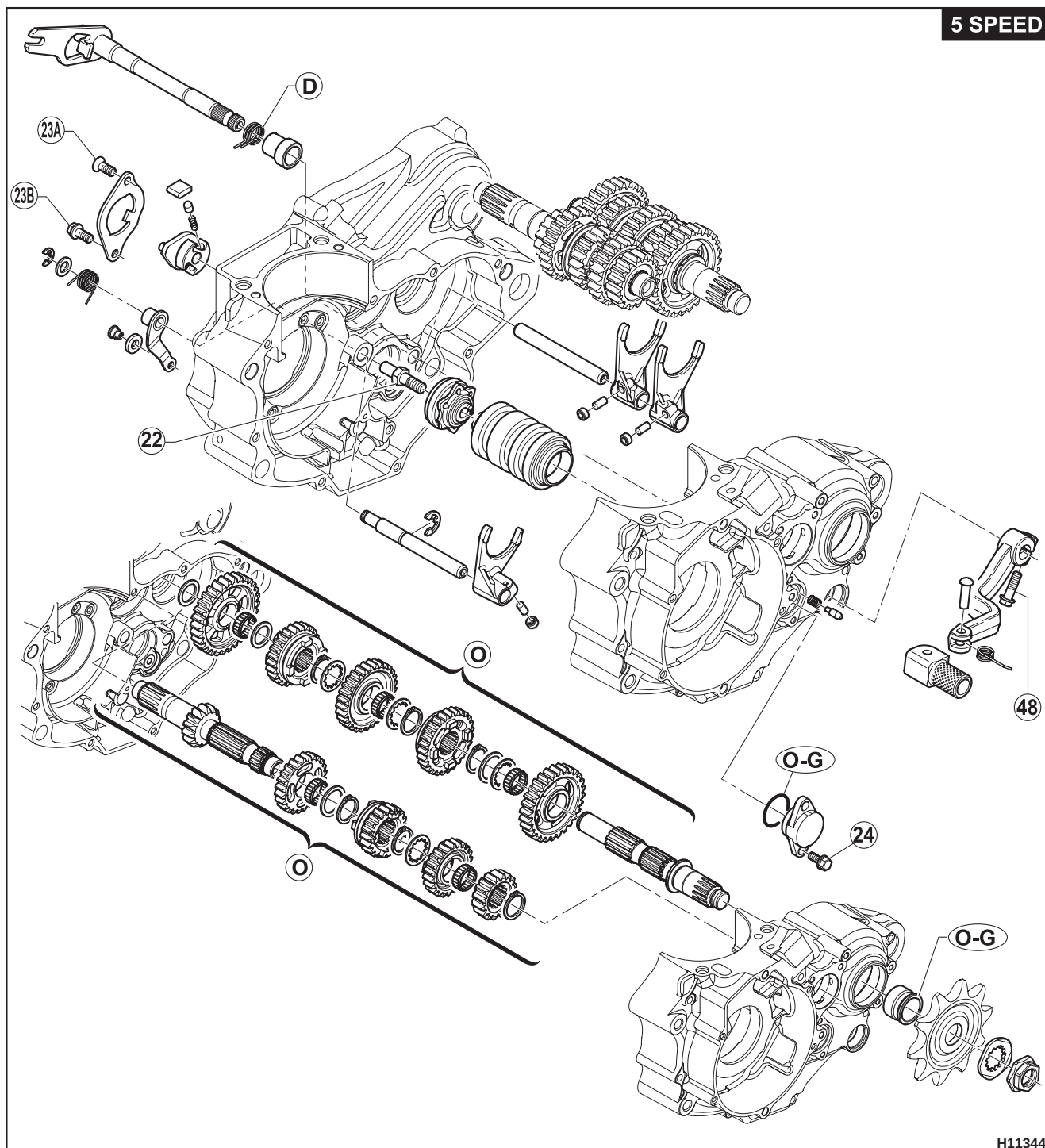
1	TE TXC	M5 - L20 (Loctite 272)	6 Nm- 0,6 Kgm- 4.43 ft/lb
1	TC	M4 - L30 (Loctite 272)	4 Nm- 0,4 Kgm- 2.95 ft/lb
2		M5 - L12 (Loctite 272)	6 Nm- 0,6 Kgm- 4.43 ft/lb
3A		M5 - L35	6 Nm- 0,6 Kgm- 4.43 ft/lb
3B		M5 - L40	6 Nm- 0,6 Kgm- 4.43 ft/lb
19		M5x0,8 - L12 (Loctite 270 / 272)	6 Nm- 0,6 Kgm- 4.43 ft/lb
49		M5 - L8	6 Nm- 0,6 Kgm- 4.43 ft/lb

LUBRICATION POINTS-NOTES	LUBRICANT-INSTALLATION INSTRUCTIONS
A	Degrease
B	Apply engine oil on installation
E	Line up stator mark with cover mark
G	WATER RESISTANT grease
O	Engine oil

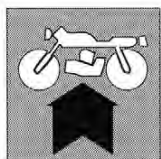


Assembly and lubrication instructions

GEARBOX - GEAR SHIFT CONTROL (5 SPEED)



H11344



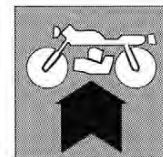
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Tightening torque figures

22		M8x1.25 (+LOCTITE Alt. 243)	25 Nm- 2.55 Kgm- 18.44 ft/lb
23A		M6 - L13 (+LOCTITE 243)	8 Nm- 0.8 Kgm- 5.9 ft/lb
23B		M6 - L14 (+LOCTITE 243)	8 Nm- 0.8 Kgm- 5.9 ft/lb
24		M5x0.8 - L12	6 Nm- 0.6 Kgm- 4.43 ft/lb
48		M6 - L20	8 Nm- 0.8 Kgm- 5.9 ft/lb

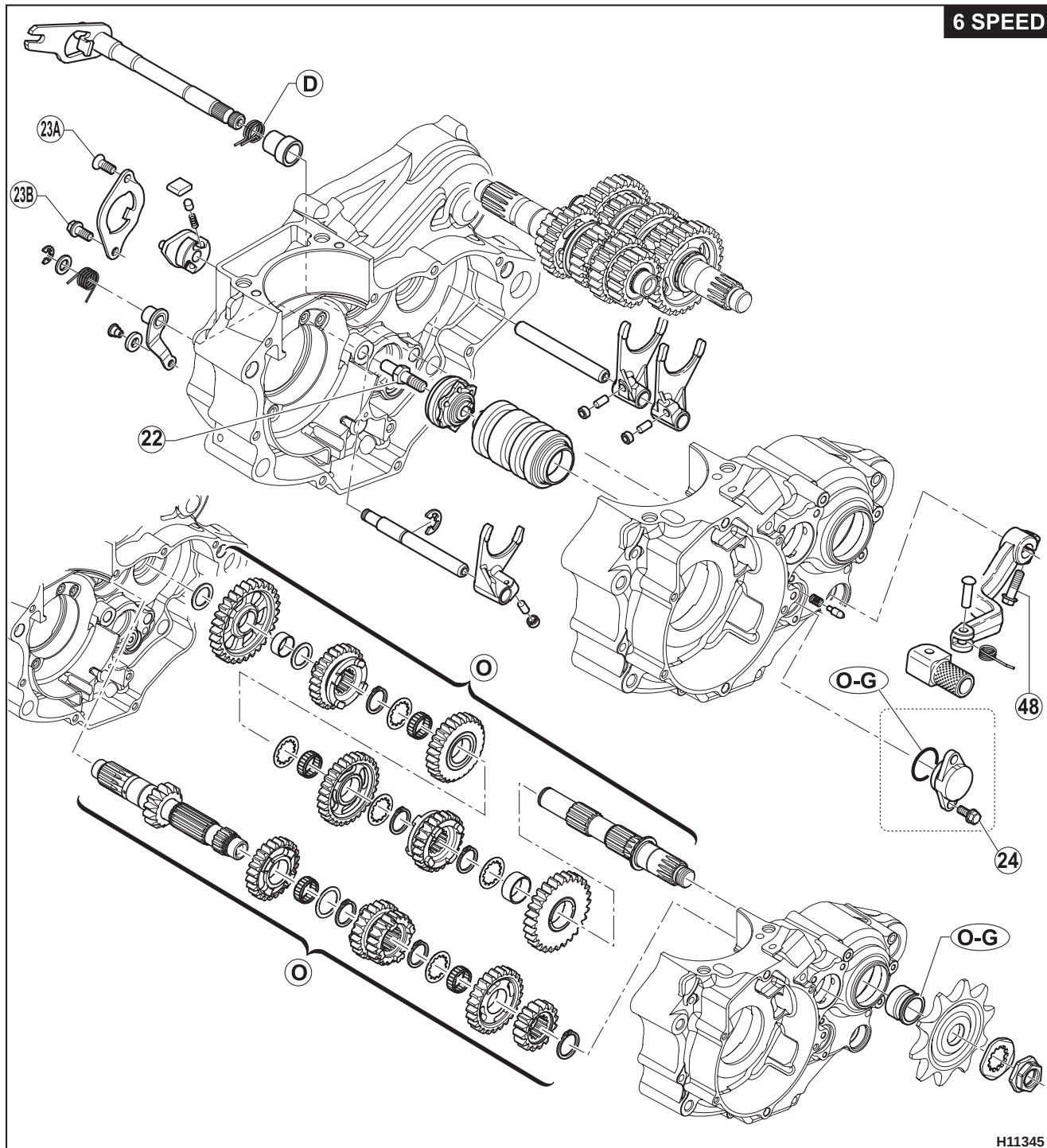
LUBRICATION POINTS-NOTES	LUBRICANT-INSTALLATION INSTRUCTIONS
D	Install with open end pointing to engine centre
O	Engine oil
O/G	Engine oil or WATER RESISTANT grease

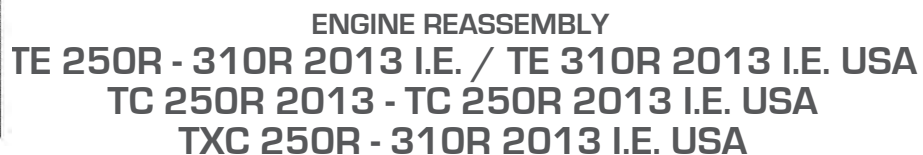


Assembly and lubrication instructions

GEARBOX - GEAR SHIFT CONTROL (6 SPEED)

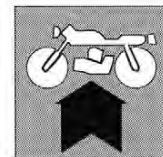
6 SPEED



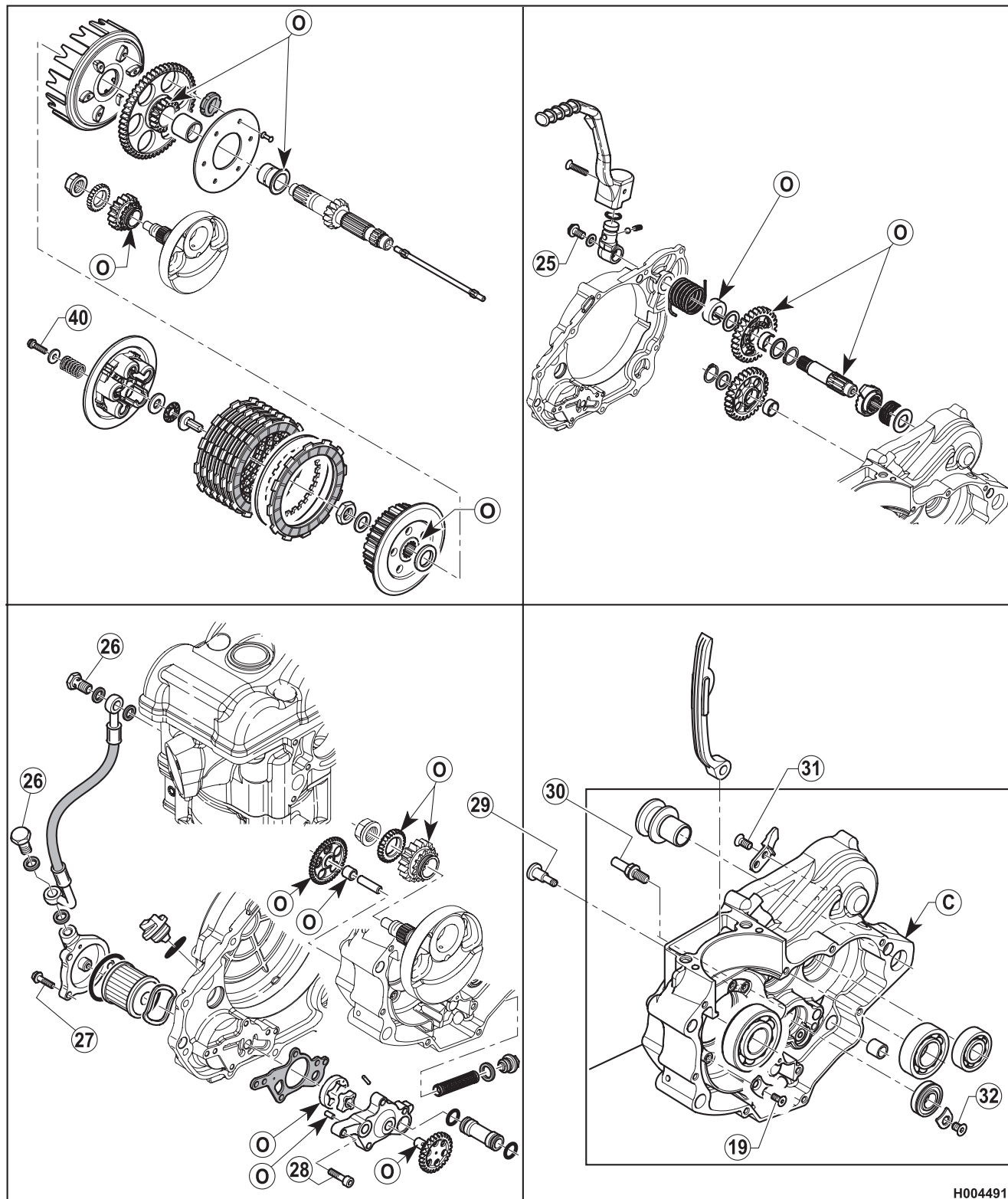


22		M8x1.25 (+LOCTITE Alt. 243)	25 Nm- 2.55 Kgm- 18.44 ft/lb
23A		M6 - L13 (+LOCTITE 243)	8 Nm- 0.8 Kgm- 5.9 ft/lb
23B		M6 - L14 (+LOCTITE 243)	8 Nm- 0.8 Kgm- 5.9 ft/lb
24		M5x0.8 - L12	6 Nm- 0.6 Kgm- 4.43 ft/lb
48		M6 - L20	8 Nm- 0.8 Kgm- 5.9 ft/lb

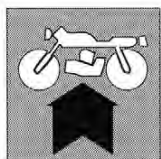
LUBRICATION POINTS-NOTES	LUBRICANT-INSTALLATION INSTRUCTIONS
D	Install with open end pointing to engine centre
O	Engine oil
O/G	Engine oil or WATER RESISTANT grease



Assembly and lubrication instructions
CLUTCH- KICK START- LUBRICATION- RIGHT CRANKCASE HALF



H004491



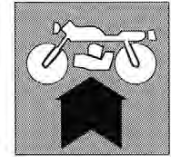
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Tightening torque figures

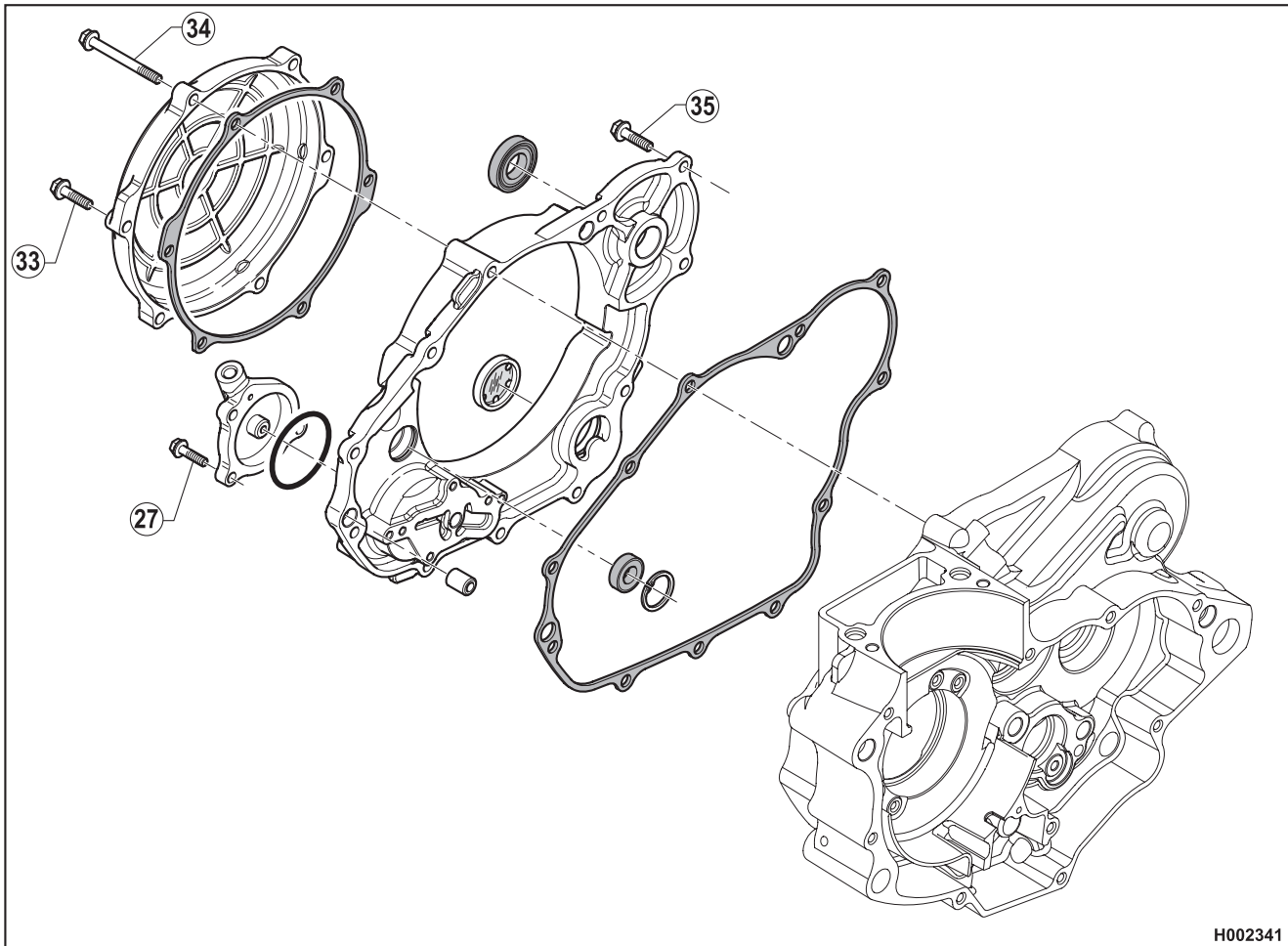
19		M5 - L12 (+LOCTITE 270 or 272)	6 Nm- 0.6 Kgm- 4.43 ft/lb
26		M8 X 1.25 (Al)	8 Nm- 0.8 Kgm- 5.9 ft/lb
27		M5 - L16	8 Nm- 0.8 Kgm- 5.9 ft/lb
28		M5 x 0.8 - L20	6 Nm- 0.6 Kgm- 4.43 ft/lb
29		M6 x 1 (+LOCTITE 243)	8 Nm- 0.8 Kgm- 5.9 ft/lb
30		M8 x 1.25 (+LOCTITE Alt. 272)	25 Nm- 2.55 Kgm- 18.44 ft/lb
31		M6 - L14 (+LOCTITE Alt. 272)	8 Nm- 0.8 Kgm- 5.9 ft/lb
32		M6 - L10 (+LOCTITE Alt. 243)	8 Nm- 0.8 Kgm- 5.9 ft/lb
40		M6 - L20	8 Nm- 0.8 Kgm- 5.9 ft/lb

LUBRICATION POINTS-NOTES	LUBRICANT-INSTALLATION INSTRUCTIONS
O	Engine oil
O/G	Engine oil or WATER RESISTANT grease
C	Join crankcase halves using Loctite 5205

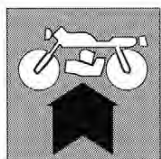


Assembly and lubrication instructions

RIGHT CRANKCASE COVER



H002341



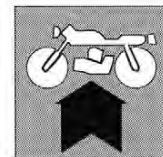
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



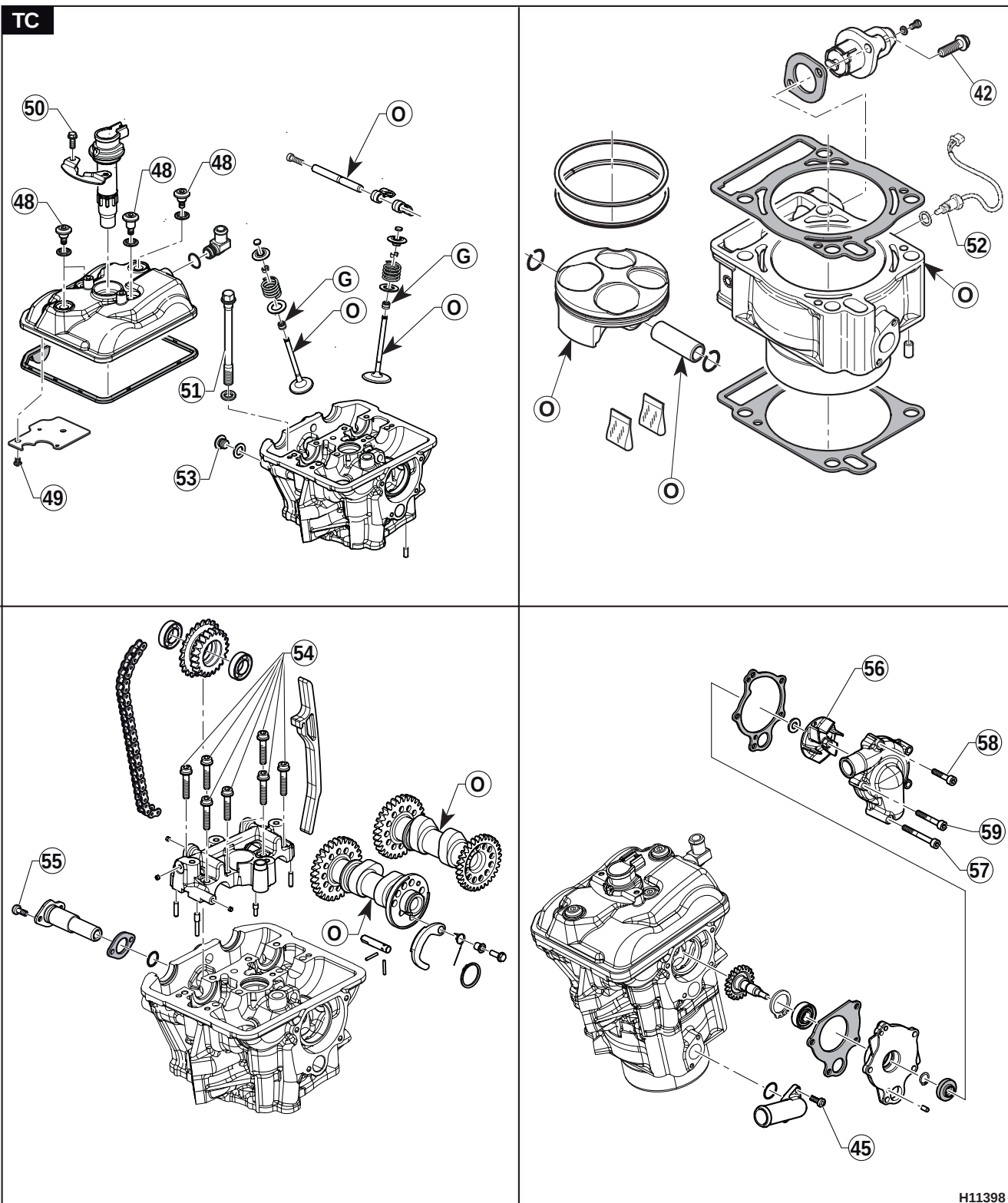
Tightening torque figures

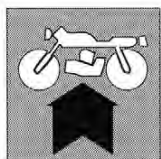
27		M5 - L16	6 Nm- 0.6 Kgm- 4.43 ft/lb
33		M6 - L22	8 Nm- 0.8 Kgm- 5.9 ft/lb
34		M6 x 1 - L50	8 Nm- 0.8 Kgm- 5.9 ft/lb
35		M6 x 1 - L20	8 Nm- 0.8 Kgm- 5.9 ft/lb

LUBRICATION POINTS-NOTES	LUBRICANT-INSTALLATION INSTRUCTIONS
O	Engine oil
O/G	Engine oil or WATER RESISTANT grease



Assembly and lubrication instructions
HEAD - CYLINDER - PISTON - TIMING SYSTEM - WATER PUMP - SPARK PLUG





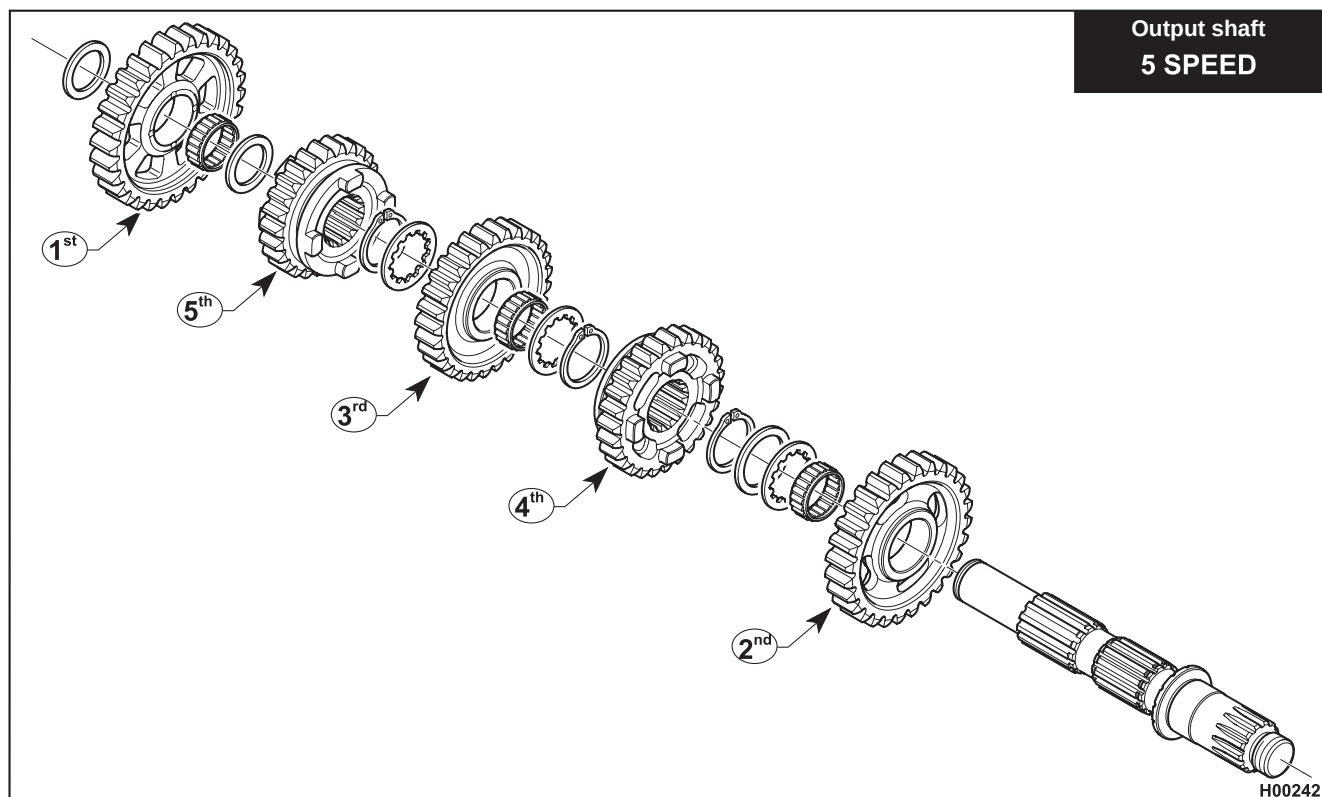
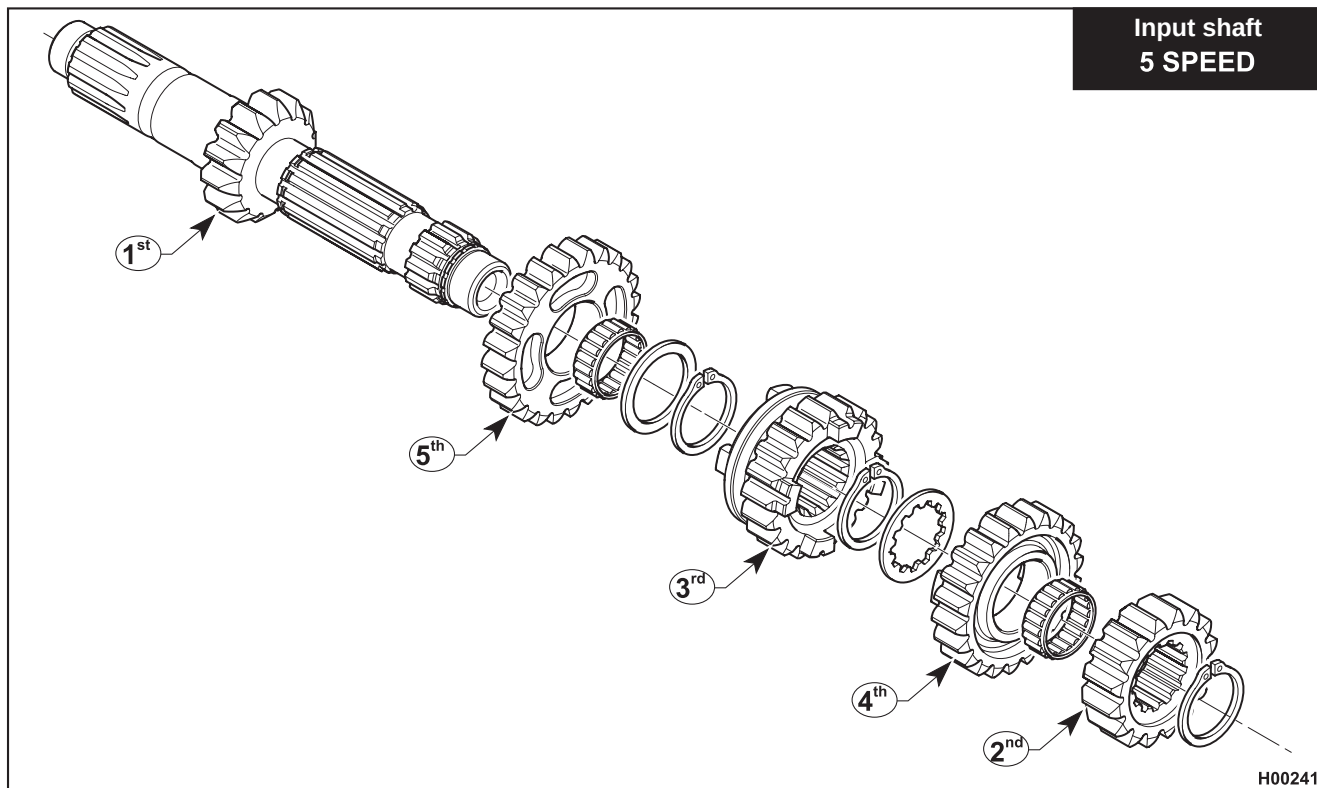
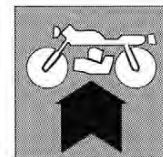
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

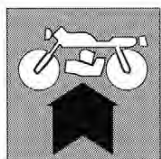


Tightening torque figures

42		M6 - L20	8 Nm - 0,8 Kgm - 5.9 ft/lb
48		Special screw M6 x 1	8 Nm - 0,8 Kgm - 5.9 ft/lb
49		Screw M5 x 0.8	6 Nm - 0,6 Kgm - 4.43 ft/lb
50		Screw M6 x 1	6 Nm - 0,6 Kgm - 4.43 ft/lb
51		Stud bolt head fastening	1) - 20 Nm - 2 Kgm - 14.75 ft/lb 2) - 40 Nm - 4 Kgm - 29.50 ft/lb
52		M10 x 1.5	5 Nm - 0,5 Kgm - 3.69 ft/lb
53		Plug M10 x 1 (+LOCTITE 243)	10 Nm - 1,0 Kgm - 7.38 ft/lb
54		Camshaft mount retaining screw	1) - 7 Nm - 0,7 Kgm - 5.16 ft/lb 2) - 11 Nm - 1,1 Kgm - 8.11 ft/lb
55		Screw M4 - L10	3 Nm - 0,3 Kgm - 2.21 ft/lb
56		Water pump impeller M5 + LOCTITE 243)	8 Nm - 0,8 Kgm - 5.9 ft/lb
57		Screw M5 - L45	6 Nm - 0,6 Kgm - 4.43 ft/lb
58		Screw M5 x 0.8 - L25	6 Nm - 0,6 Kgm - 4.43 ft/lb
59		Screw M5 - L35	6 Nm - 0,6 Kgm - 4.43 ft/lb

LUBRICATION POINTS-NOTES	LUBRICANT-INSTALLATION INSTRUCTIONS
F	Use sealant "AREXONS RHODORSEAL 5552" on installation
G	WATER RESISTANT grease
O	Engine oil





ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Input shaft (5 SPEED)

Fit roller cage (1) and 5th gear (2) on the bushing and then install the washer (3) and the retaining ring (4). The washer must be placed between gear and retaining ring. Fit 3rd gear (5), retaining ring (6) and washer (7).

Fit the roller cage (8).

Fit 4th gear (9).

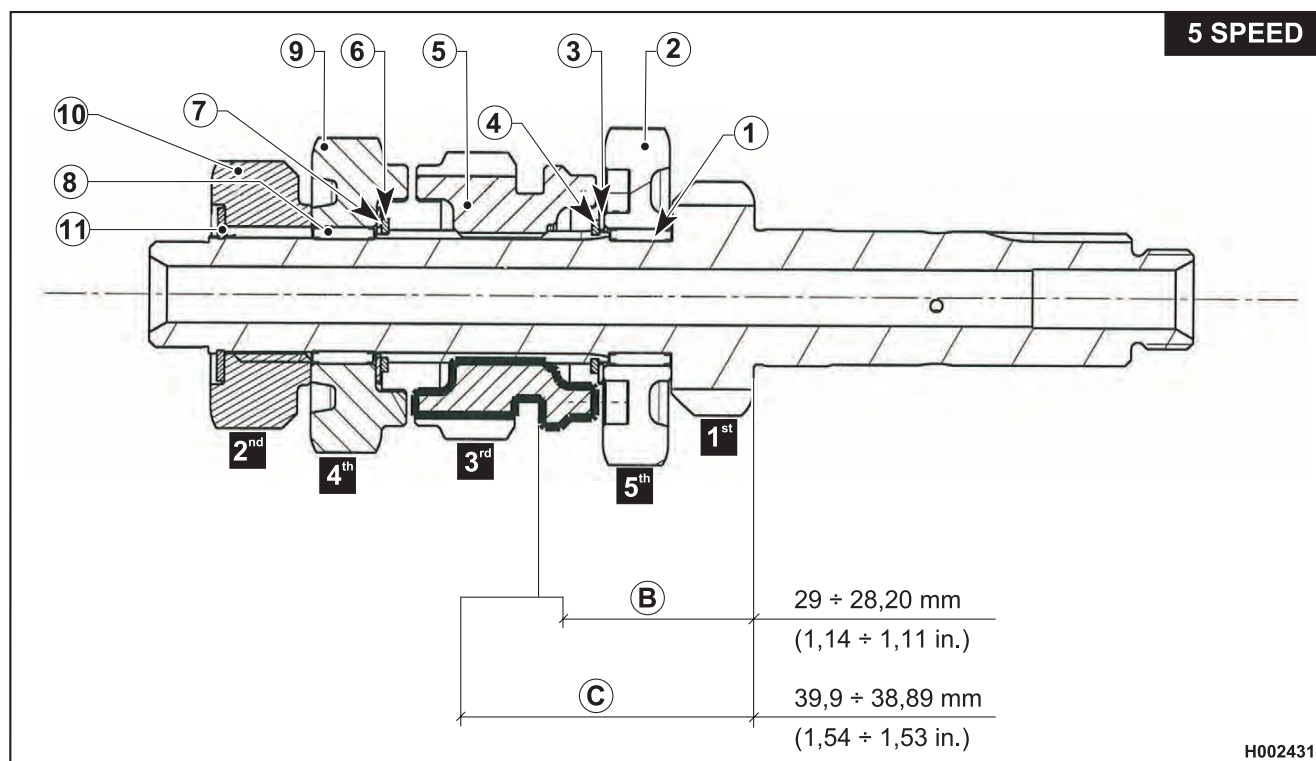
Fit 2nd gear (10).

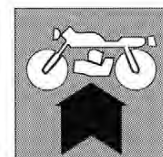
Fit the circlip (11).

B: with 5th gear engaged

C: with 4th gear engaged

D: lubricate with MOLYKOTE G-n plus





Output shaft (5 SPEED)

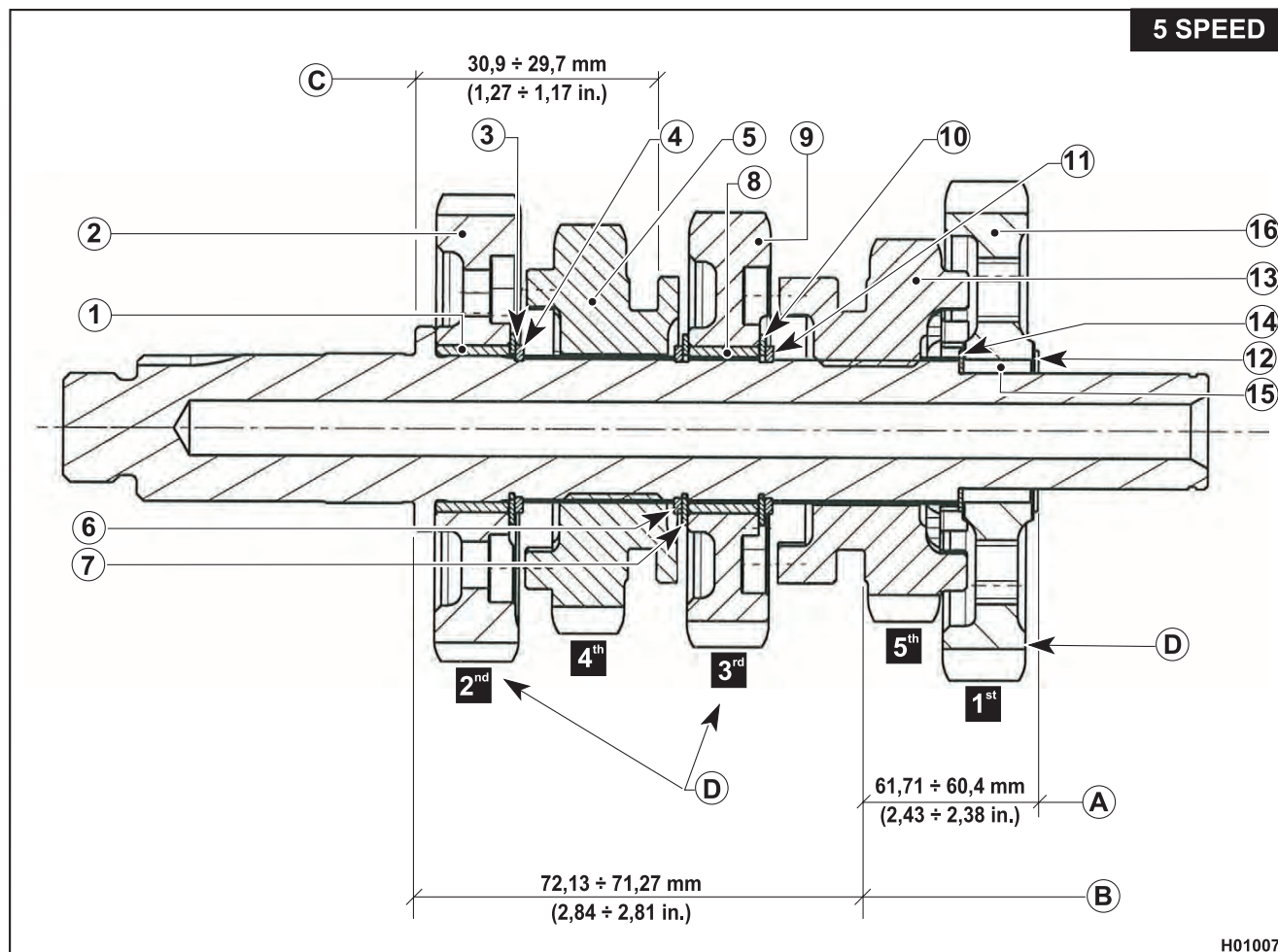
Fit the roller cage (1).
Fit 2nd gear (2), washer (3) and retaining ring (4).
Fit 4th gear (5) and retaining ring (6).
Fit the washer (7).
Fit roller cage (8) and 3rd gear (9).
Fit washer (10) and retaining ring (11).
Apply "MOLYKOTE G-n plus" on the 3rd gear (9).
Fit 5th gear (13) and washer (14).
Fit roller cage (15), 1st gear (16) and washer (12).

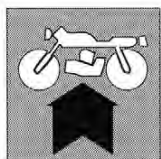
A: with 1st gear engaged

B: with 3rd gear engaged

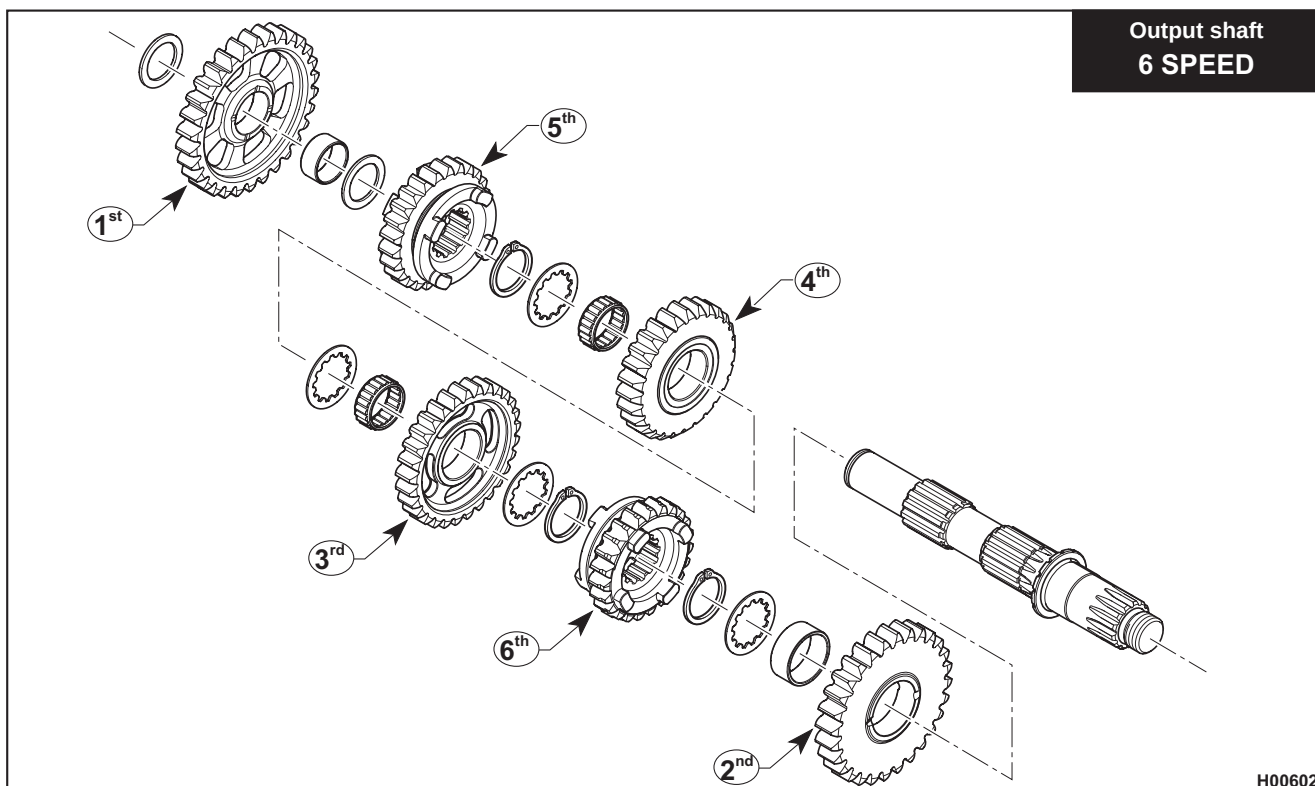
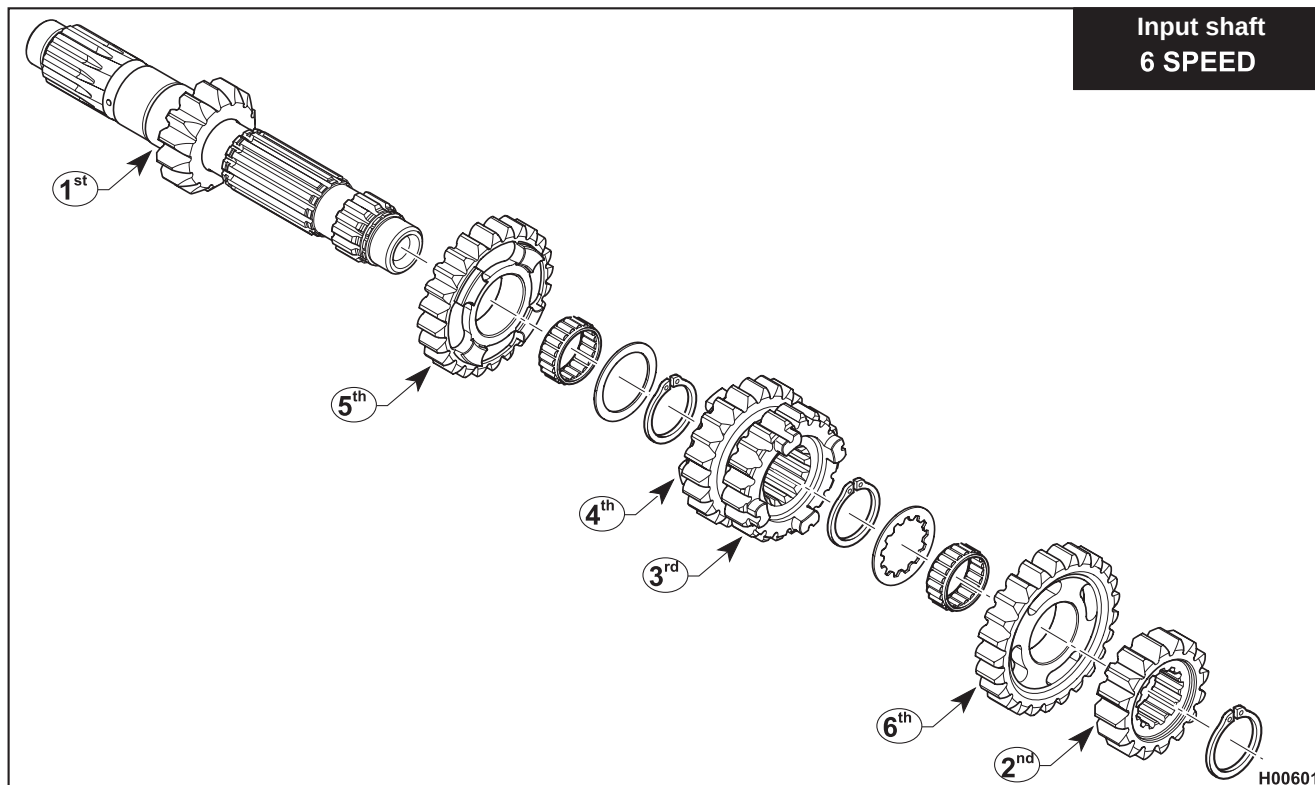
C: with 2nd gear engaged

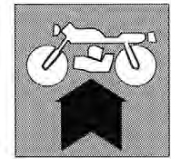
D: lubricate with MOLYKOTE G-n plus





ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA





Input shaft (6 SPEED)

Fit roller cage (1) and 5th gear (2) on the bushing (3) and then install the washer (3) and the retaining ring (4). The washer must be placed between gear and retaining ring. Fit 3rd/4th gear (5), retaining ring (6) and washer (7).

Fit the roller cage (8).

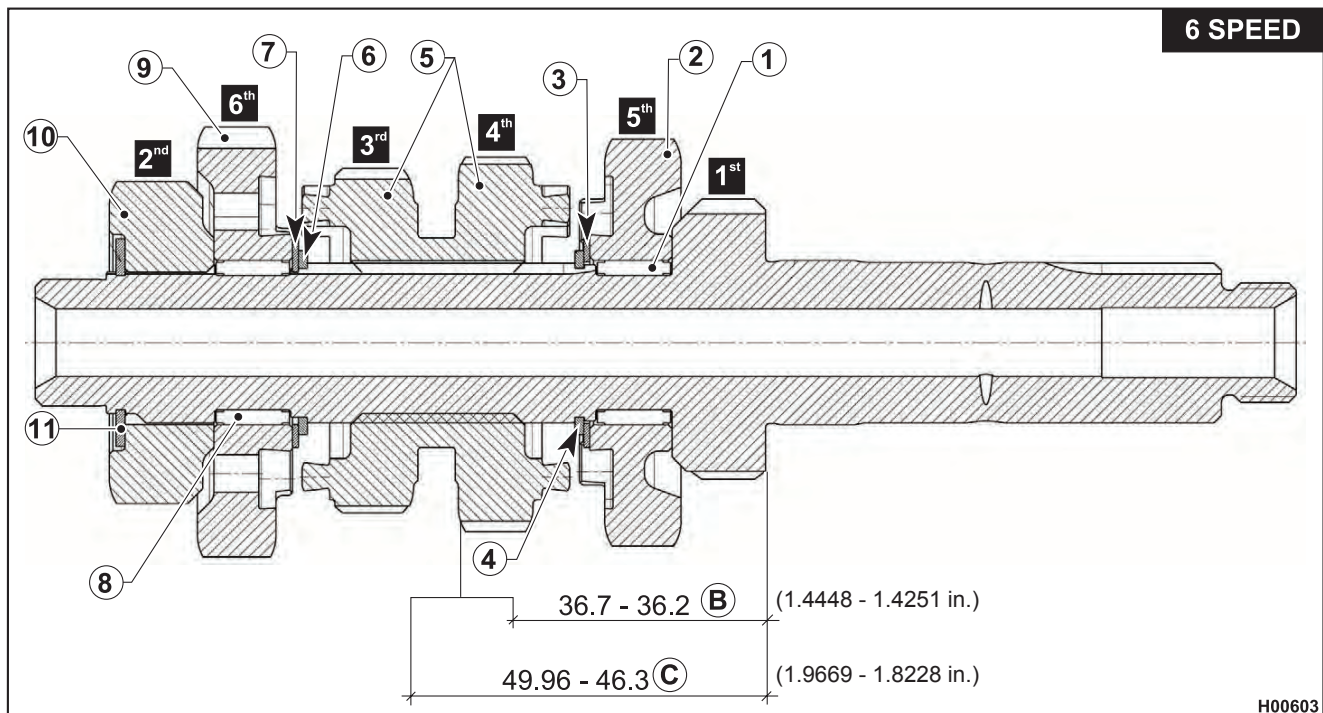
Fit 6th gear (9).

Fit 2nd gear (10).

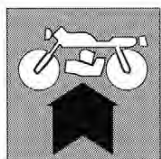
Fit the circlip (11).

B: with 5th gear engaged and 5th gear in contact with 1st gear.

C: with 4th gear in contact with 6th gear.



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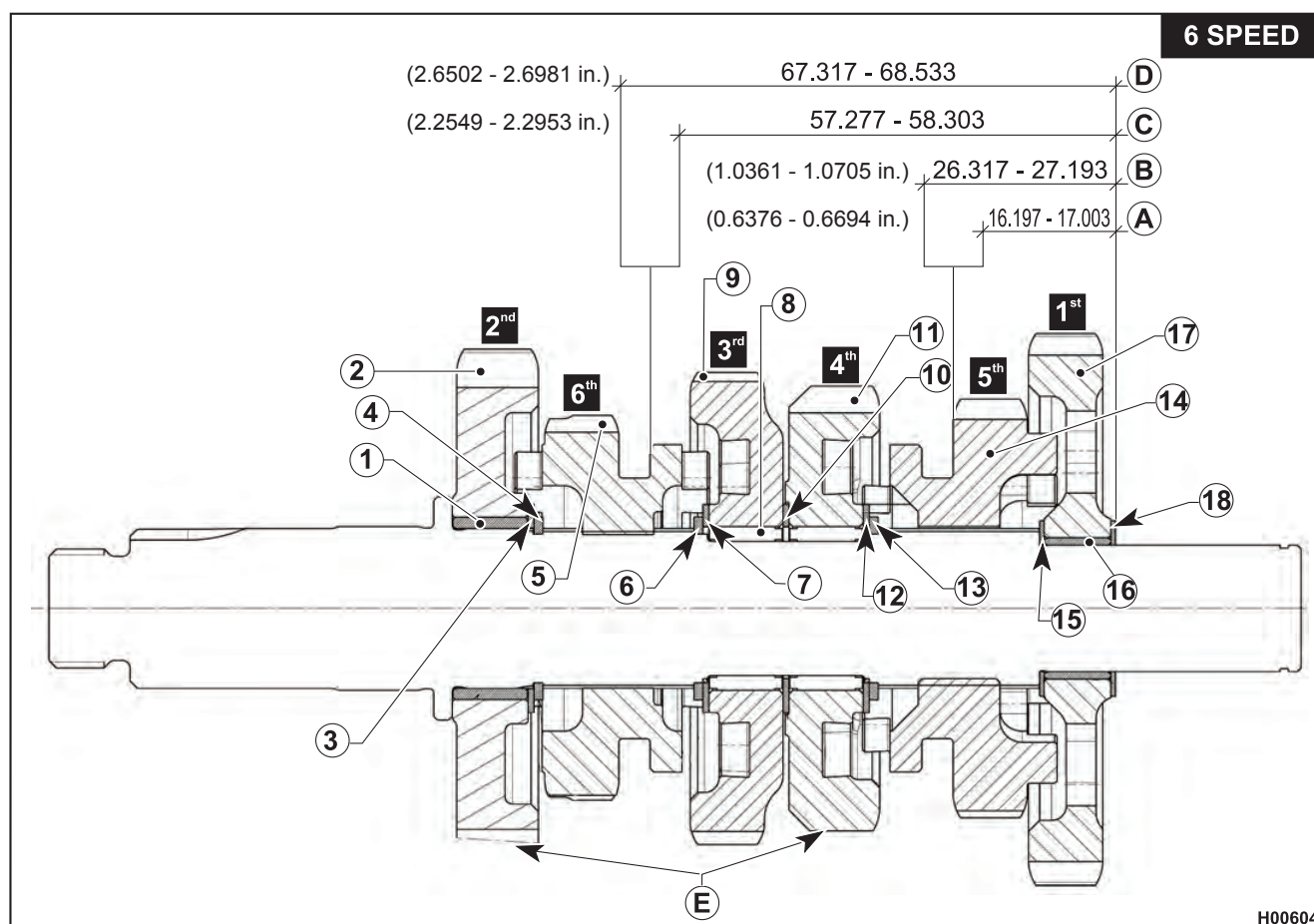


ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

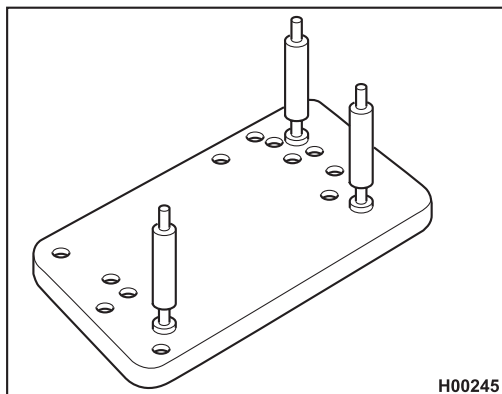
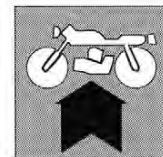


Output shaft (6 SPEED)

- Fit the roller cage (1).
- Fit 2nd gear (2), washer (3) and retaining ring (4).
- Fit 6th gear (5) and retaining ring (6).
- Fit the washer (7).
- Fit roller cage (8) and 3rd gear (9).
- Fit washer (10) and 4th gear (11).
- Fit washer (12) and retaining ring (13).
- Apply "MOLYKOTE G-n plus" on the 4th gear (11).
- Fit 5th gear (14) and washer (15).
- Fit roller cage (16), 1st gear (17) and washer (18).



- A: Control dimension with 1st gear engaged and 1st gear butted up on the shaft.
- B: Control dimension with 4th gear engaged and 4th gear butted up against shaft, washer and circlip.
- C: Control dimension with 3rd gear engaged and 1st and 3rd gears and their washers and circlips butted up together on the shaft.
- D: Control dimension with 2nd gear engaged and 2nd and 1st gears butted up together on the shaft.

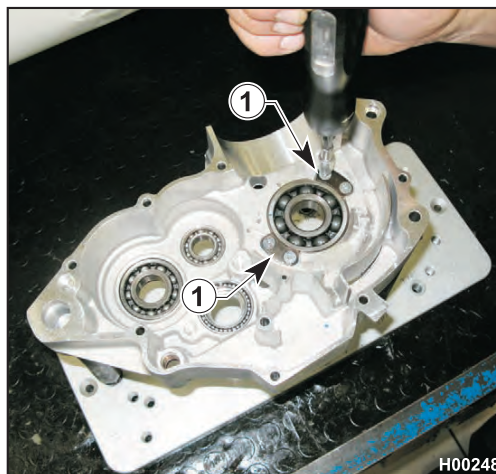
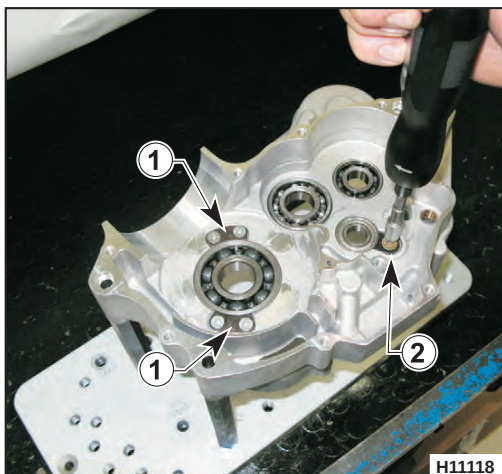


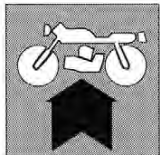
Crankcase assembly

Clean the crankcase half mating faces and place crankcase half on tool no. 8A00 90662.

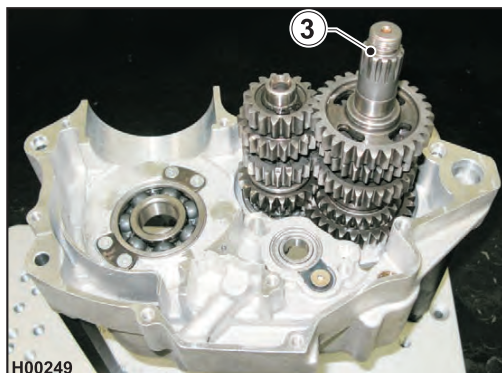


- Heat up to around 125 °C and drive the ball bearings into each crankcase half using a suitable driver tool.
- Fit the retaining plates (1) and (2) to the crankcase bearings.
(5 Nm, 0.5 Kgm, 3.6 ft/lb + Loctite 272) for crankshaft bearing retaining plate (1).
(11 Nm, 1.1 Kgm, 7.9 ft/lb + Loctite 272) for right-hand bearing retaining plate (2).

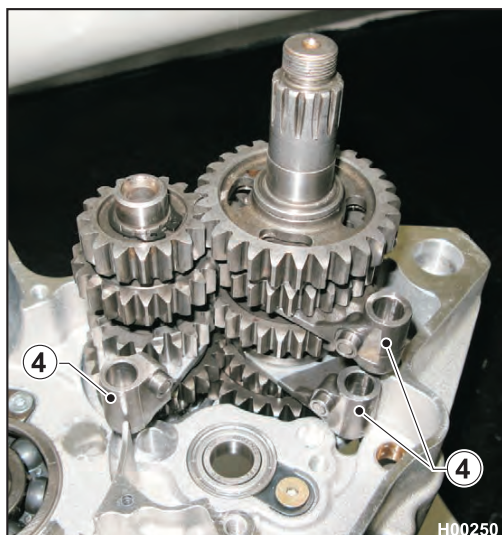




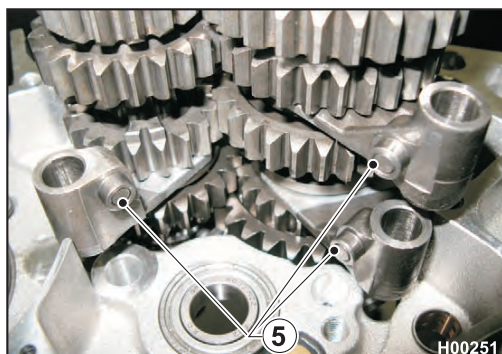
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



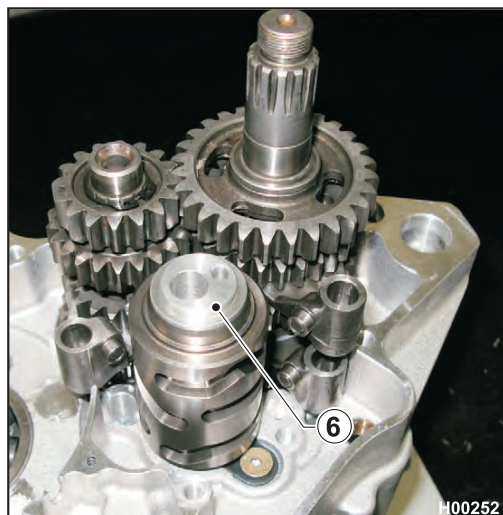
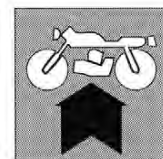
Install the input and output shaft assembly making sure the output shaft (3) shim is in place.



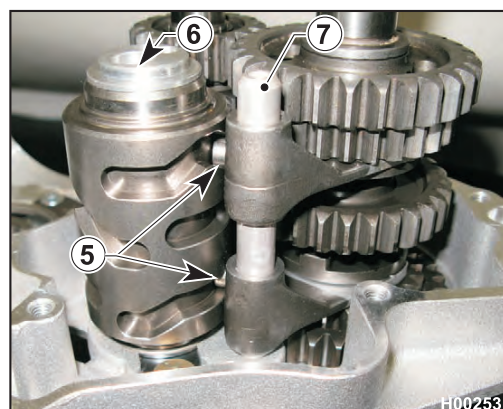
Lubricate the three shifter forks (4) with engine oil and install them.



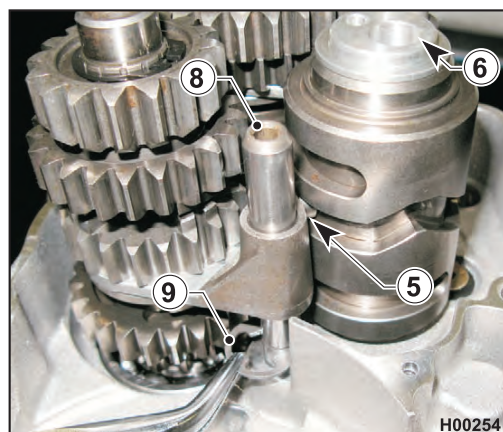
Make sure the bushings (5) are correctly in place (grease the bushings).

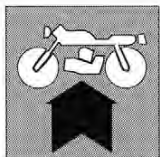


Insert the selector drum (6) into its seat.



Install the fork shafts (7) and (8) and make sure the forks move freely.
Make sure the fork bushings (5) are correctly located in the drum grooves (6).
Insert the circlip (9) of the input shaft fork shaft.
Rotate the selector drum to test operation.

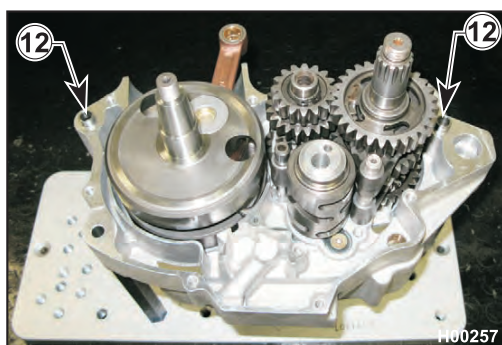




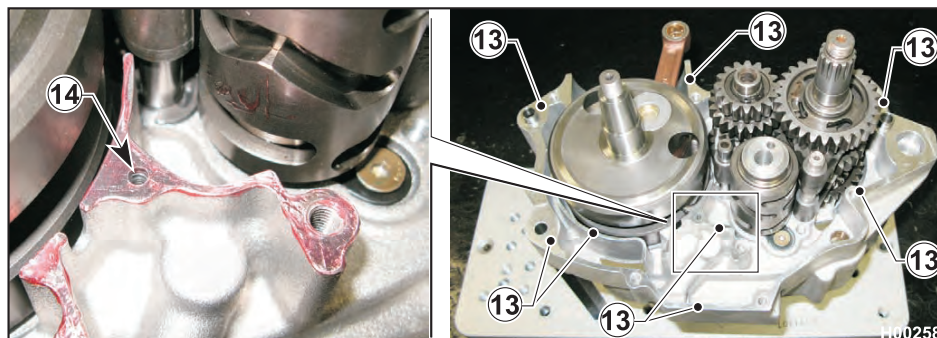
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



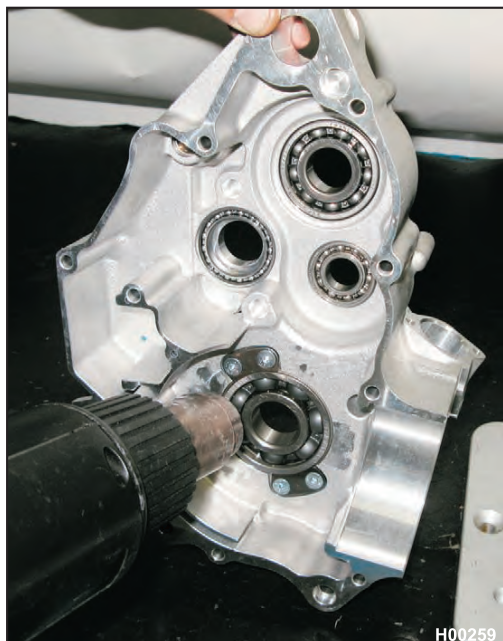
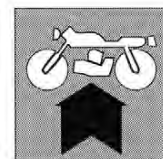
Heat up the crankshaft bearing (10) and install the crankshaft (11).



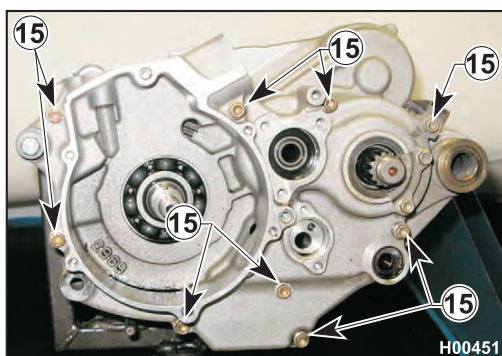
Make sure both crankcase locating bushings (12) are in place.



Apply a layer of "LOCTITE 5205" on the right crankcase mating surface (13), making sure not to obstruct the oil passage hole (14).



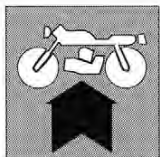
Heat up the left crankcase bearing housings and install the crankcase.



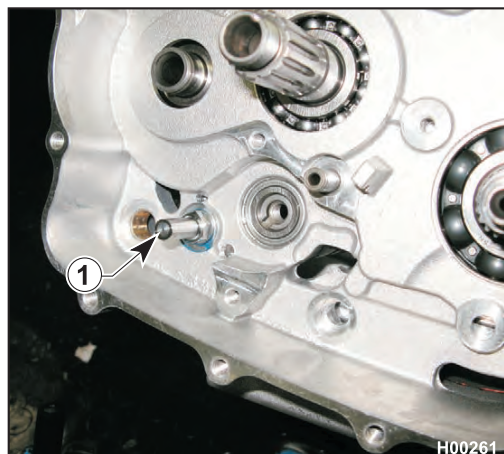
To join the crankcase halves, tap with a plastic hammer.
Tighten the screws (15) using an 8 mm wrench (10 Nm, 1Kgm, 7.25 ft/lb). Make sure to fit the screws in the correct positions according the specified pattern (see Section F, paragraph "Crankcase disassembly").



Cover the upper section of the engine with a cloth, a sponge or the like to prevent screws or other parts from accidentally falling into the engine.

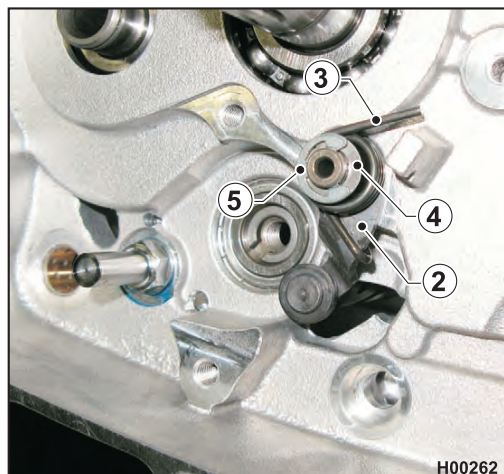


ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

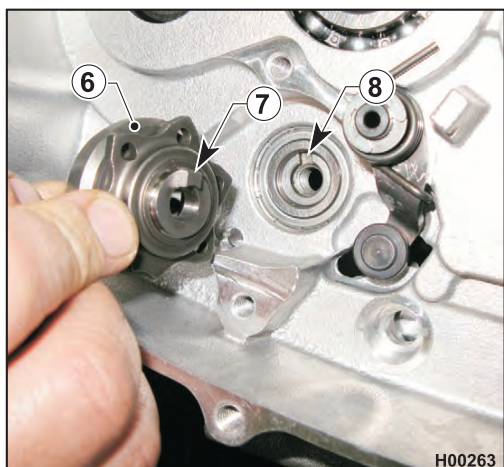


Gear shift control assembly

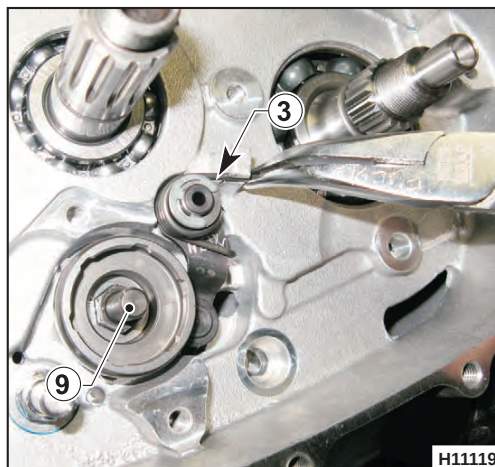
Refit the spring abutment pin (1) using a 12 mm wrench (apply Loctite 243 and tighten to 20 Nm, 2.0 Kgm, 14.5 ft/lb).

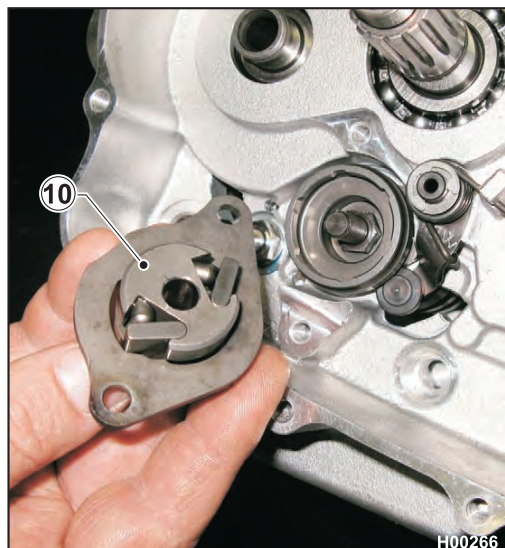
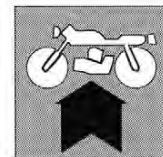


Install ratchet (2), spring (3), washer (4) and circlip (5).

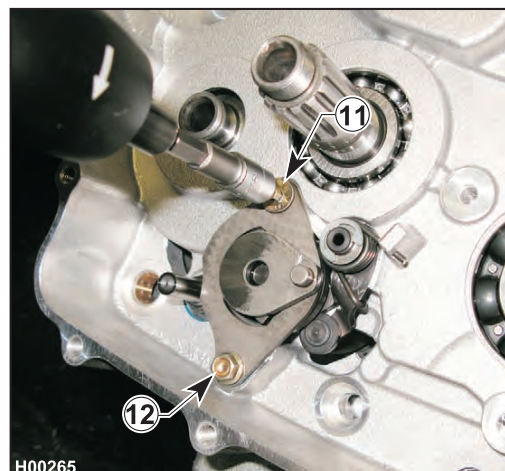


Install the selector drum (6) making sure the tab (7) locates in the recess (8) and secure drum with its screw (9). (Apply Loctite 243, tighten to 20 Nm, 2.0 Kgm, 14.5 ft/lb, use 12 mm wrench). Engage the spring (3).

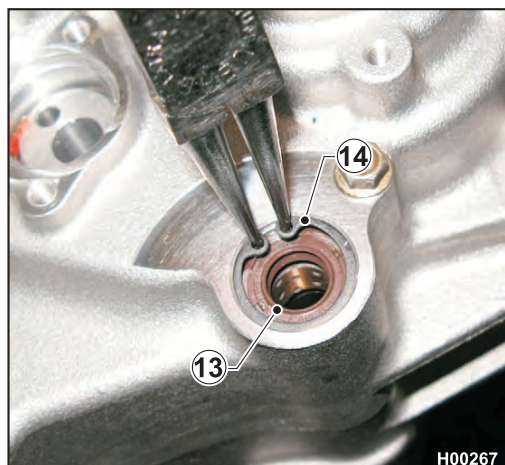




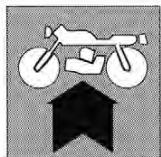
Operate shifter and transmission shaft to test gearbox for proper operation. Refit the ratchet assembly (10) together with the plate, making sure ratchets and springs are in the correct positions.



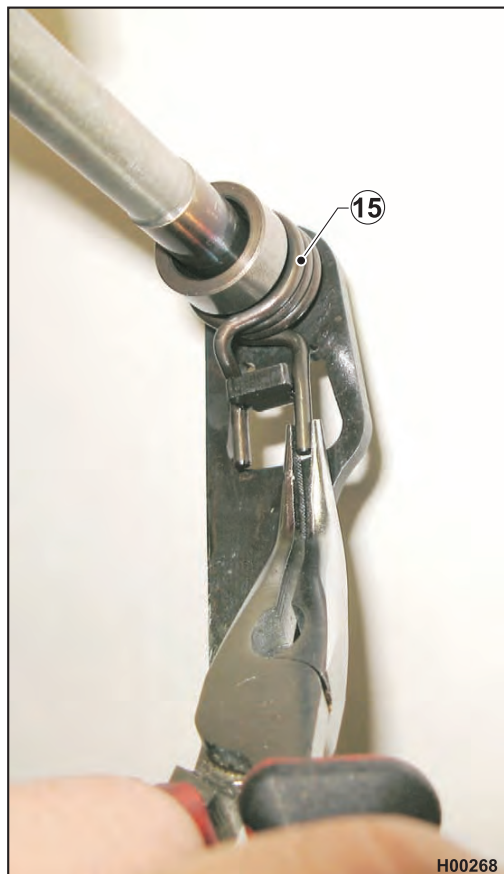
Tighten the upper screw (11) using a 4 mm Allen wrench (Loctite 243, 10 Nm, 1.0 Kgm, 7.2 ft/lb). Tighten the lower screw (12) using an 8 mm wrench (Loctite 243, 10 Nm, 1.0 Kgm, 7.2 ft/lb).



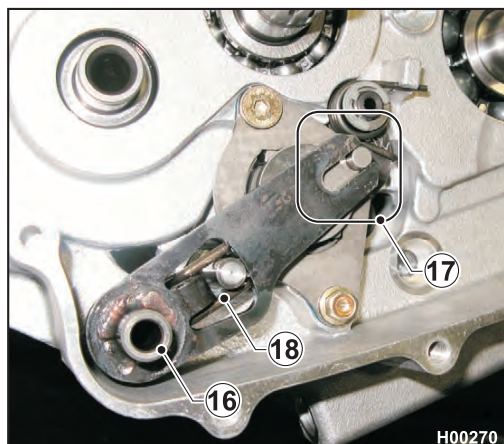
Turn the engine over and install the gear shift lever oil seal (13) and its circlip (14). Turn the engine over.



ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

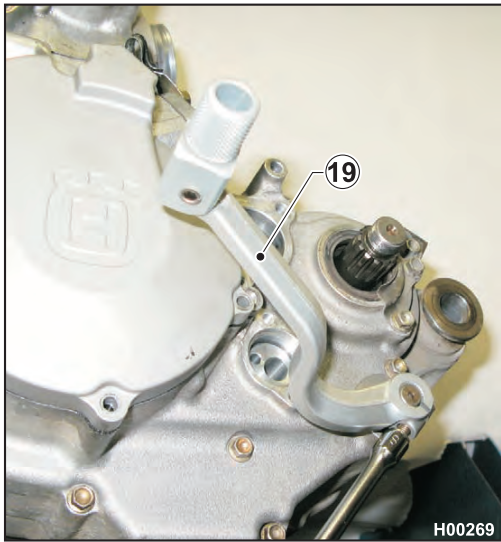
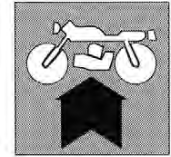


Make sure the spring (15) of the gear shift lever shaft is positioned correctly.

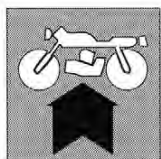


Check the gear shift lever shaft (16) and the slot of the gear selector mechanism for signs of wear.

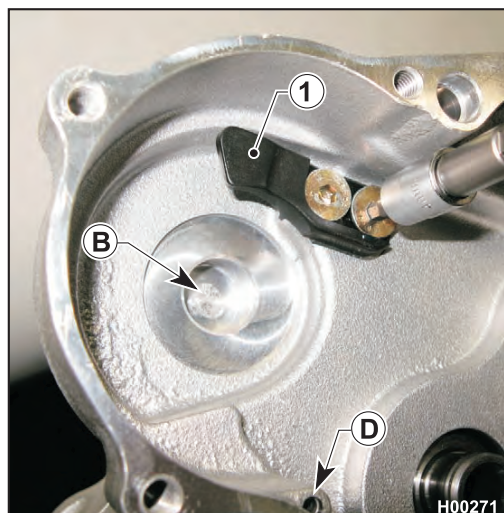
Lubricate the shaft with engine oil and insert the shaft (16) into the crankcase so that the fork (17) slides over the ratchet detent and the spring (18) locates to its abutment pin.



Install the gear shift lever (19) and operate the gearbox manually (8 mm wrench, 8 Nm, 0.8 Kgm, 5.8 ft/lb).

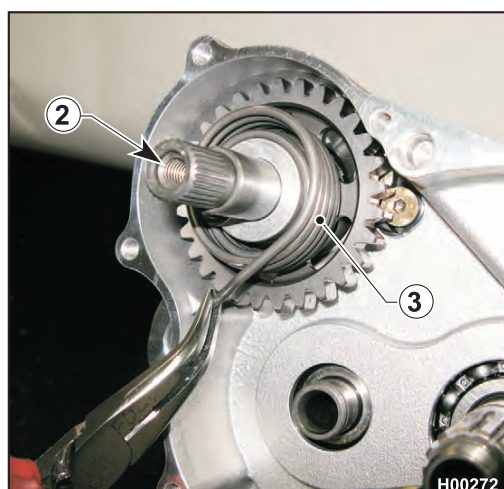


ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

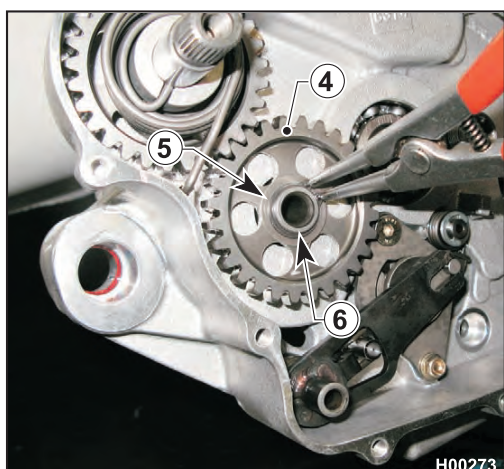


Kick start assembly

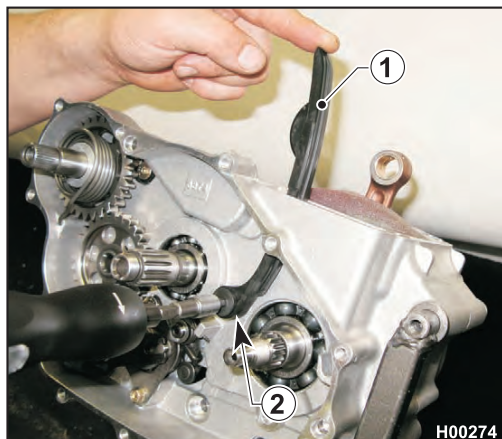
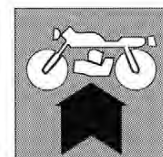
Refit the starter ratchet release plate (1) (use a 4 mm wrench, 8 Nm, 0.8 Kgm, 5.8 ft/lb, Loctite 243).



Fit the complete shaft assembly (2) to its seat (B) in the crankcase, making sure the ratchet is correctly positioned on the shaft (marks lined up) and insert the spring end (3) into the hole (D).

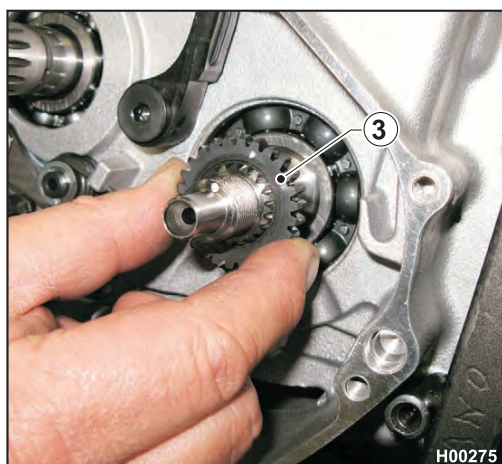


Fit transmission gear (4), washer (5) and snap ring (6).

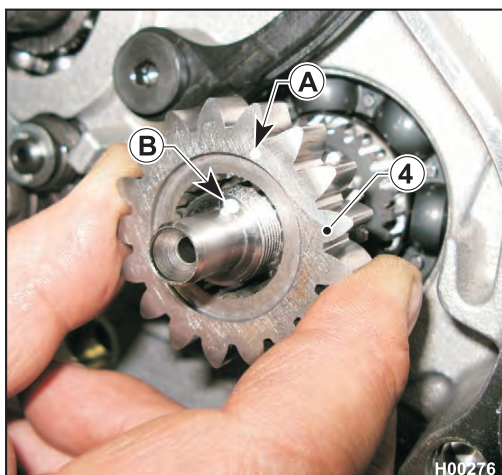


Timing chain and primary drive assembly

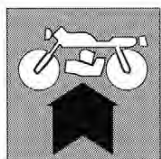
Install the timing chain slider (1), tighten the screw (2) using a 5 mm wrench (10 Nm, 0.1 Kgm, 7.3 ft/lb, Loctite 243) and make sure the slider moves freely.



Fit the oil pump drive gear (3) making sure the side with the dot is facing outside.



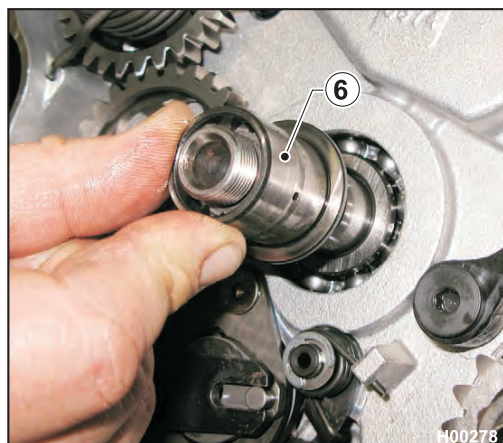
Fit the primary drive double gear (4) making sure to line up the timing dot (A) with the shaft dot (B).



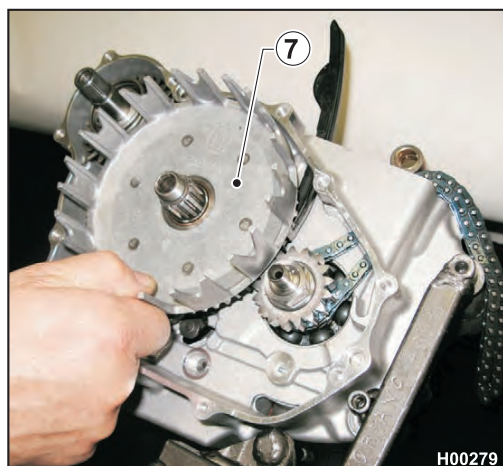
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



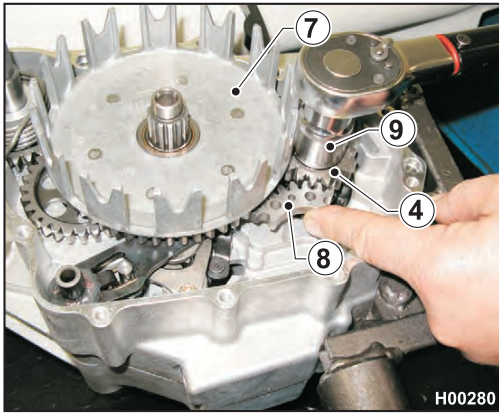
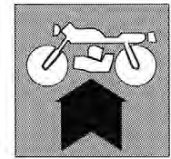
Install the timing chain (5).



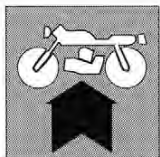
Refit the bushing (6).



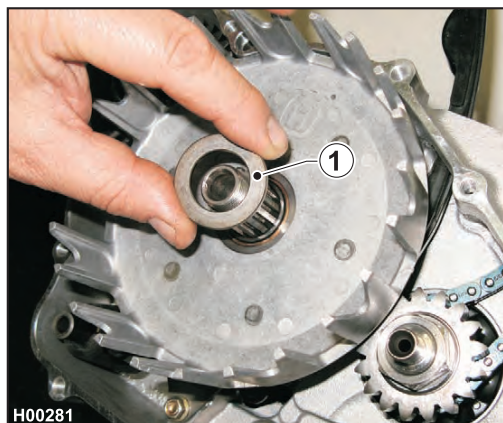
Refit the clutch housing (7).



Place a dummy gear (8) or an aluminium shim between clutch housing (7) gear and double gear (4), and then tighten the primary drive shaft nut (9) (use a 22 mm wrench, 100 Nm, 10 Kgm, 72.50 ft/lb).



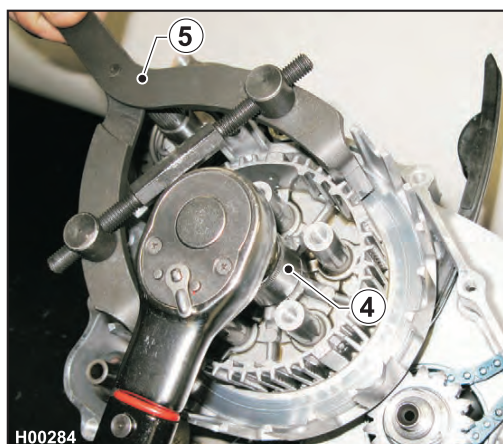
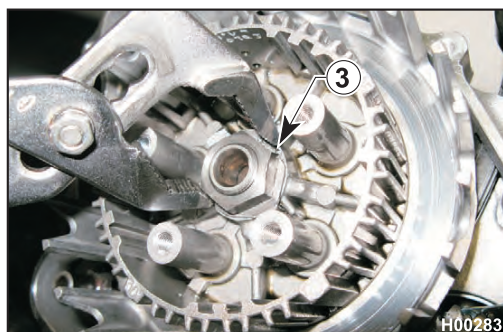
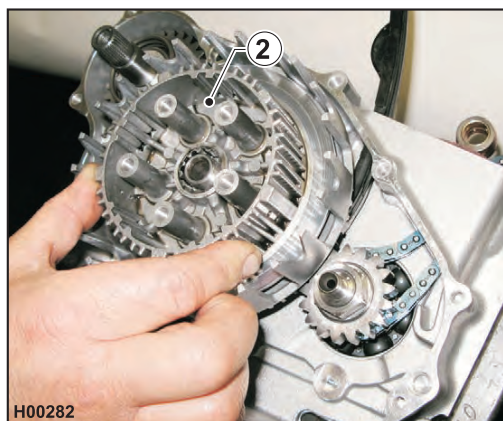
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

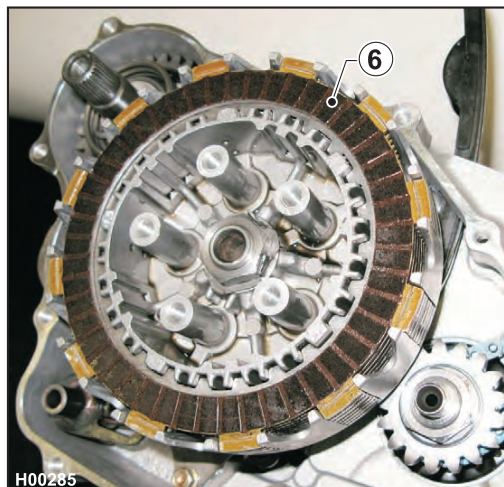
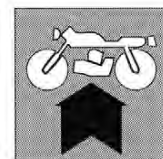


Clutch assembly

Install washer (1), hub (2), lock washer (3) and nut (4).

Use the suitable tool (5) to prevent rotation and tighten to 60 Nm, 6 Kgm, 43.5 ft/lb (use a 22 mm wrench).

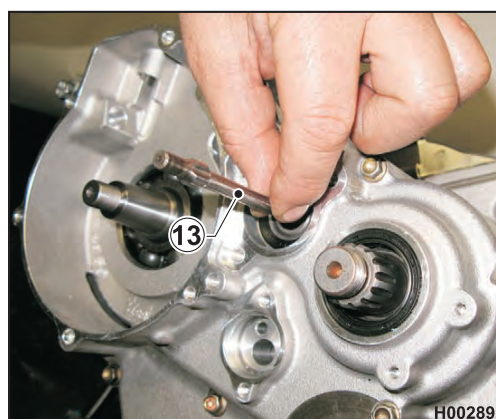
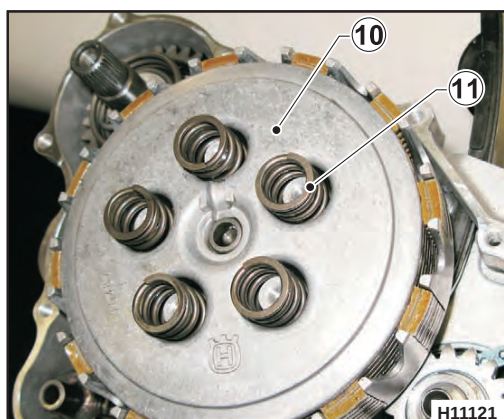
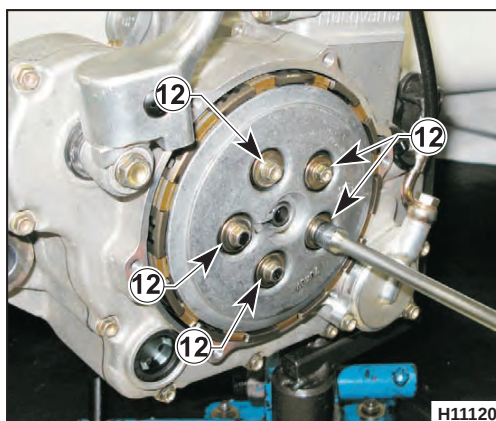
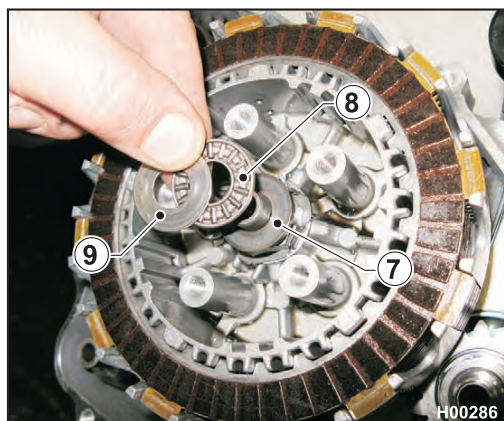


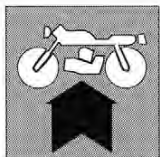


Refit the plates (6) (install a friction plate first and then a steel plate and keep alternating between friction and steel plates; the last to go in should be a steel plate). Fit actuator plate (7), thrust bearing (8), thrust washer (9), pressure plate (10) and springs (11). Tighten the spring screws (12) gradually in a cross pattern (5 Nm, 0.5 Kgm, 3.6 ft/lb).

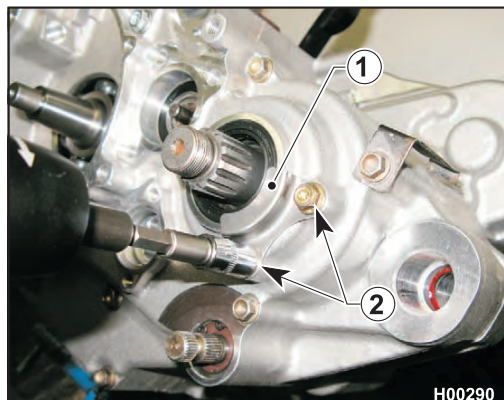
Turn the engine over.

Install the clutch pushrod (13).



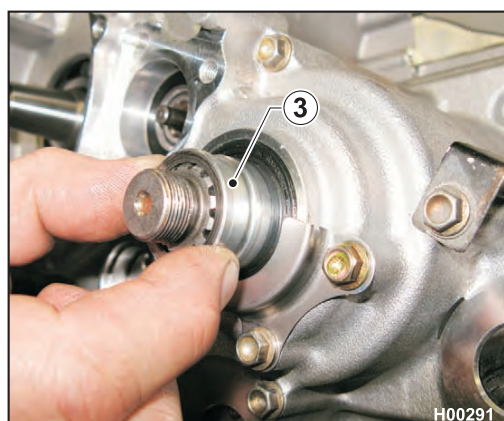


ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

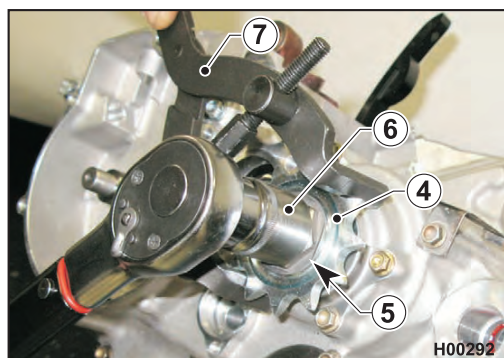


Sprocket installation

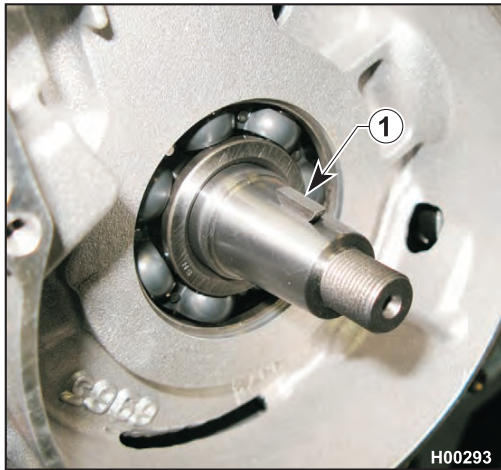
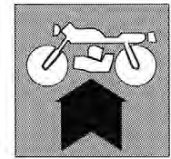
Install the oil seal retaining plate (1) and tighten the screws (2) (use an 8 mm wrench , 5.5 Nm, 0.55 Kgm, 4 ft/lb).



Fit the spacer (3) with the grooved side facing inwards.

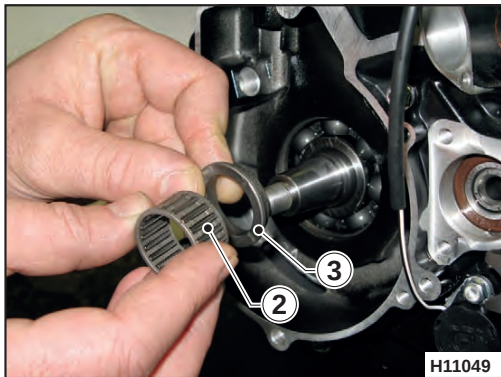


Install sprocket (4), lock washer (5) and nut (6). Hold the sprocket (4) with the suitable tool (7) to prevent rotation and tighten the nut (6) (use a 22 mm wrench, 100 Nm, 10 Kgm, 72.5 ft/lb). Bend the tabs of the lock washer.

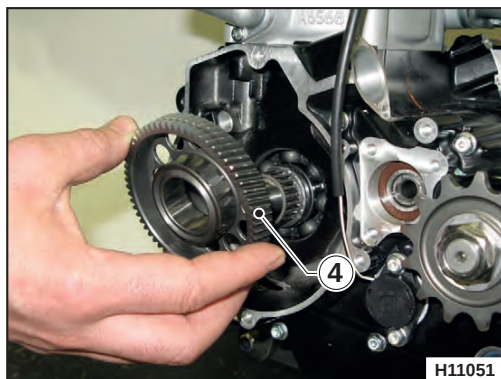


Flywheel and starter motor installation (TE-TXC)

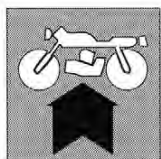
Clean flywheel rotor to remove any debris suspended in swirling oil and captured by the magnets. Fit the tab (1) to the crankshaft.



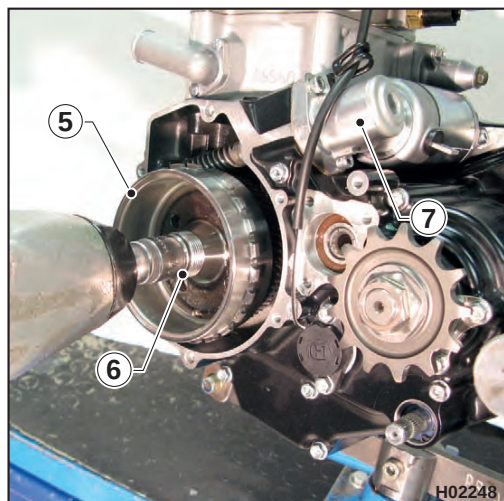
Lubricate needle roller bearing (2) and thrust ring (3) with engine oil and install them, making sure the thrust ring slots are pointing outwards.



Lubricate the freewheel (4) with engine oil and refit it.

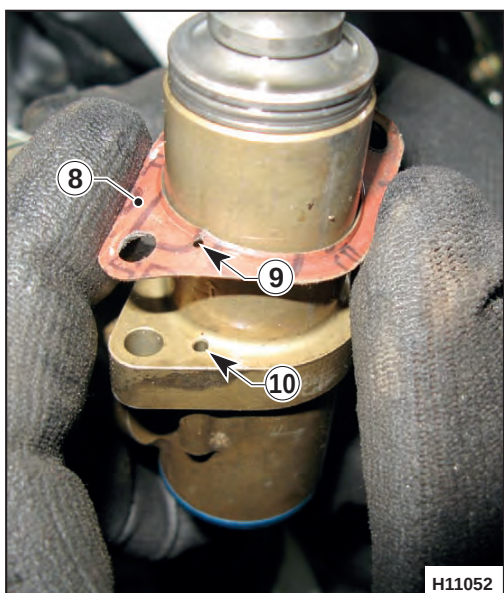


ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Refit the rotor (5). Hold the rotor (5) to prevent rotation and place an aluminium shim or dummy gear between the primary drives gears on the right side, again to prevent rotation. Tighten the nut (6) to 75 Nm, 7.5 Kgm, 54.3 ft/lb. Use a 17 mm wrench.

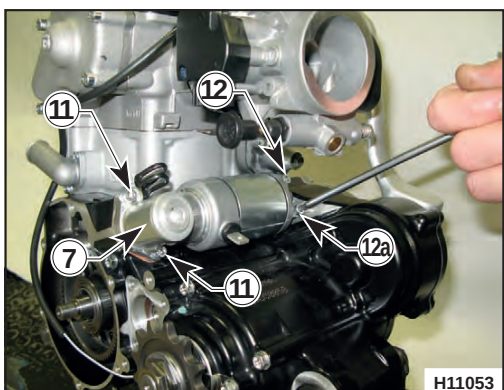
Before installing the starter motor (7), check for free (clockwise) rotation of the freewheel (4) while holding the rotor (5) steady.



Assemble the starter motor (7).



On assembly, check the gasket (8) for damage and replace it if needed. Make sure to position it correctly with the gasket hole (9) matching the hole (10) in the starter motor flange.



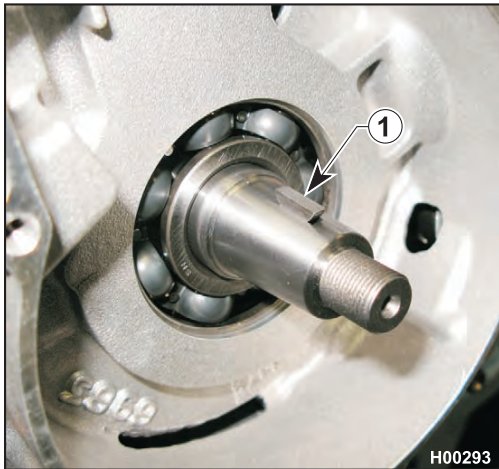
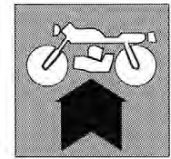
Fit the starter motor (7) into place.

Tighten the bevel drive screws (11) using a 4 mm Allen wrench (6 Nm - 0.6Kgm - 4.43 ft/lb).

Tighten the screws (12) (12a) using a 4 mm Allen wrench (6 Nm - 0.6Kgm - 4.43 ft/lb).

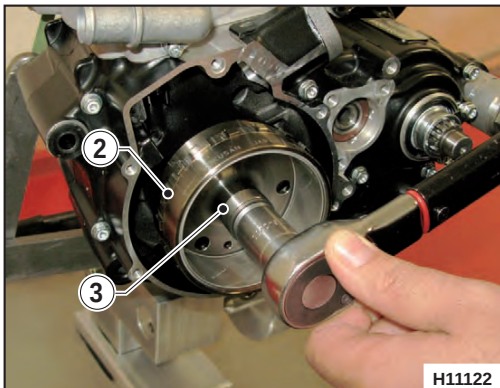
12=L= 25 mm

12a=L=30 mm

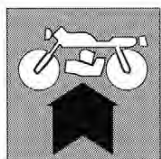


Flywheel installation (TC)

Clean flywheel rotor to remove any debris suspended in swirling oil and captured by the magnets. Fit the tab (1) to the crankshaft.



Refit the rotor (2). Hold the rotor (2) to prevent rotation and place an aluminium shim or dummy gear between the primary drives gears on the right side, again to prevent rotation. Tighten the nut (3) to 75 Nm, 7.5 Kgm, 54.3 ft/lb. Use a 17 mm wrench.

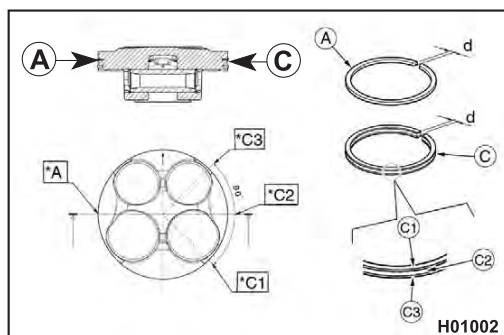


ENGINE REASSEMBLY

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA

TC 250R 2013 - TC 250R 2013 I.E. USA

TXC 250R - 310R 2013 I.E. USA

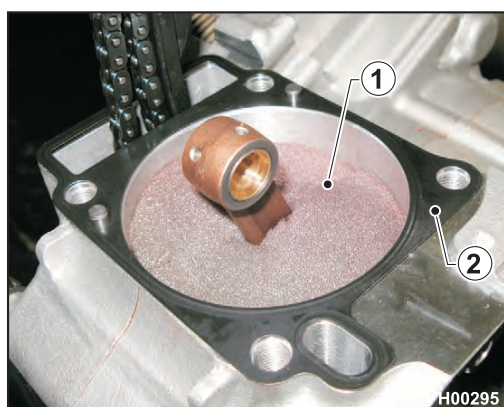


Piston ring installation

Fit the piston rings as shown in the diagram. If the piston ring is marked on one side, that side must be facing up.

A= Compression ring
C= Oil control ring

*C1= Top oil rail end gap position
*C1= Oil rail spacer end gap position
*C1= Bottom oil rail end gap position



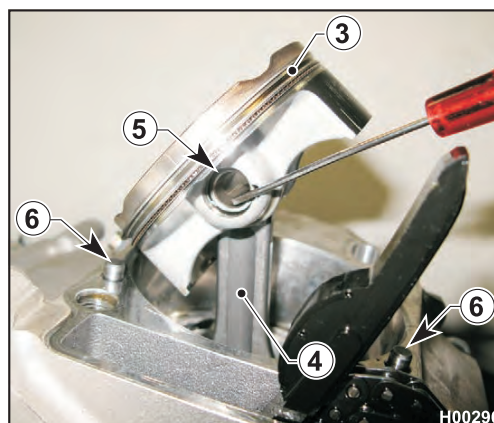
Piston and cylinder installation

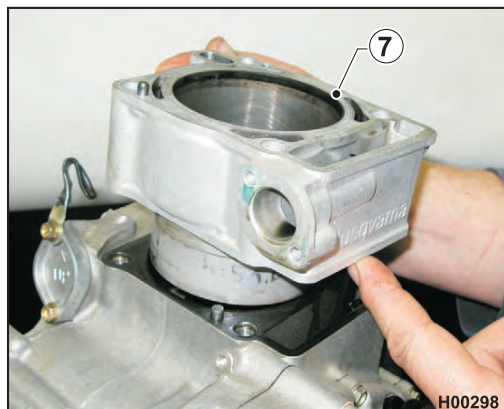
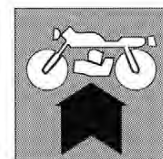
Remove the rubber protection (1).
Install a new cylinder foot gasket (2).

Assemble piston (3) to connecting rod (4) (lubricate with engine oil) and fit the piston pin retaining rings (5).

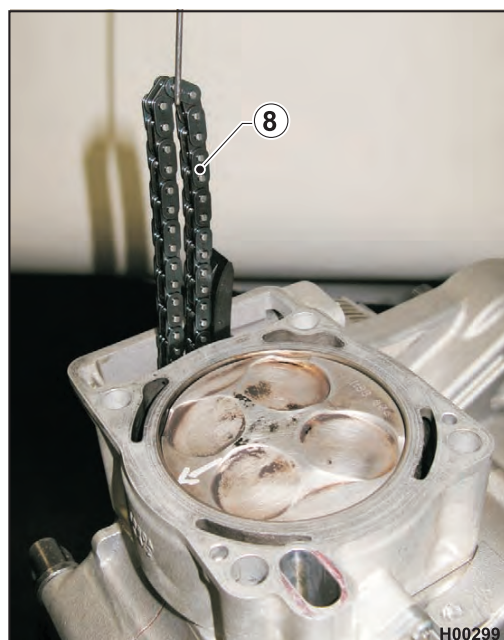
Make sure the arrow mark on the piston is pointing to the front end.

Make sure that the locating pins (6) are in place.

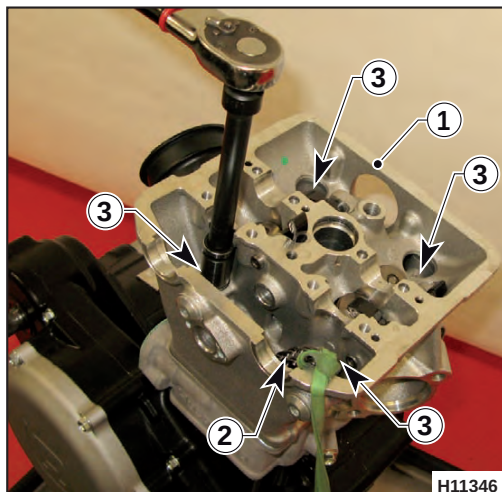
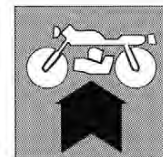




Lubricate the cylinder liner (7) with engine oil and slide it over the piston rings. Make sure to collect the timing chain (8).

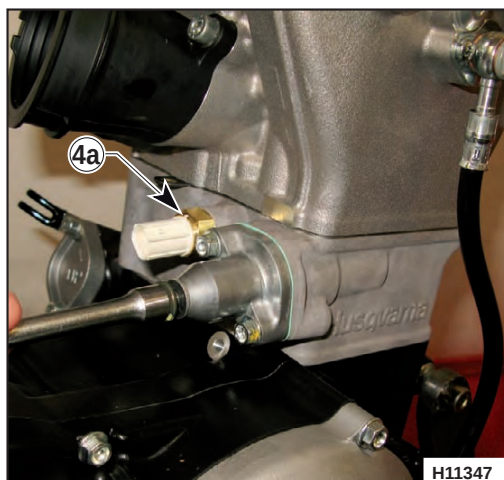


Position the slider (9).

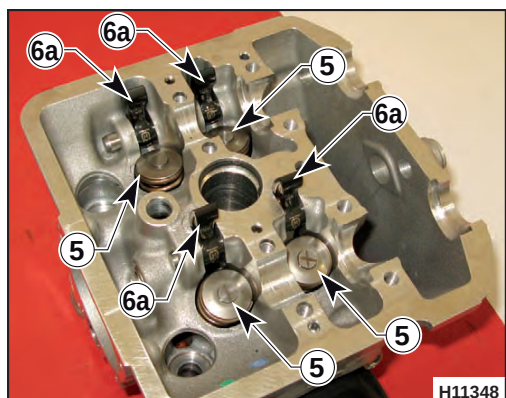


Cylinder head installation

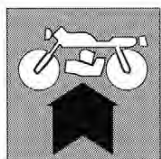
Tighten the screws (3) gradually and in a cross pattern, starting with a 20 Nm - 2.0 Kgm - 14.75 lb/ft pre-tightening torque, then with a 40 Nm - 4.0 Kgm - 29.50 lb/ft torque (12 mm wrench) .



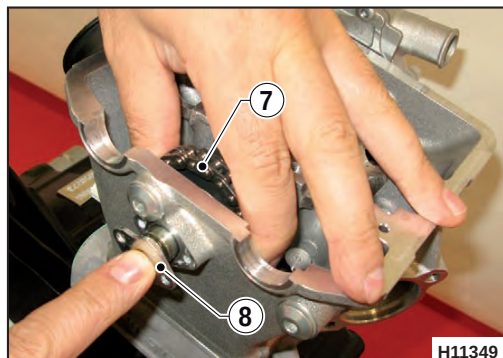
Refit the water temperature sensor (4A) (use a 17 mm ring wrench 5 Nm, 0.5 Kgm, 3.69 ft/lb).



Lift the rocker arms (6a) and refit the four pads (5) following the numbering you marked during the removal.



ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Check the bearings of the timing drive upper gear (7) and replace them if needed.

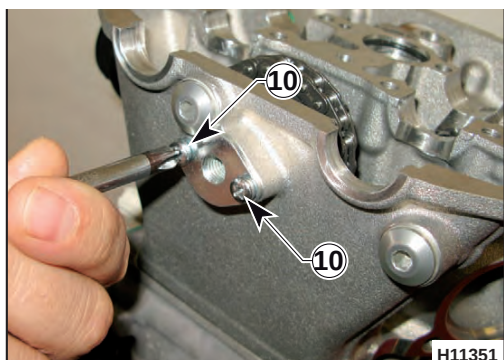
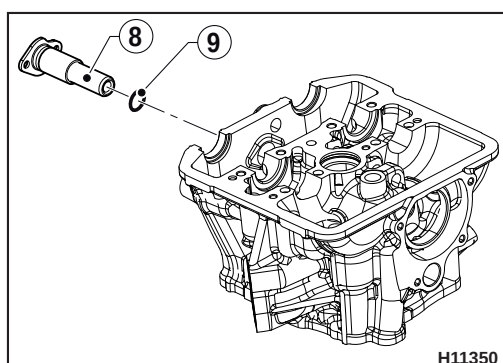


The gear (7) requires no timing.

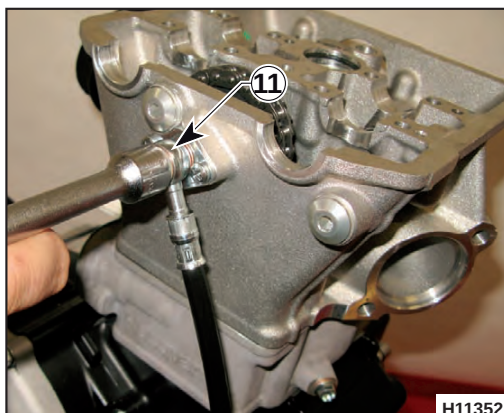
Refit the gear (7) with its shaft (8) and gasket (9).



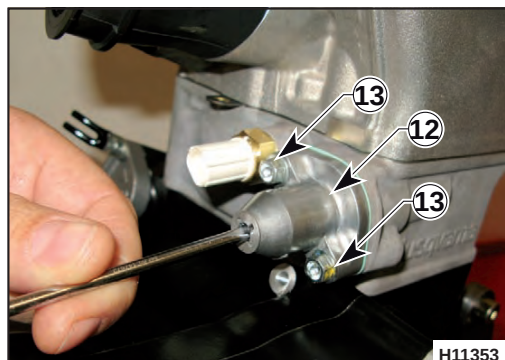
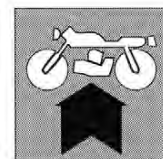
Grease the O-Ring (9) before refitting the shaft (8). Check the status of the gasket (9) and if it shows damages, replace it.



Tighten the screws (10) with a Phillips screwdriver (4 Nm, 0.4Kgm, 2.9 ft/lb, Loctite 243).



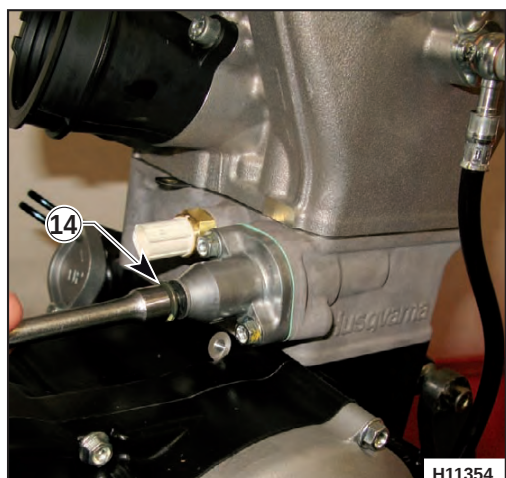
Tighten the drilled bolt (11) using a 12 mm wrench at a torque of 8 Nm, 0.8 Kgm, 5.9 ft/lb.



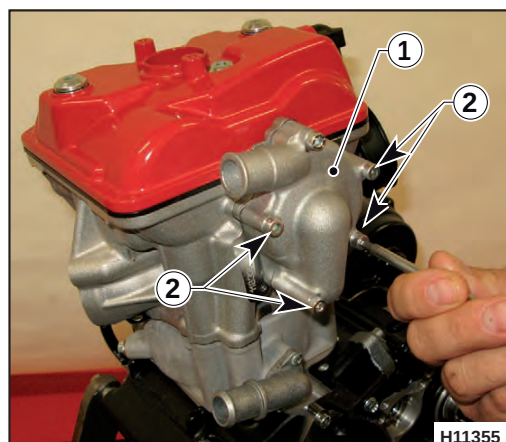
Timing chain tensioner installation

Refit the chain tensioner (12) and its gasket. Tighten the two screws (13) using an 6 mm wrench (8 Nm, 0.8 Kgm, 5.9 ft/lb).

Release the chain tensioner (12) using a screwdriver (turn counter clockwise).

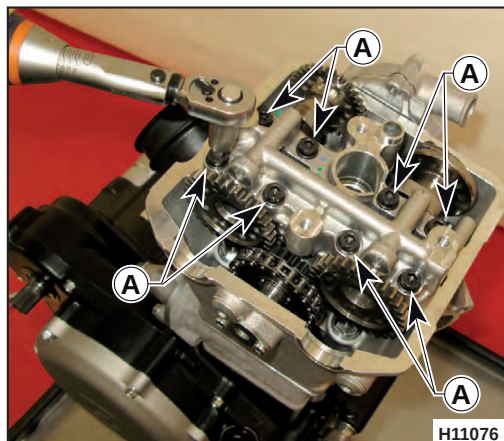
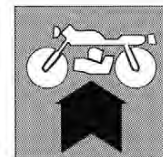


Tighten the screw (14).

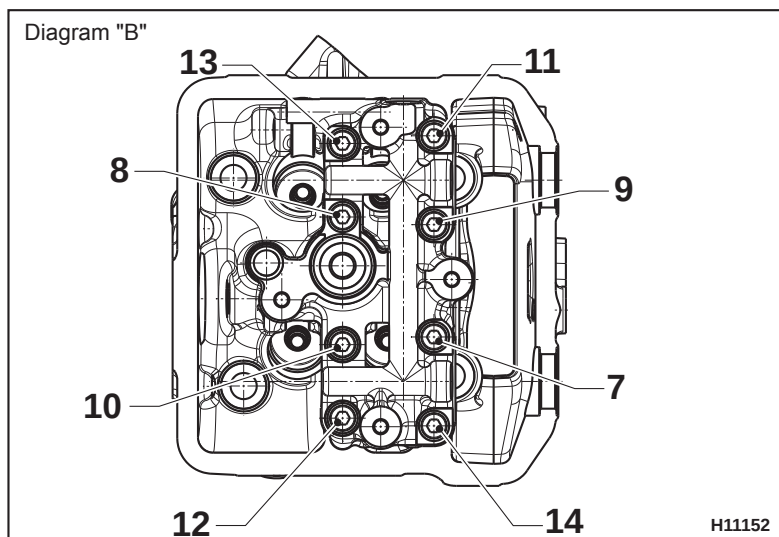


Water pump installation

Refit the water pump (1) with its gasket. Avoid using excessive force to engage pump gear with intake camshaft gear. Tighten the screws (2) with a 4 mm Allen wrench (5.5 Nm, 0.5 Kgm, 3.98 ft/lb).



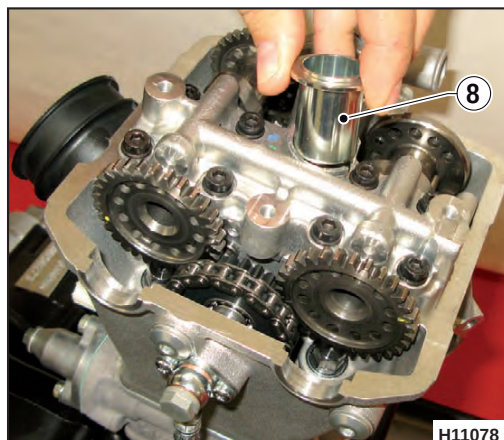
Clean the mount and tighten the screws (A) with a fitting sequence from 7 to 14 as the diagram "B" shows. Initially tighten them with a 7 Nm - 0.7 kgm - 5.16 ft/lb pre-tightening torque, then with a 11 Nm - 1.1 kgm - 8.11 ft/lb tightening torque.

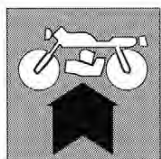


Turn the crankshaft manually a few turns to check for free, smooth rotation without any tight points, then bring it back to Top Dead Centre position.

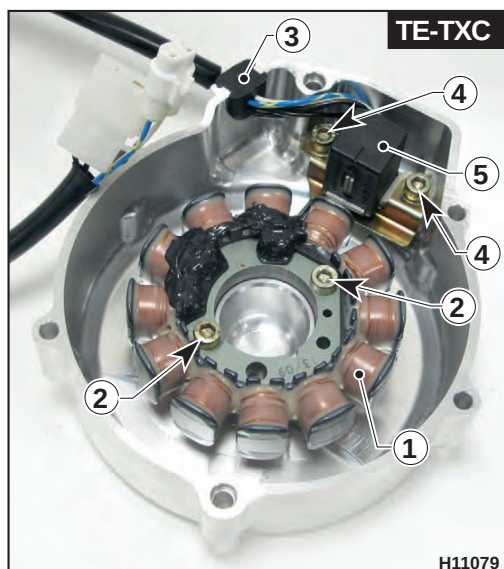
Check the valve clearance as outlined in Chapter "D".

Grease the O-Ring gasket (7) then refit the spark plug recess (8) making sure that the gasket does not get damaged.





ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Flywheel cover installation

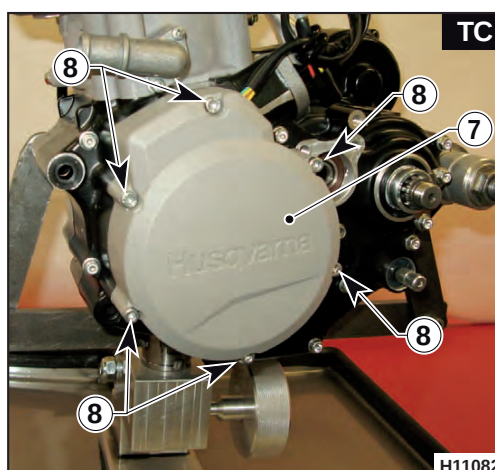
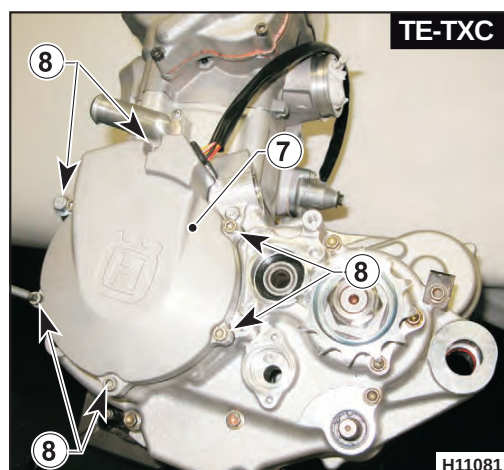
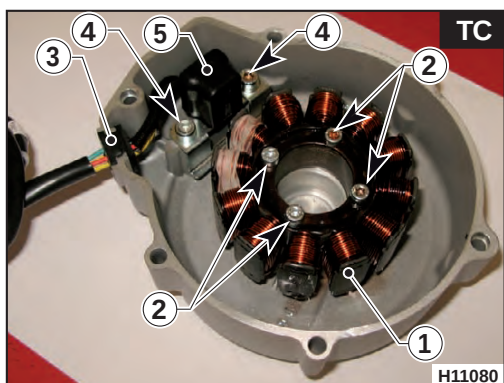
Install the stator (1) with its mark lined up with the flywheel cover mark and tighten the retaining screws (2) (use an Allen wrench; for TC use a 4 mm, 4 Nm, 0,4 Kgm, 2.95 ft/lb + Loctite 272; for TE-TXC use a 5 mm, 6 Nm, 0,6 Kgm, 4.43 ft/lb + Loctite 272).

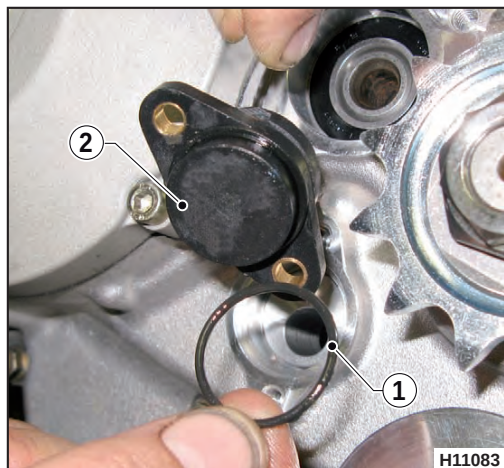
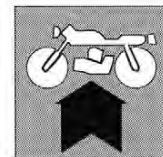
Insert the cable guide (3) into its seat in the cover and tighten the two retaining screws (4) of the pick-up sensor (5) with its plate (6 Nm, 0.6 Kgm, 4.3 ft/lb + Loctite 272).

Install the flywheel cover (7) with its gasket and tighten the six screws (8) to 6 Nm, 0.6 Kgm, 4.3 ft/lb.



Make sure the two centring bushings (6) are in place.

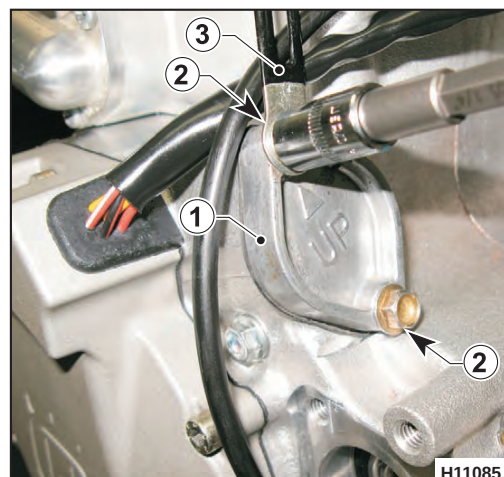
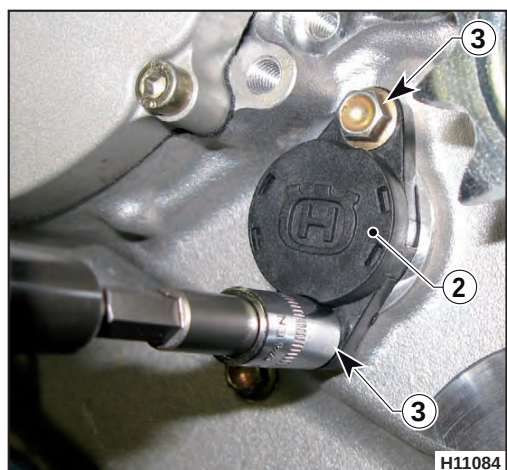




Plug refitting

Check the plug (2) O-ring gasket (1).

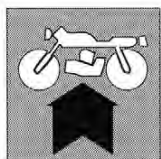
Refit the plug (2) tightening the screws (3) with an 8-mm wrench (5.5 Nm, 0.55 Kgm, 4 ft/lb, Loctite 243).



Starter motor seat cover installation (TC)

Refit the cover (1) with its gasket making sure the arrow is pointing "UP".

Tighten the screws (2) with the wire clip (3) placed on the upper screw.

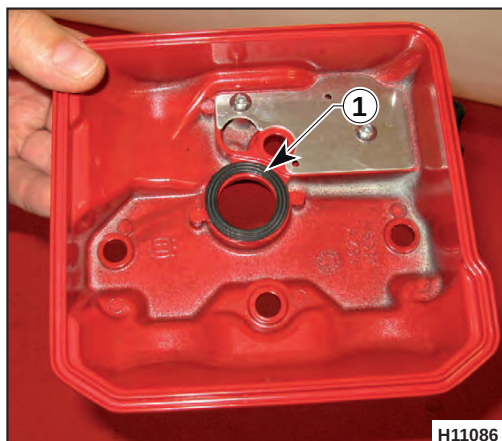


ENGINE REASSEMBLY

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA

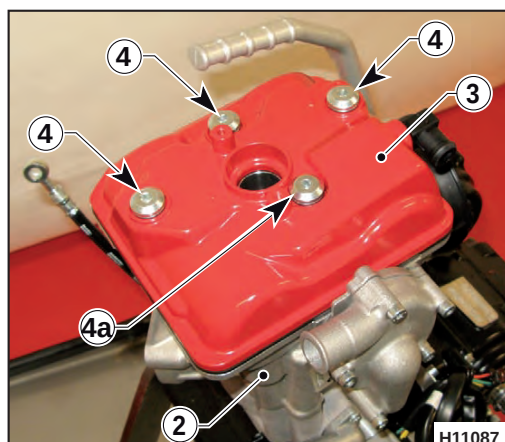
TC 250R 2013 - TC 250R 2013 I.E. USA

TXC 250R - 310R 2013 I.E. USA



Refitting of the head cylinder cover, spark plug, coil

- Fit the central retaining gasket (1).

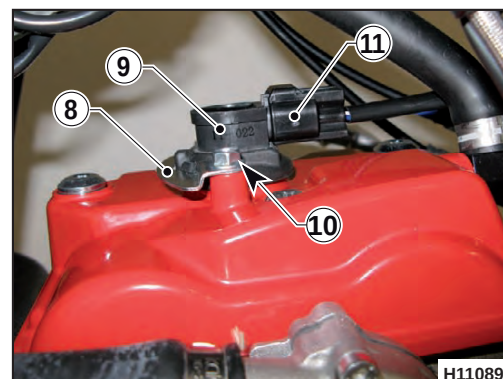


- Fit the cover (3) on the head (2) with the respective gasket.
- Tighten the screws (4) to a 8 Nm - 0.8 Kgm - 5.9 ft/lb torque.

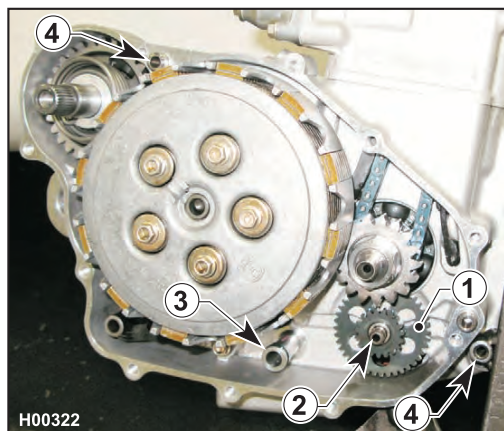
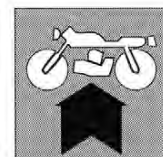


During the refitting, fit the longest screw (4a) on the water pump side.

- Install the ignition spark plug (10÷12 Nm, 1÷1.2 Kgm, 7.4÷8.9 ft/lb).

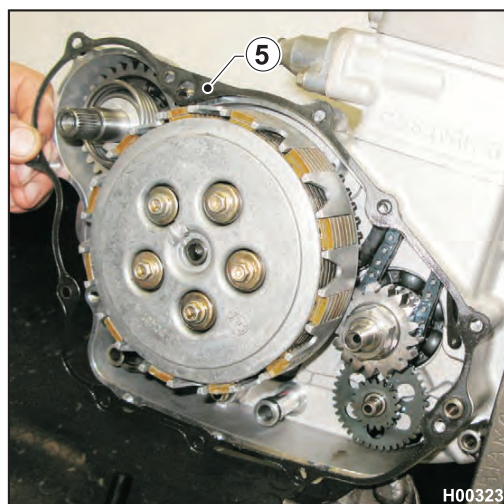


- Make sure that the gasket (5) is correctly fitted; the reference lug (6) must correspond with the retaining bracket (8) gap (7).
- Install the coil (9) on the head.
- Tighten the screws (10) with a 6 Nm, 0.6 Kgm, 4.43 ft/lb torque.



Right crankcase assembly

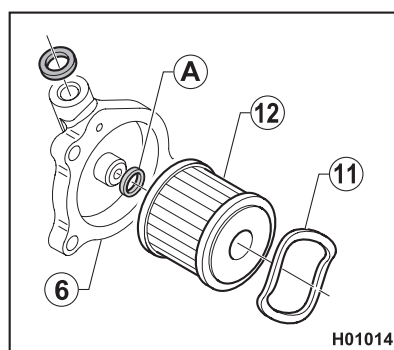
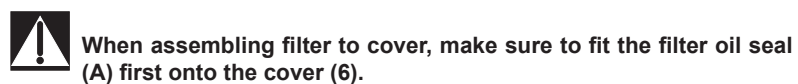
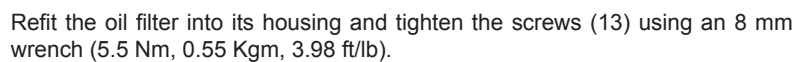
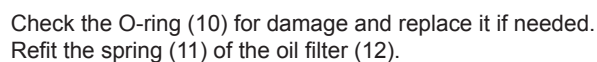
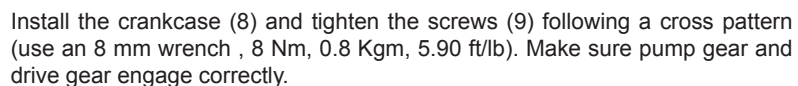
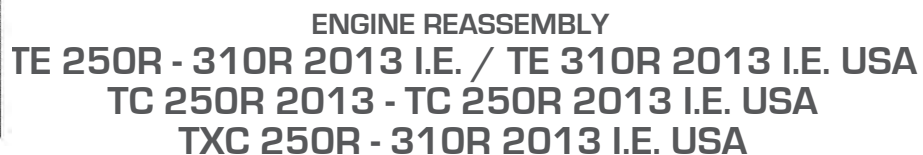
Refit the oil pump drive gear (1) and its shaft (2).
Check the O-rings of the oil suction stub (3) and replace them if needed.
Refit the oil suction stub (3).
Refit the centring bushings (4).

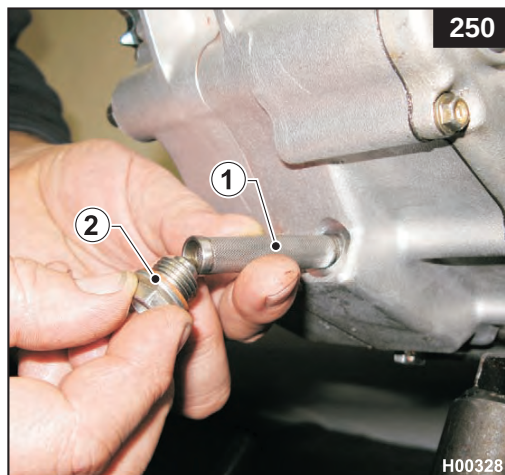
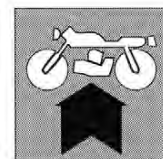


Refit the gasket (5).



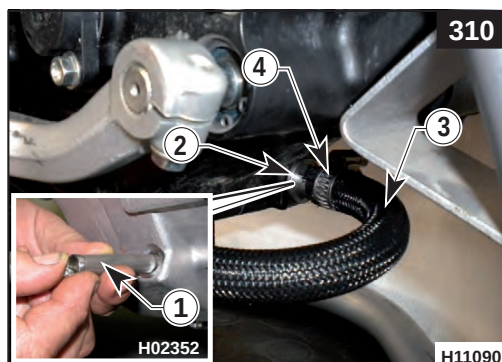
Manually check for correct installation and operation of the pump (6) and make sure the crankshaft sealing ring (7) is in the correct position.





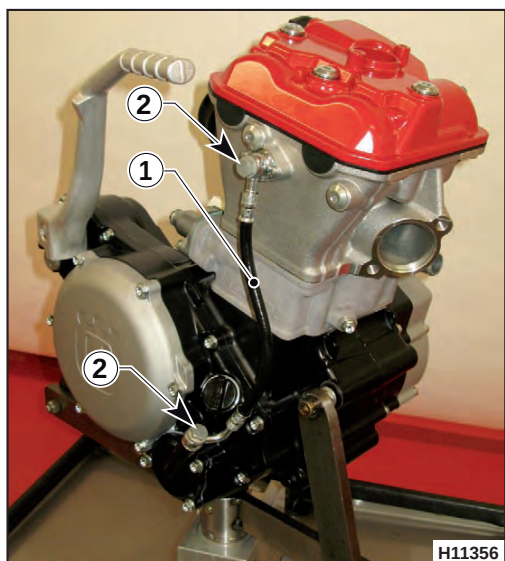
Filter and drain plug (250)

Fit the oil filter (1) and tighten the cap (2) into place with its gasket using a 12 mm wrench (25 Nm, 2.5 Kgm, 18.44 ft/lb).



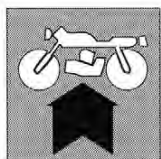
Blow-by tube fitting/filter (310)

Insert the oil filter (1), screw the hose fitting (2), insert hose (3) and screw clamp (4).

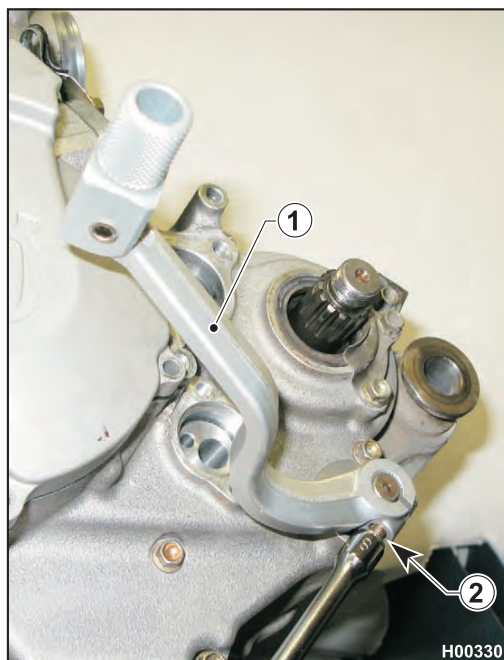


Oil feed hose installation

Refit the hose (1) and tighten the drilled screws (2) with their seals using a 12 mm wrench (8 Nm, 0.8 Kgm, 5.9 ft/lb).



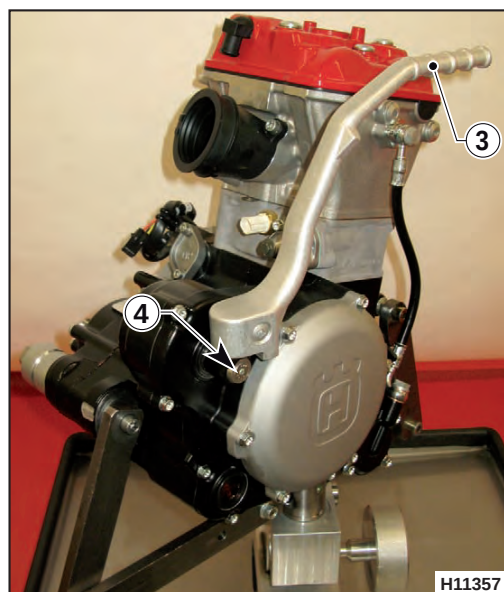
ENGINE REASSEMBLY
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



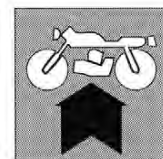
Gear shift and kick start pedal installation

Install the gear shift pedal (1) and tighten the screw (2) using an 8 mm wrench (8 Nm, 0.8 Kgm, 5.8 ft/lb).

Check the pedal (1) for damage.



Refit the kick start pedal (3) and tighten the screw (4) using a 12 mm wrench (25 Nm, 2.5 Kgm, 18.44 ft/lb + Loctite 272). Make sure that the pedal does not foul the cover.



Installing the engine and assembling the motorcycle

Install the engine and any parts you had removed in the order given below.

- Place the engine in the chassis.
- Insert the swinging arm shaft from the right-hand side and tighten its nut using a 22 mm wrench.
- Tighten the engine mounting bolts to the frame using a 12 mm wrench on the left-hand side and a 10 mm wrench on the right-hand side.
- Install the drive chain (fit the master link clip by setting the closed side facing the chain direction of rotation).
- Install the clutch control on the engine and tighten the fitting with an 8 mm wrench. Add clutch fluid.
- On the left-hand side, use an 8 mm wrench to install the chain guide plate. Fit the transmission sprocket cover and tighten its screws using a 6 mm wrench.
- Fit the spark plug cap to the spark plug. Install the rubber hose on the right-hand side of the cylinder head cover.
- Refit the oil sump guard if you had removed it.
- Refit the coolant hoses with their clamps.
- Refit the rear brake pedal with its bolt.
- Refit the side guards of the chassis.
- Refit the carburettor.
- Refit the exhaust system.
- Refit the fuel tank together with the scoops.
- Refit the fuel tank front retaining screw and hook up the scoops to the spoilers on the radiators.
- Refit the breather hose of the fuel tank plug on the steering stem. Refit the hose running from fuel tank to carburettor.
- Refit the side panels with their retaining screws.
- Refit the saddle and secure it with its rear fixing.



NOTES

- 1) Unless otherwise specified, standard torque values for the different thread sizes are as follows

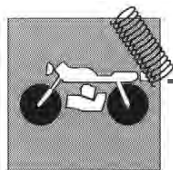
M5x0.8 (5.6-6.2 Nm; 0.57-0.63 Kgm; 4.1-4.5 ft/lb)

M6x1 (7.6-8.4 Nm; 0.80-0.85 Kgm; 5.8-6.1 ft/lb)

M8x1.25 (24-26 Nm; 2.4-2.6 Kgm; 17.3-18.8 ft/lb)

- 2) For electrical connections, see relevant diagram included in Section M.
- 3) Bleed the clutch (see Section P).
- 4) Pour the oil in the crankcase (for the characteristics and quantities, see Chapter A)
- 5) Pour the liquid in the RH radiator (for the characteristics and quantities, see Chapter A)
- 6) Check that the kick start pedal moves freely.
- 7) Perform the necessary adjustments as outlined in Section D "Settings and adjustments".





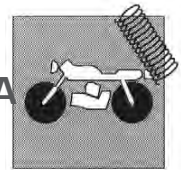
FRONT SUSPENSION

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



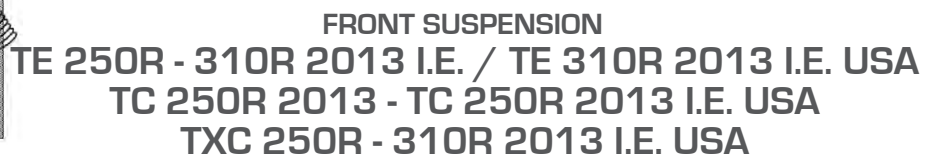
Section

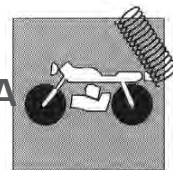




TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

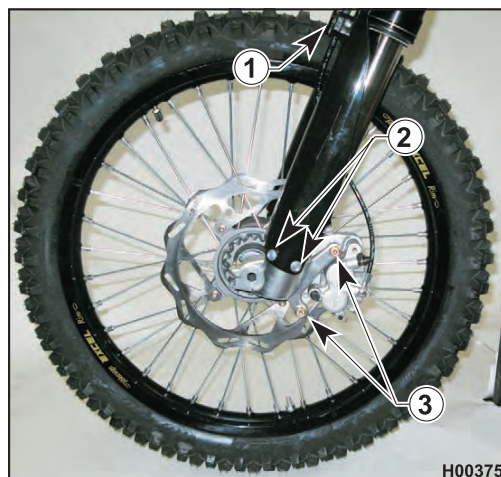
Downloaded from www.Manualslib.com manuals search engine



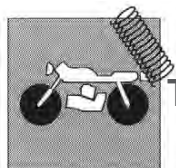


Front fork removal

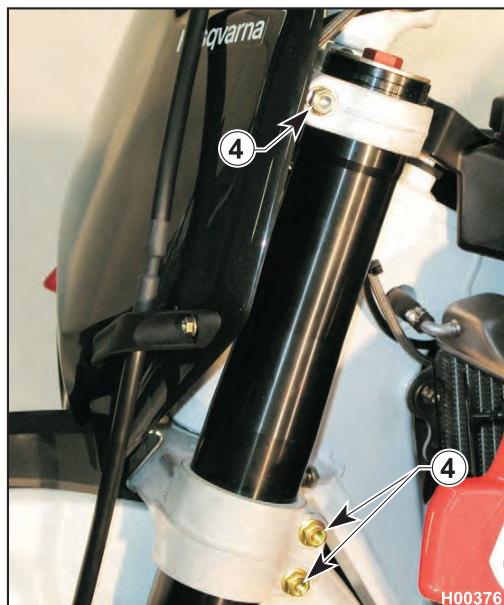
Measure height "A" (it will need to be restored to original value on assembly). Set a block under the engine and see that the front wheel is lifted from the ground and then proceed as follows:



- remove the screws (1) and the brake line clamp on the left-hand side;
- remove the six screws (2) and the fork leg guards;
- remove the brake calliper from the L.H. fork leg loosening the two retaining screws (3);
- remove the front wheel as described in Section "Y";



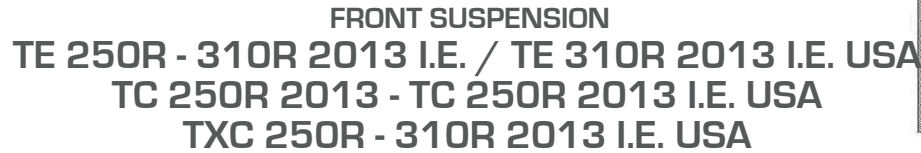
FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

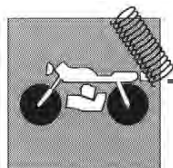


- loosen the bolts (4) that secure the fork legs to steering head and bottom yoke;
- remove the fork legs.

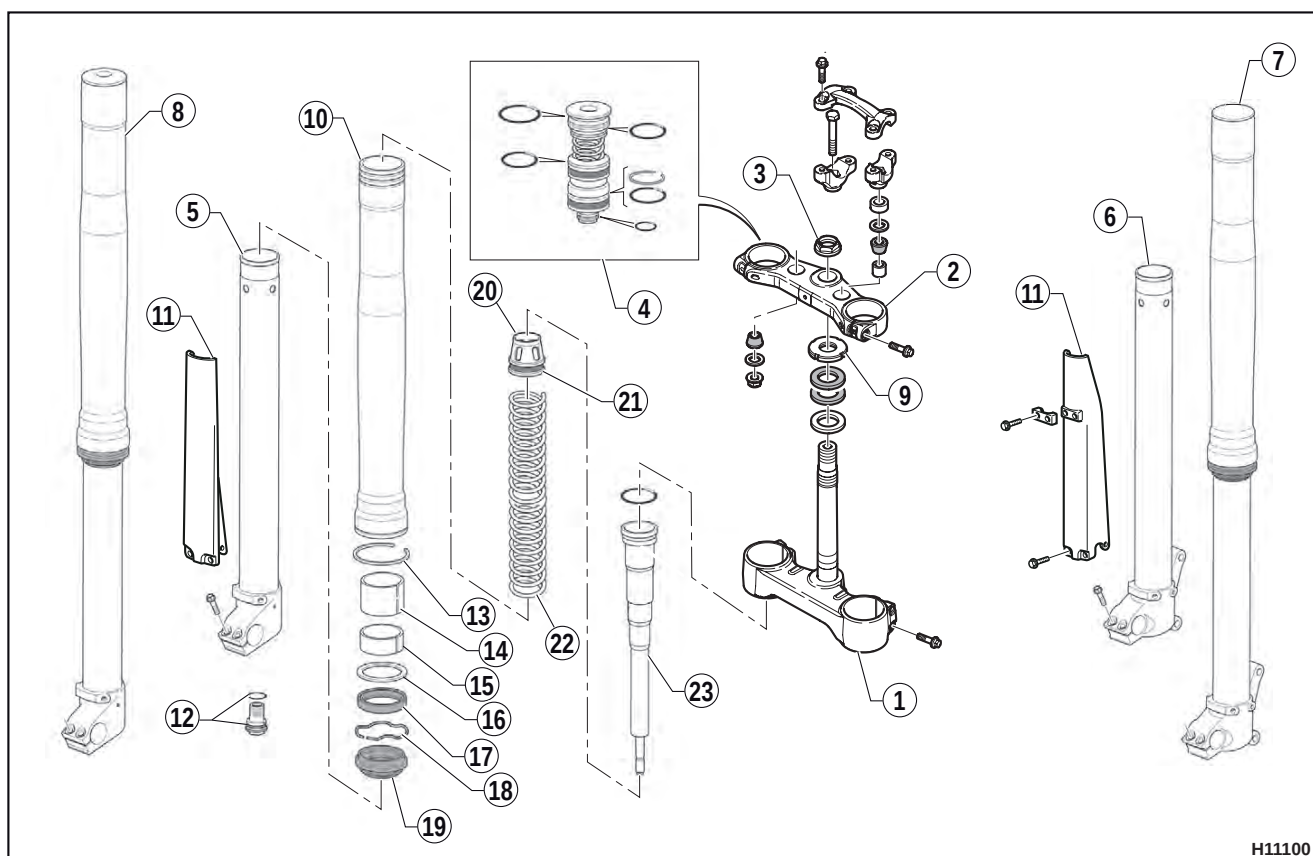
Refit fork legs and front wheel as described in Section "Y".

Set height "A" back to original value.





FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

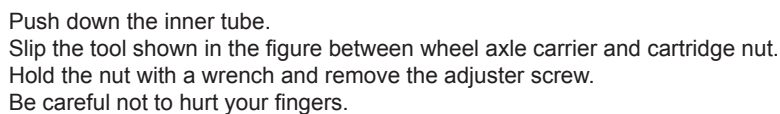
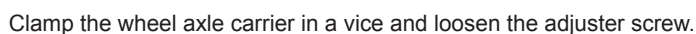
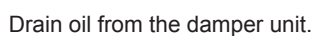
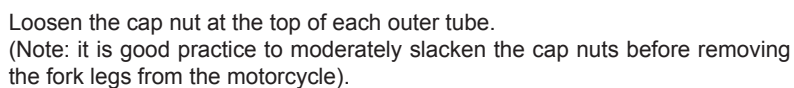


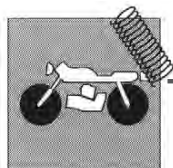
Front suspension (TC - TXC)

Front suspension is handled by a KAYABA upside-down telescopic hydraulic fork with advanced axle and 48 mm legs. Wheel travel is 300 mm.

Key

- 1) Bottom yoke with pin
- 2) Steering head
- 3) Nut
- 4) Compression valve
- 5) RH fork leg
- 6) LH fork leg
- 7) LH fork leg
- 8) RH fork leg
- 9) Ring nut
- 10) RH outer tube
- 11) Leg protection
- 12) Rebound adjuster screw
- 13) Retaining ring
- 14) Bushing
- 15) Bushing
- 16) Washer
- 17) Sealing ring
- 18) Retaining ring
- 19) Dust seal
- 20) Bushing
- 21) Bushing
- 22) Spring
- 23) Complete damper unit





FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Take the cartridge out of the outer tube.



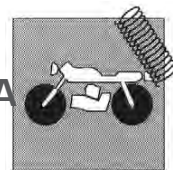
Do not remove the nut at the bottom end of the cartridge.



Remove the bottom valve assembly from the cartridge.
Hold the cartridge octagonal nut with the suitable tool to prevent rotation.
Use a similar tool in the octagonal recess of the bottom valve assembly.
Use a key to slacken the bottom valve assembly.



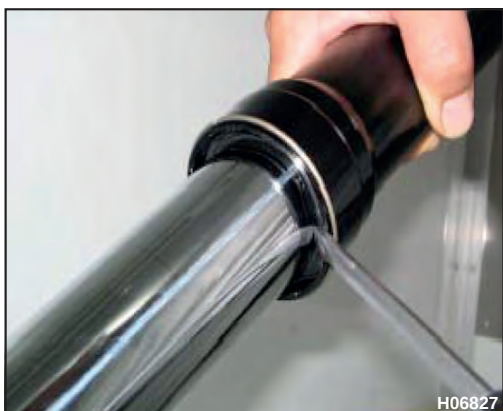
Check the O-rings on the bottom valve assembly for damage.
Replace as required.



If outer tube and inner tube are still assembled together, place the fork leg upside down and allow at least 20 minutes for oil to drain.



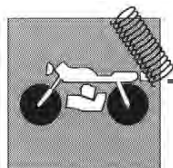
Remove the dust seal using a flat head screwdriver.



Remove the retaining ring using a flat head screwdriver.



Pull the inner tube until separating it from the outer tube.
 Note: to facilitate removal, quickly (but carefully) pump the tubes back and forth until separating them.



FRONT SUSPENSION TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA



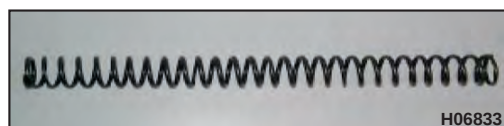
Remove the sealing rings and the metal rings mounted on the inner tube.
Do not reuse any metal parts after removal.
Replace them with new components.
Replace damaged sealing rings.
Washer and retaining ring may be reused if they are not damaged.



Check the rebound adjuster rod for distortion or damage.
Replace as required.



Check the rebound adjuster.
Replace damaged O-rings.
Replace the complete assembly (do not reuse it).



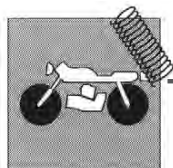
Check the spring.
Replace it if:
outside diameter is damaged or exceedingly worn.
Free length is 449 mm (17.7 in.) or less.



Check the inner tube.
Replace if distorted.
(Never attempt to repair or reuse a distorted fork tube).
If the tube shows surface defects, sand the surface.
If repair is not possible, replace the tube.
(Never reuse an inner tube if scored or showing bulges on the outer surface).



Check the outer tube.
Replace the tube if any distortion is detected or if the sliding surface is damaged.



FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Fit the dust seal to the outer tube.
Make sure that there is not play between dust seal and outer tube.



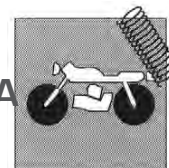
Refit the cartridge.
Tighten the nut all the way onto the rebound adjuster rod.
Make sure rebound adjuster rod thread length is at least 15 mm (0.6 in.).



Fill the cartridge with the specified oil (196 cm³ - 11,96 in³).



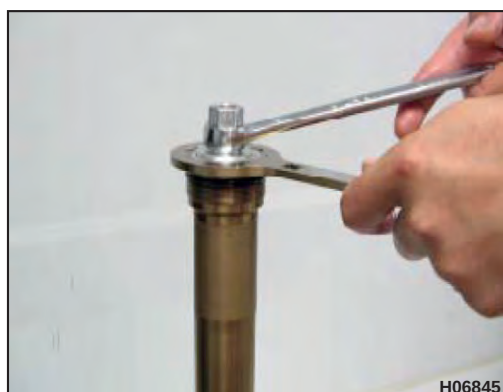
Pump the piston rod up and down repeatedly to remove any air from the cylinder.
Pull the piston rod until fully extended.



Check oil level. It should be about 145 mm (5.7 in.).



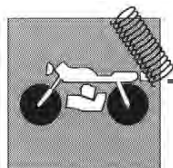
Push the piston rod all the way down and install the bottom valve assembly. With the bottom valve assembly installed, check that the piston rod is fully extended.



Hold the cartridge octagonal nut to prevent rotation. Use a similar tool in the octagonal recess of the bottom valve assembly. Tighten the bottom valve assembly to 29 Nm (21.4 ft/lb) using a wrench.



Hold the cartridge with the piston rod end pointing downwards as shown in the figure. Pump the piston rod up and down a dozen times to help oil reach all points of the unit.



FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Drain excess oil from the cartridge pushing the damper unit all the way home. Be careful not to distort or damage the piston rod or any other parts. Please note that excess oil may flow out from the hole located before the reservoir. If you see no oil flowing out, it means that there isn't enough oil in the cartridge. Add oil to the cartridge before refitting it.



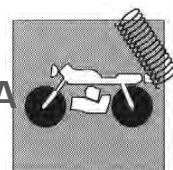
Drain excess oil from the reservoir.



Clean off any excess oil from the cartridge. Install spring guide and spring on the cartridge.



Insert the cartridge into the inner tube.



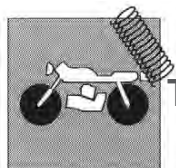
Push down the inner tube.
Slip the tool shown in the figure between wheel axle carrier and cartridge nut.
Insert the rebound adjuster rod into the piston rod and tighten the adjuster screw.
Be careful not to hurt your fingers.



Tighten the adjuster screw all the way in.
Make sure that there is some play between the bottom edge of the adjuster screw and the upper edge of the nut.



Tighten nut and adjuster to 28 Nm (20.6 ft/lb) using a wrench.



FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Clamp the wheel axle carrier in a vice and tighten the adjuster screw onto the carrier to 55 Nm (40.5 ft/lb).

H06819



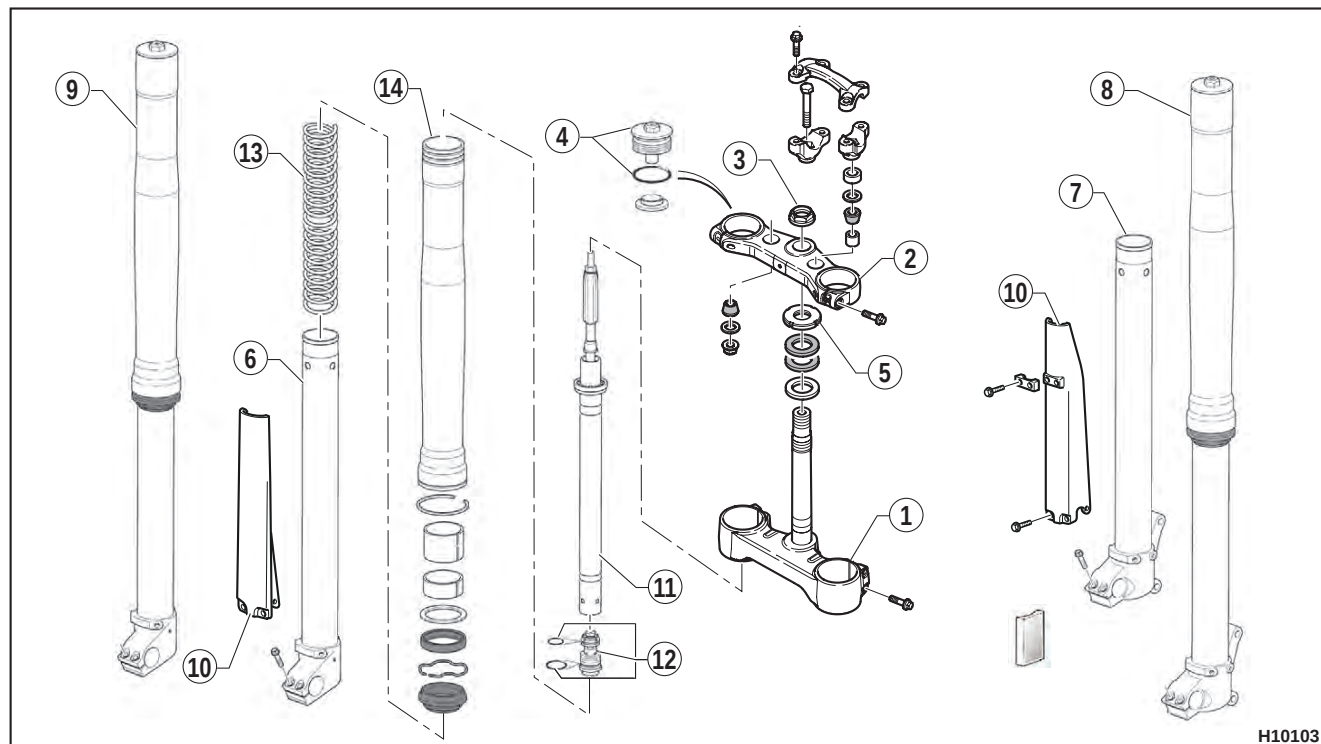
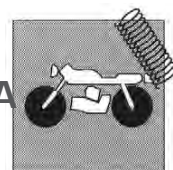
Fill the outer tube with the specified quantity of oil: 360 cm³ - 21,97 in³;

H06855



Tighten the cylinder onto the outer tube to 29 Nm (21.4 ft/lb).

H06813

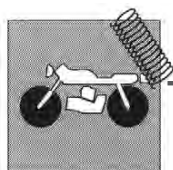


Front suspension (TE)

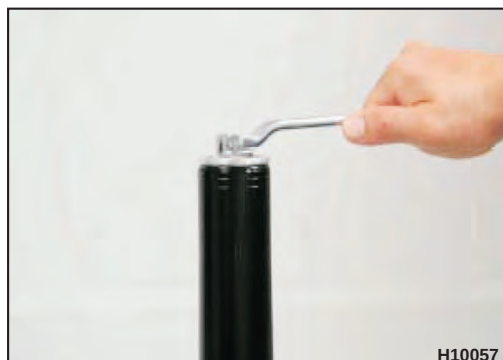
Front suspension is handled by a KAYABA upside-down telescopic hydraulic fork with advanced axle and 48 mm legs. Wheel travel is 300 mm.

Key

- 1) Bottom yoke with pin
- 2) Steering head
- 3) Nut
- 4) Cap unit
- 5) Ring nut
- 6) RH fork leg
- 7) LH fork leg
- 8) LH fork leg
- 9) RH fork leg
- 10) Leg protection
- 11) Damper unit
- 12) Bottom nut
- 13) Spring kit
- 14) LH/RH outer tube



FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



H10057

Loosen the cap nut at the top of each outer tube.
(Note: it is good practice to moderately slacken the cap nuts before removing the fork legs from the motorcycle).



H10058

Loosen the fork cap nut and the nut with a wrench.



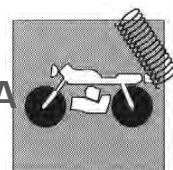
H10059

Remove top cap nut, spring retainer, spring and rebound adjuster rod.



H10060

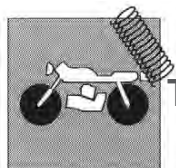
Drain the oil.
Pump the piston rod up and down to drain oil from the cylinder.



Remove nut, spring guide, O-ring and collar bushing.



Hold the cartridge top end steady.
Loosen and remove the bottom valve assembly.



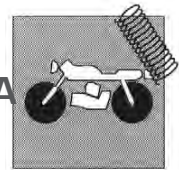
FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Take the cartridge out of the outer tube.



Remove the dust seal using a flat head screwdriver.



Remove the retaining ring using a flat head screwdriver.



Pull the inner tube until separating it from the outer tube.
 Note: to facilitate removal, quickly (but carefully) pump the tubes back and forth until separating them.



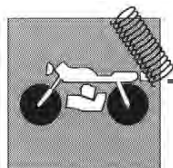
Remove the sealing rings and the metal rings mounted on the inner tube.
 Do not reuse any metal parts after removal.
 Replace them with new components.
 Replace damaged sealing rings.
 Washer and retaining ring may be reused if they are not damaged.



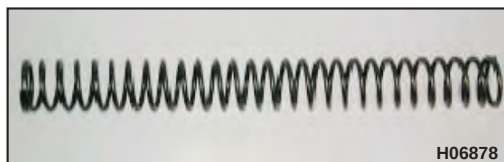
Check the rebound adjuster rod for distortion or damage.
 Replace as required.



Loosen and remove the bottom valve assembly.
 Replace damaged O-rings.
 Replace the complete assembly (do not reuse it).

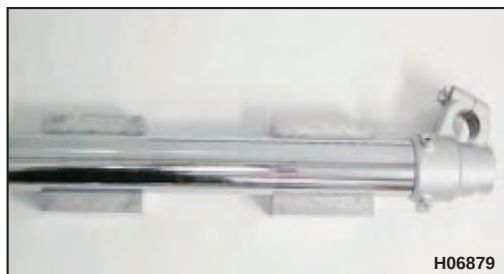


FRONT SUSPENSION TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA



H06878

Check the spring.
Replace it if:
outside diameter is damaged or exceedingly worn.
Free length is 457 mm (18 in.) or less.



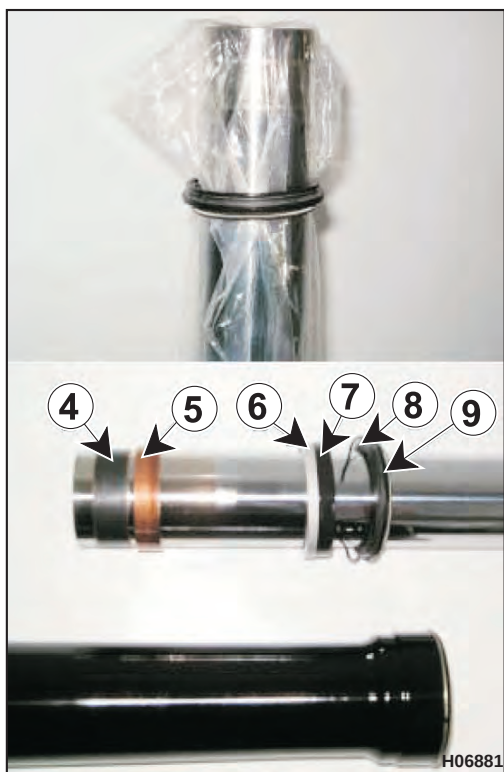
H06879

Check the inner tube.
Replace if distorted.
(Never attempt to repair or reuse a distorted fork tube).
If the tube shows surface defects, sand the surface.
If repair is not possible, replace the tube.
(Never reuse an inner tube if scored or showing bulges on the outer surface).



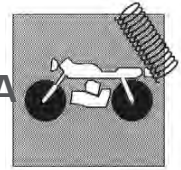
H06880

Check the outer tube.
Replace the tube if any distortion is detected or if the sliding surface is damaged.



H06881

Mount sealing rings and metal parts on the inner tube.
See the figure below for the installation sequence.
Note 1: Grease the edge of the sealing ring.
Note 2: Before sliding the sealing ring over the inner tube, cover tube edge with plastic as shown in the figure.
This will avoid damage to the oil seal lip.



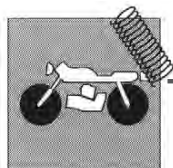
Fit metal bushing and washer to outer tube using an appropriate installer.
Fit the oil seal to the outer tube and push it home using an appropriate installer.
Make sure that the retaining ring groove inside the outer tube is fully visible.



Install the retaining ring.
Make sure that the retaining ring is fully seated in the groove inside the outer tube.



Fit the dust seal to the outer tube.
Make sure that there is not play between dust seal and outer tube.



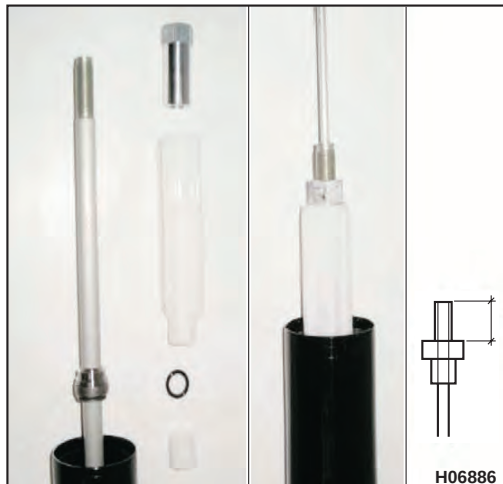
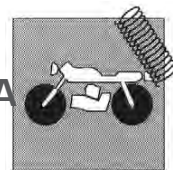
FRONT SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Insert the cartridge into the outer tube.



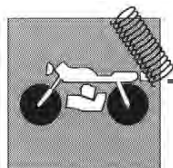
Hold the cartridge top end into place.
Tighten the bottom valve assembly to 55 Nm (40.5 ft/lb).



Fit collar bushing, O-ring, spring guide and nut onto piston rod.
 Insert the rebound adjuster rod into the piston rod.
 Make sure that at least an 18 mm (0.71 in.) portion of the rebound adjuster rod protrudes from the piston rod.



Fill the damper unit with the specified quantity of oil (674 cm³ - 41,13 in³).
 Slowly pump the piston rod up and down to help oil reach all points of the cartridge.
 Note: if you haven't drained all oil from the damper unit on disassembly, follow the procedure outlined below (Filling oil to specified level).
 Filling oil to specific level

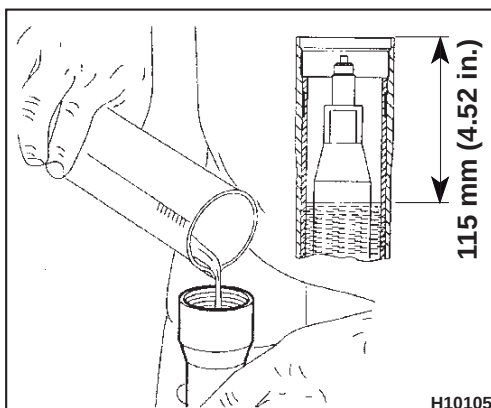


FRONT SUSPENSION

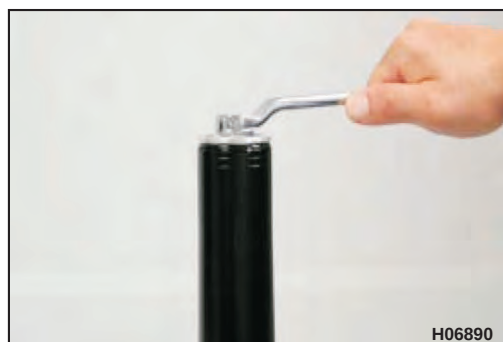
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
 TC 250R 2013 - TC 250R 2013 I.E. USA
 TXC 250R - 310R 2013 I.E. USA



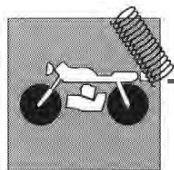
Fill the damper unit with oil up to the top edge of the outer tube.
 Slowly pump the outer tube up and down to help oil flow equally into both inner and outer tube.
 Now slowly pump the piston rod up and down to help oil reach all points of the cartridge.
 (Note: add oil if level in the damper unit is too low).
 Finally top up to the upper edge of the outer tube.
 Allow the fork leg to rest until no more air bubbles can be seen, then top up oil to specified level.
 Check that the level is at distance of 115 mm (4.52 in.) below the upper limit of rods.
 Insert the rebound adjuster rod into the piston rod.
 Insert spring and spring guide retainer and tighten the cap nut.



Tighten fork cap nut and nut to 28 Nm (20.6 ft/lb).



Tighten cap nut onto outer tube to 30 Nm (22 ft/lb).



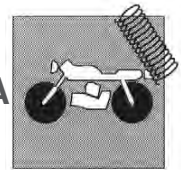
REAR SUSPENSION

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



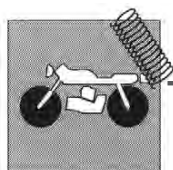
Section

J



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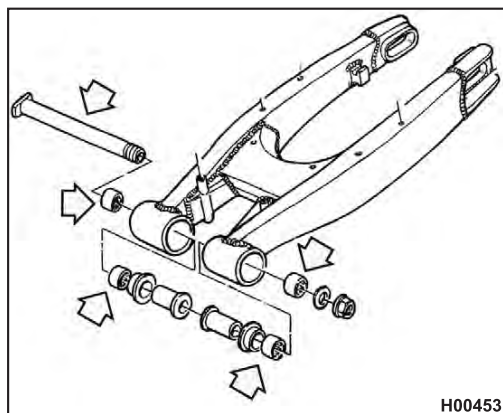
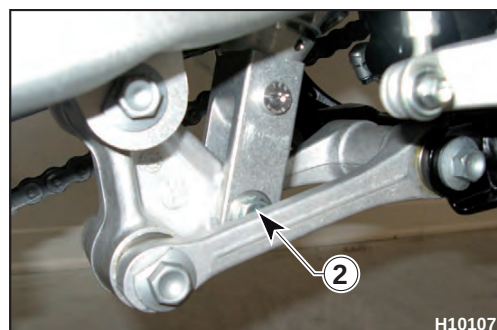
REAR SUSPENSION
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



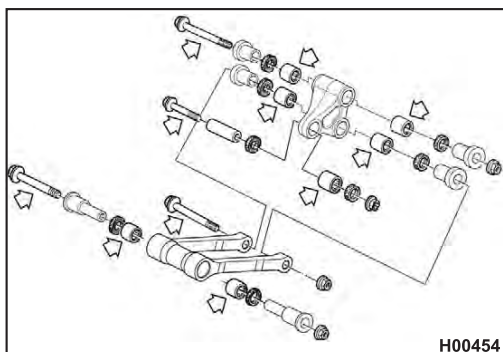
Rear shock absorber

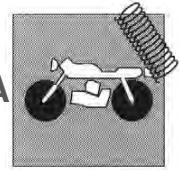
TIGHTENING TORQUE FIGURES

1, 2: 52.4 Nm/ 5.35 Kgm/ 38.6 ft/lb



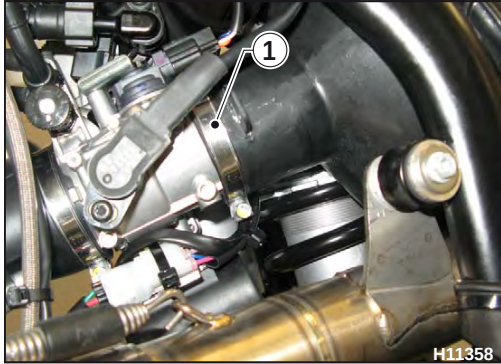
Lubrication points (grease)





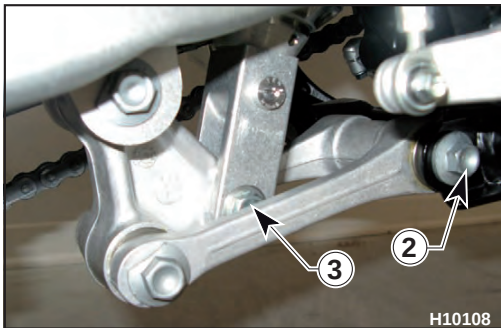
Rear suspension

The rising-rate rear suspension is made up of a shock absorber, a linkage system and a swinging arm. The spring preload of the shock absorber can be adjusted to suit riding and terrain conditions. Hydraulic damping is also adjustable using outer adjuster screws. Periodically check all components for wear.



Rear shock absorber removal

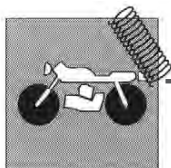
Set a block under the engine and see that the rear wheel is lifted from the ground. Remove saddle, side panels, silencer and rear chassis (see Section "E" - General Procedures). Loosen the front clamp (1) of the intake coupling.



Remove the front bolt (2) securing the suspension linkage to the chassis, the bottom (3) and top (4) shock absorber mounting bolts and remove the shock absorber (5).

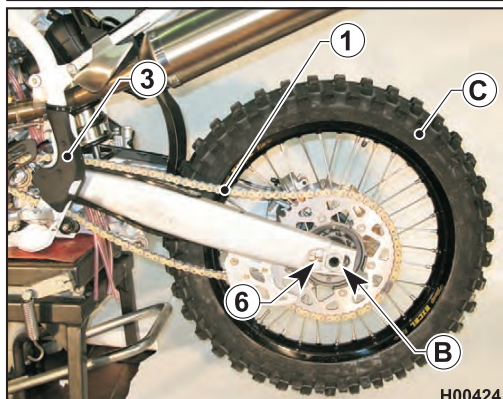
IMPORTANT: On assembly, fit the bottom locking nut (3) of the shock absorber on the **LEFT SIDE**.





REAR SUSPENSION

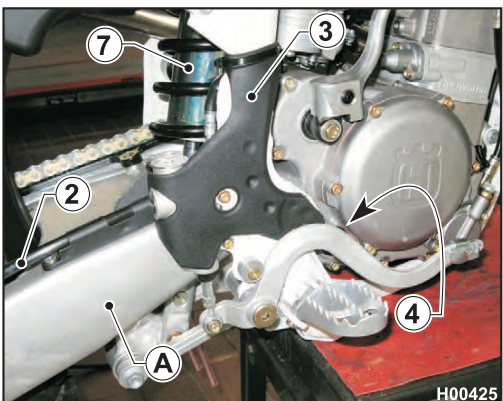
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TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



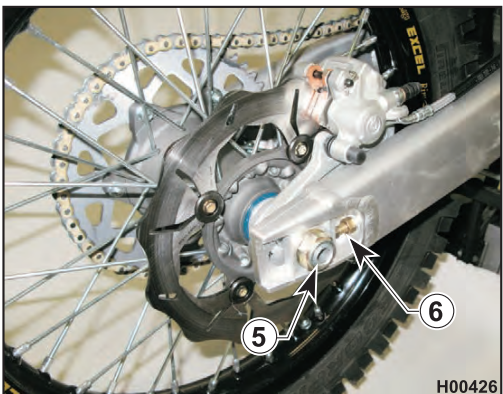
H00424

Disassembling and servicing the swinging arm

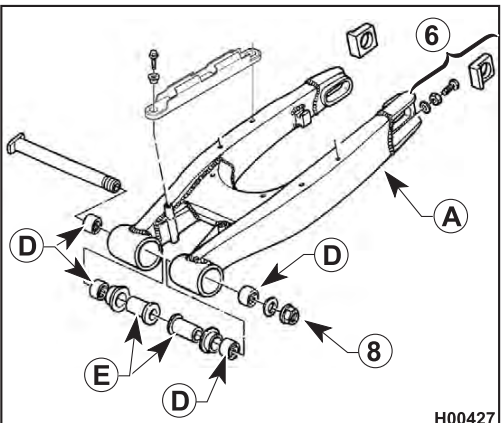
Set a stand or a block under the engine and see that the rear wheel is lifted from the ground. Remove the secondary drive chain (1) and detach the rear brake line (2) from the swinging arm (A). Remove both chassis side guards (3). Disengage the return spring (4) of the rear brake pedal from the chassis. Remove the wheel axle nut (5) and the wheel axle (B). There is no need to loosen the chain tensioners (6) on the swinging arm; in this way, the chain tension will remain unchanged after reassembly. Extract the complete wheel (C), keeping the spacers located at the hub sides. Remove the shock absorber (7) as described at page J.3. Remove the swinging arm shaft nut (8) and then the swinging arm. Check swinging arm straightness and manually check the roller cages (D) and their bushings (E) for wear; turn the bushing inside the roller cage: if you feel any tightness or hear noise, replace them.



H00425



H00426

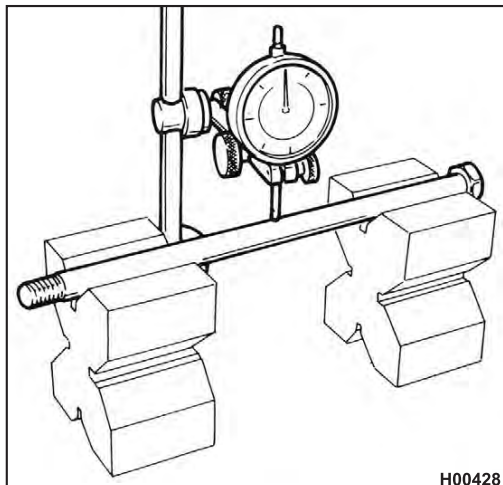
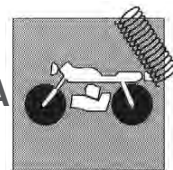


H00427

TIGHTENING TORQUE FIGURES

5 = 142,1 Nm - 14,5 Kgm - 104,81 ft/lb

8 = 122,5 Nm - 12,5 Kgm - 90.3 ft/lb (+LOCTITE 243)

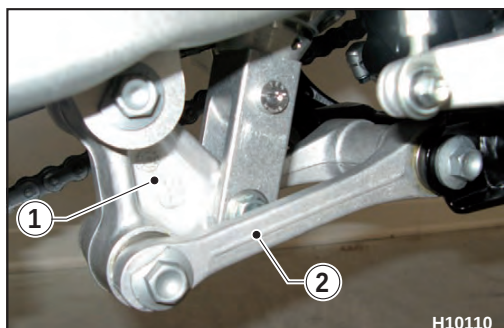


H00428

Servicing the swinging arm shaft

Check shaft taper using a dial gauge. Place the shaft on two identical reference blocks. Turn the shaft and move the dial gauge horizontally to determine the amount of distortion.

Service limit: 0.30 mm.



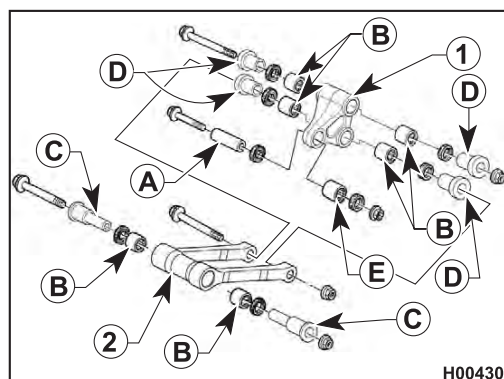
H10110

Servicing the rear suspension drop and drag link

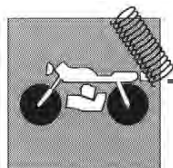
With drop link (1) and drag link (2) still in place (connected to swinging arm and chassis, respectively), rock them both back and forth in all directions to check for radial and axial clearance. Some axial clearance in the drop drag link is required for the swinging arm to achieve the ideal position for proper operation. If any radial clearance is detected, remove the part from swinging arm or chassis and check inner spacer (A) and (E), bushings (C), (D) and bearings (B) for wear.



Grease the inner race of the bearings before refitting them.

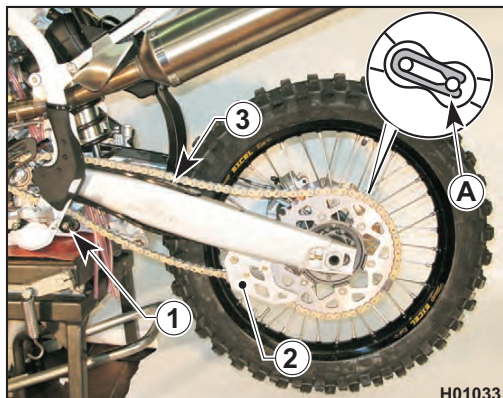


H00430



REAR SUSPENSION

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TC 250R 2013 - TC 250R 2013 I.E. USA
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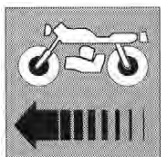
Chain roller, chain guide, chain slider

Check the wear of the above-mentioned elements and replace them when necessary.



Check the chain guide alignment, and remember that a bent element can cause chain early wear. In this case, chain might unwrap from the sprocket.

- 1 Chain roller
- 2 Chain guide
- 3 Chain slider
- a Master link clip



BRAKES

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



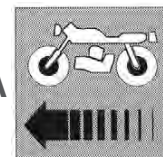
Section



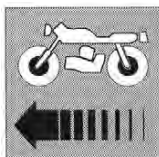


BRAKES

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TC 250R 2013 - TC 250R 2013 I.E. USA
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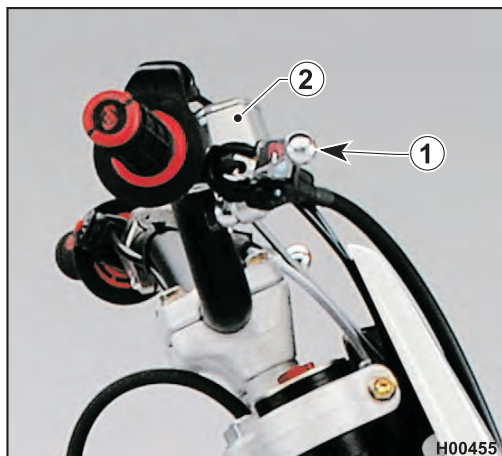


Braking system	L.3
Brake disc	L.4
Checking brake pads for wear / replacing the pads	L.5
Bleeding the front braking system	L.6
Bleeding the rear braking system	L.7
Changing the fluid	L.8



BRAKES

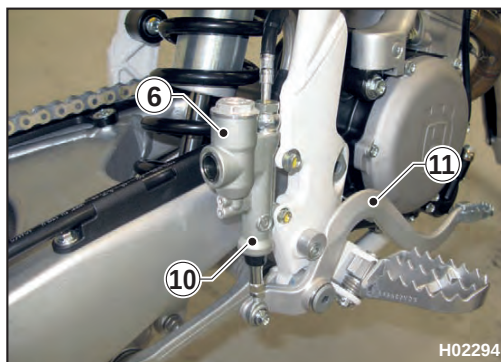
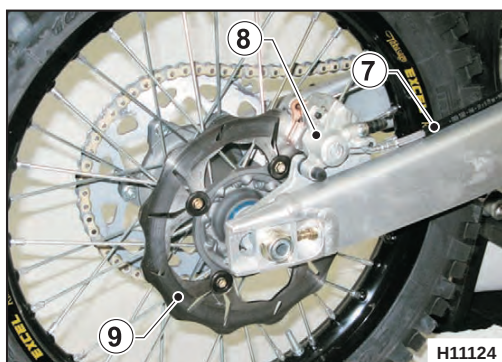
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 TC 250R 2013 - TC 250R 2013 I.E. USA
 TXC 250R - 310R 2013 I.E. USA

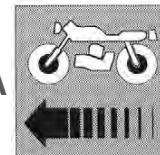


Braking system

The braking system uses two independent circuits. Each system is equipped with a brake calliper connected to a master cylinder with a fluid reservoir.

1. Front brake lever
2. Front brake master cylinder with fluid reservoir
3. Front brake line
4. Front brake calliper
5. Front brake disc
6. Rear brake fluid reservoir
7. Rear brake line
8. Rear brake calliper
9. Rear brake disc
10. Rear brake master cylinder
11. Rear brake control pedal





Brake disc

Checking the brake disc is an important safety procedure; the disc must be spotless, i.e. free from corrosion, oil or other dirt or deep scoring.

Front brake disc diameter: 260 mm

Front brake disc thickness (when new): 3.0 mm

Wear limit: 2.5 mm

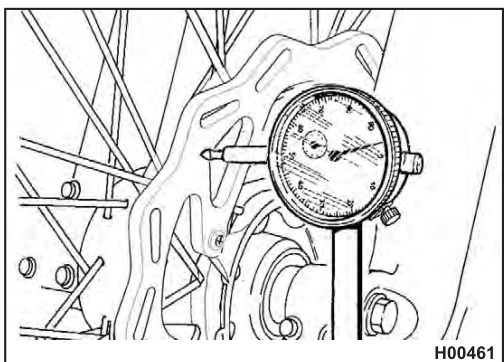
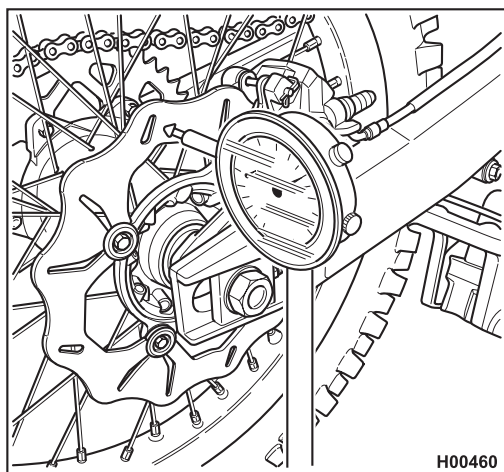
Rear brake disc diameter: 240 mm

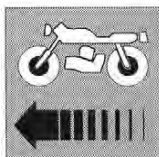
Rear brake disc thickness (when new): 4.0 mm

Wear limit: 3.5 mm

Disc warpage must not exceed 0.15 mm (check disc mounted on the rim with a dial gauge).

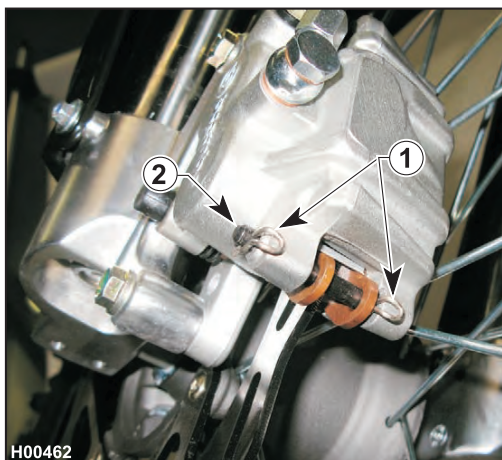
To remove the disc from the wheel rim, you need to loosen the four retaining screws. On assembly, clean all mating surfaces thoroughly and tighten the screws to the specified torque.





BRAKES

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Checking brake pads for wear / replacing the pads

Check brake pad wear.

Service limit "A"

- 3.8 mm (front and rear pads)

If service limit is exceeded, always replace the pads in pairs.

Be careful that no brake fluid or any oil gets on brake pads or discs. Clean off with alcohol any fluid or oil that inadvertently gets on the pads or disc.

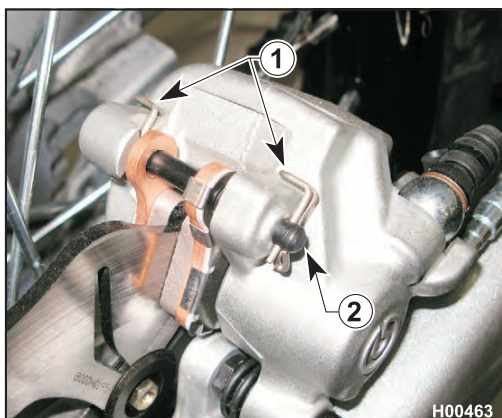
Replace the pads with new ones if they cannot be cleaned satisfactorily.

PADS REMOVAL

- Remove clips (1).
- Slide out pins (2).
- Remove pads.



Do not work the brake lever or pedal while removing the pads.



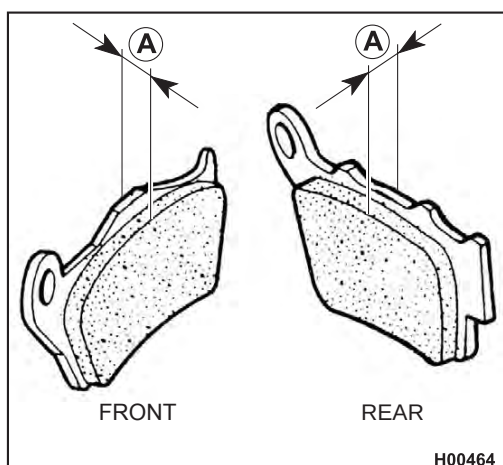
PADS INSTALLATION

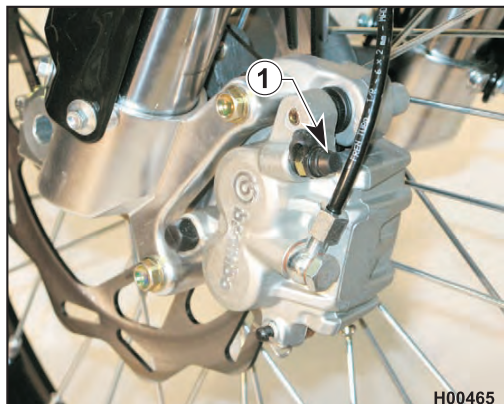
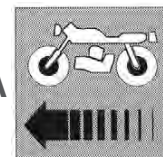
- Install new brake pads.
- Reassemble the two pins (2) and the clips (1).

The above procedure eliminates the need to bleed the braking system after replacing the pads. Simply operate the control lever several times until bringing the pistons back to their normal position.



Drain some fluid from the reservoir when replacing the pads, or the pistons backing up into the cylinders might cause fluid to spill out of the reservoir.



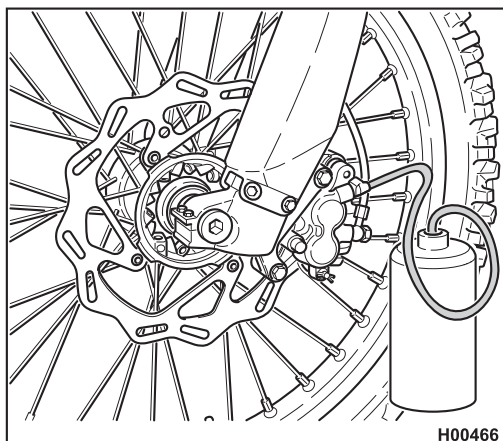


Bleeding the front braking system

A long travel and mushy feel of the brake lever indicate that there is air in the system and the brake needs bleeding.

Bleeding procedure is as follows:

- Take the rubber cap off the bleed valve (1).
- Attach a clear plastic hose to the calliper bleed valve and place the other end of the hose in a vessel (make sure the hose end stays dipped in the fluid throughout the procedure).
- Remove the reservoir plug (2) and the rubber gaiter and fill fresh fluid into the reservoir.
- Pull the lever (3) of the brake and keep it pulled so that the system remains under pressure, loosen the valve (1), tighten the valve (1) always with the lever pulled, then release the lever.
- Top up the fluid level, wait a few seconds, then repeat a few times the procedure described in the line above until the liquid comes out of the transparent hose without bubbles.
- Tighten the bleed valve to the indicated torque, restore the fluid level (A) and refit the rubber gaiter and cover (2) of the tank.



Fluid level inside the reservoir shall never drop below the minimum notch during the bleeding procedure.



Brake fluid is corrosive. In the event of contact with eyes, rinse with abundant water.



Motorcycle handlebar must be turned to the left during the bleeding procedure. This will keep the master cylinder reservoir higher, making bleeding easier.



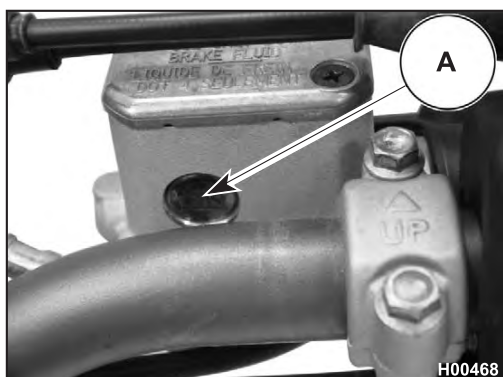
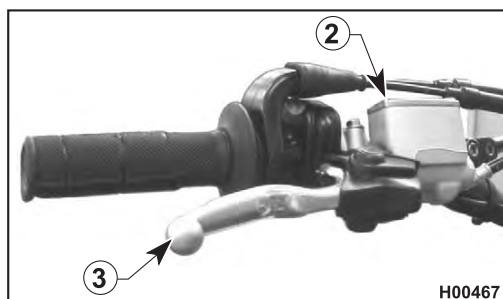
The bleeding procedure does not remove all air from the circuit; any small amounts of air left in the circuit will disappear after a short period of usage; this will eliminate the mushy feel of the lever and restore its travel to proper length.

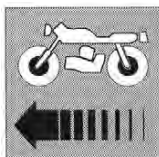


If brake lever or brake pedal feel mush after a fall or a repair resulting in loss of braking, bleed the circuit as described above.



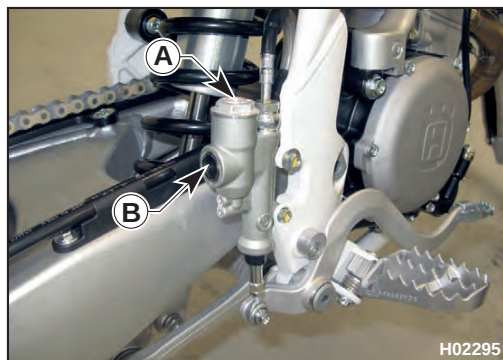
Bleed valve tightening torque: 12-16 Nm, 1.2-1.6 Kgm, 8.8-11.8 ft/lb.





BRAKES

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

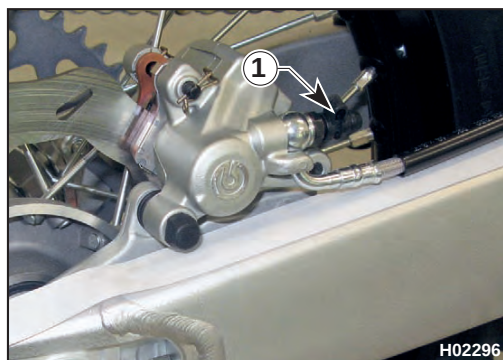


Bleeding the rear braking system

A long travel and mushy feel of the brake pedal indicate that there is air in the system and the brake needs bleeding.

Bleeding procedure is as follows:

- Remove the protection cap and connect a clear hose to the bleed valve (1) of the calliper. Insert the other end of the hose in a container.
- Remove reservoir cap (A) (21 mm wrench) and diaphragm and fill with fluid (DOT 4).
- Press the pedal (2) fully down.
- With the lowered pedal (2), loosen the bleed valve (1) so the fluid can come out of the small tube (initially only air will come out), then close the valve (1) always keeping the pedal lowered, then release the pedal.
- Top up the fluid level, wait a few seconds, then repeat a few times the procedure described in the line above until the liquid comes out of the transparent hose without bubbles.
- Tighten the bleed valve to the specified torque and check fluid level (B) in the reservoir before refitting the cap (A). If the bleeding procedure was performed correctly, the pedal will no longer have that mushy feel. If not so, repeat the procedure.



Fluid level inside the reservoir shall never drop below the minimum notch during the bleeding procedure.



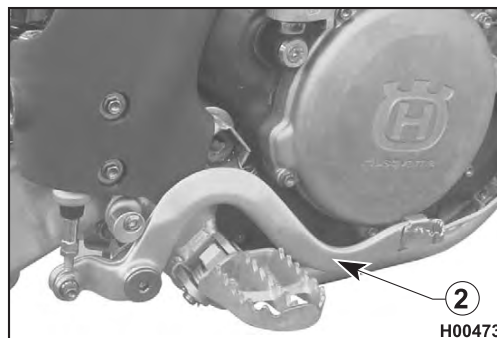
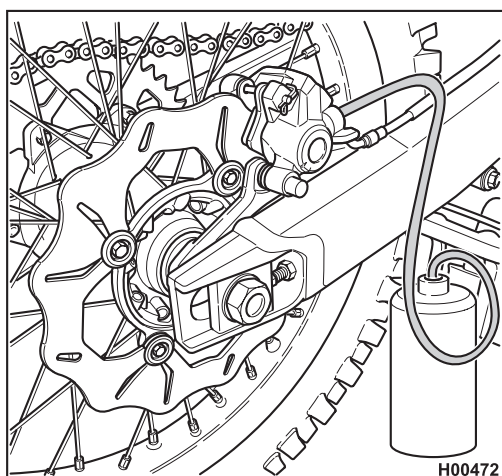
Brake fluid is corrosive. In the event of contact with eyes, rinse with abundant water.

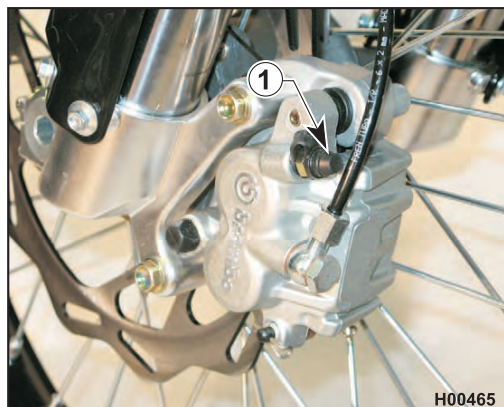
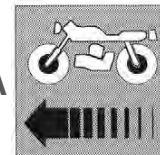


If brake lever or brake pedal feel mush after a fall or a repair resulting in loss of braking, bleed the circuit as described above.



Bleed valve tightening torque: 12-16 Nm, 1.2-1.6 Kgm, 8.8-11.8 ft/lb.





Changing the fluid

Brake fluid should be checked and changed as per the "Maintenance Chart" (see Section B), or earlier if contaminated with debris or water.



Do not change brake fluid in the rain or with a strong wind.



Use only fluid taken from a sealed container (DOT 4). Never reuse brake fluid.



Avoid the ingress of contaminants such as dirt, water, etc. into the reservoir.



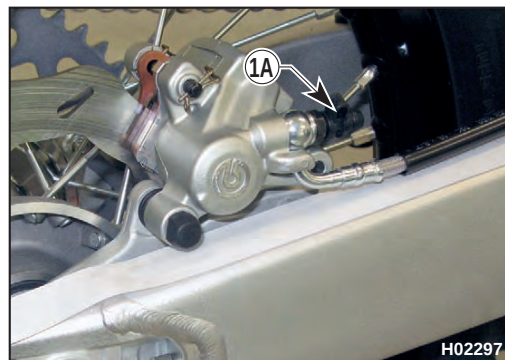
Do not keep the reservoir open without its cover longer than necessary; this would increase the risk of contamination.



Handle the fluid with care to avoid damage to painted parts.

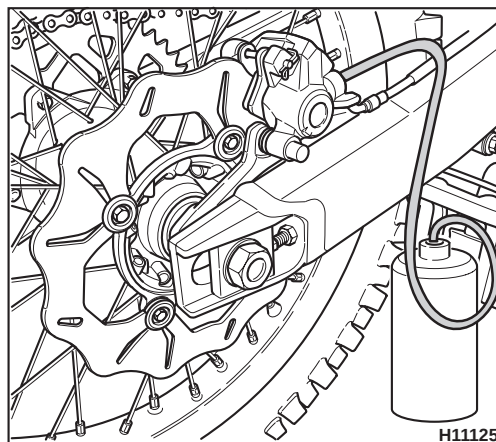
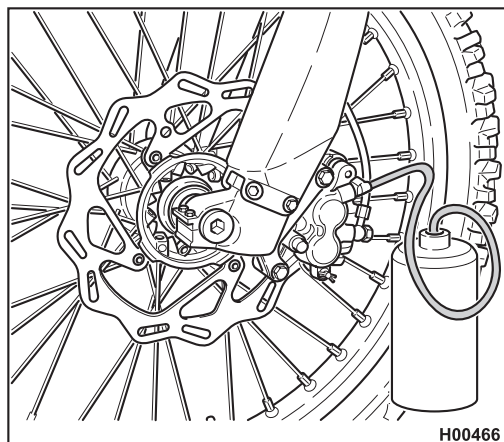


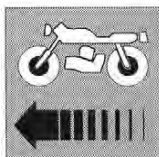
Do not mix two brands of fluid. This would reduce boil-over point, leading to loss of braking efficiency or degrading of rubber parts.



Replacement procedure is as follows:

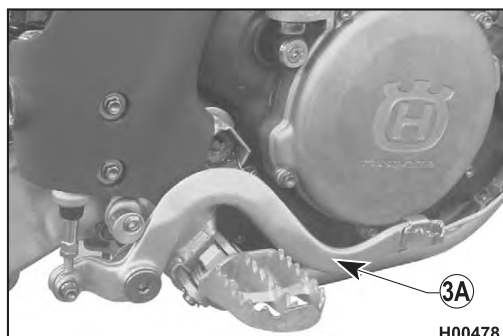
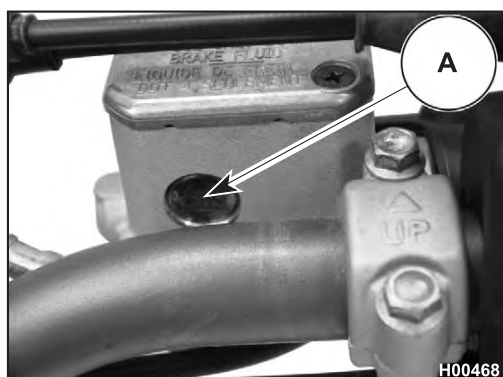
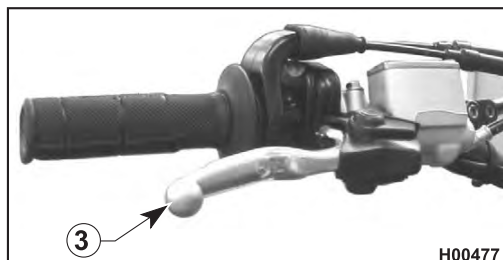
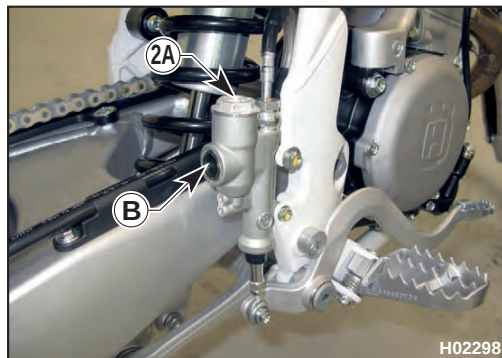
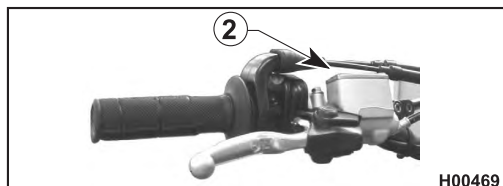
- Take the rubber cap off the bleed valve (1) or (1A).
- Attach a clear plastic hose to the calliper bleed valve and place the other end of the hose in a vessel.



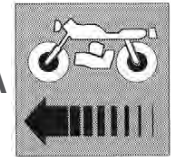


BRAKES

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



- Remove the reservoir cover (2) or (2A) and the rubber gaiter.
- Pull the lever (3) and hold it pulled, or press the pedal (3A) and hold it pressed so that the system is under pressure.
- Loosen the valve (1) or (1A) and wait for the oil to come out, then tighten the valve (1) or (1A) and release the lever or the pedal.
- Repeat this operation a few times until the oil is completely drained.
- Fill the reservoir (2) or (2A) with the new fluid.
- Pull and hold the lever (3), or press and hold the pedal (3A) so that the system is under pressure; loosen the valve (1) or (1A) tighten the valve (1) or (1A) always holding the lever pulled or the pedal pressed, then release.
- Top up the fluid level (2) or (2A) and repeat a few times the procedure described in the line above until the system is completely full and the clear fluid begins to come out without bubbles from the transparent hose.
- After changing the fluid, you will need to bleed air from the circuit.



Periodically check the connecting hoses (C) and (D) (see Scheduled Maintenance Chart, Section B): replace worn or cracked hoses.

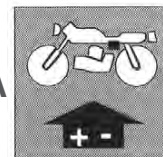
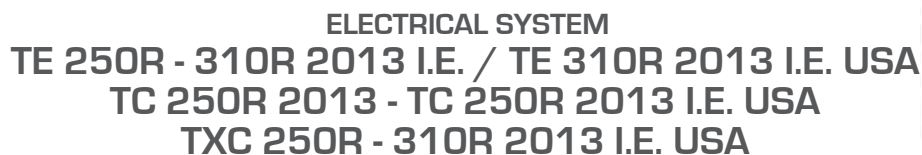




ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section **M**



■ ■ Workshop Manual Ed. 07-2012



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

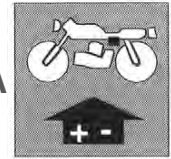


• Control unit connection (TC)	M.42
• Ignition coil / stick-coil connection (TC).....	M.42
• Air temperature sensor connection (TC)	M.42
• Connection of injector, butterfly valve position sensor and atmospheric pressure sensor.....	M.42
• Fuel pump connector position (TC).....	M.43
• Securing the wiring (TC)	M.43
• Securing the engine stop button cable (TC).....	M.43
• Voltage regulator connection (TC)	M.44
• Connection of alternator (TC).....	M.44
• Condenser connection (TC)	M.44
Wiring (TE-TXC).....	M.45
Cable routing and electrical parts installation instructions "TE-TXC"	M.46
• Position of the coil / stick-coil	M.46
• Relay and fuses position	M.46
• Turning indicators flasher (TE) and solenoid starter position (TE-TXC).....	M.46
• Electronic control unit positioning.....	M.47
• Voltage regulator positioning.....	M.47
• Securing the starter motor/solenoid starter cable	M.47
• Securing the engine ground to chassis and engine ground to battery cables.....	M.47
• Battery negative cable routing (A).....	M.48
• Wiring connection to voltage regulator.....	M.48
• Connection of relays and fuses.....	M.48
• Electric fan and Thermo switch connection.....	M.49
• Injector connection	M.49
• Fuel pump connector position	M.49
• Connection of atmospheric pressure sensor connector.....	M.49
• Engine water temperature connector	M.50
• Lambda sensor position and connector	M.50
• Ignition cable connection.....	M.50
• Chassis cable holes and connection to tail light, flasher starter relay.....	M.50
• Clip installation on fuse holders	M.51
• Clip installation on fuse holders	M.51
• Rear stop connection	M.51
• Dashboard bracket connectors (TE)	M.52
• Horn connector (TE).....	M.52
• Top central view harness fastening	M.52
• Left side steering tube cable fastening (TE).....	M.53
• Right side steering tube cable fastening	M.53
• Front cable fastening, under the headlight (TE).....	M.53
• Fastening the Lambda probe cables	M.54
• Fastening the electric fan cable	M.54
Important	M.55



ELECTRICAL SYSTEM

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

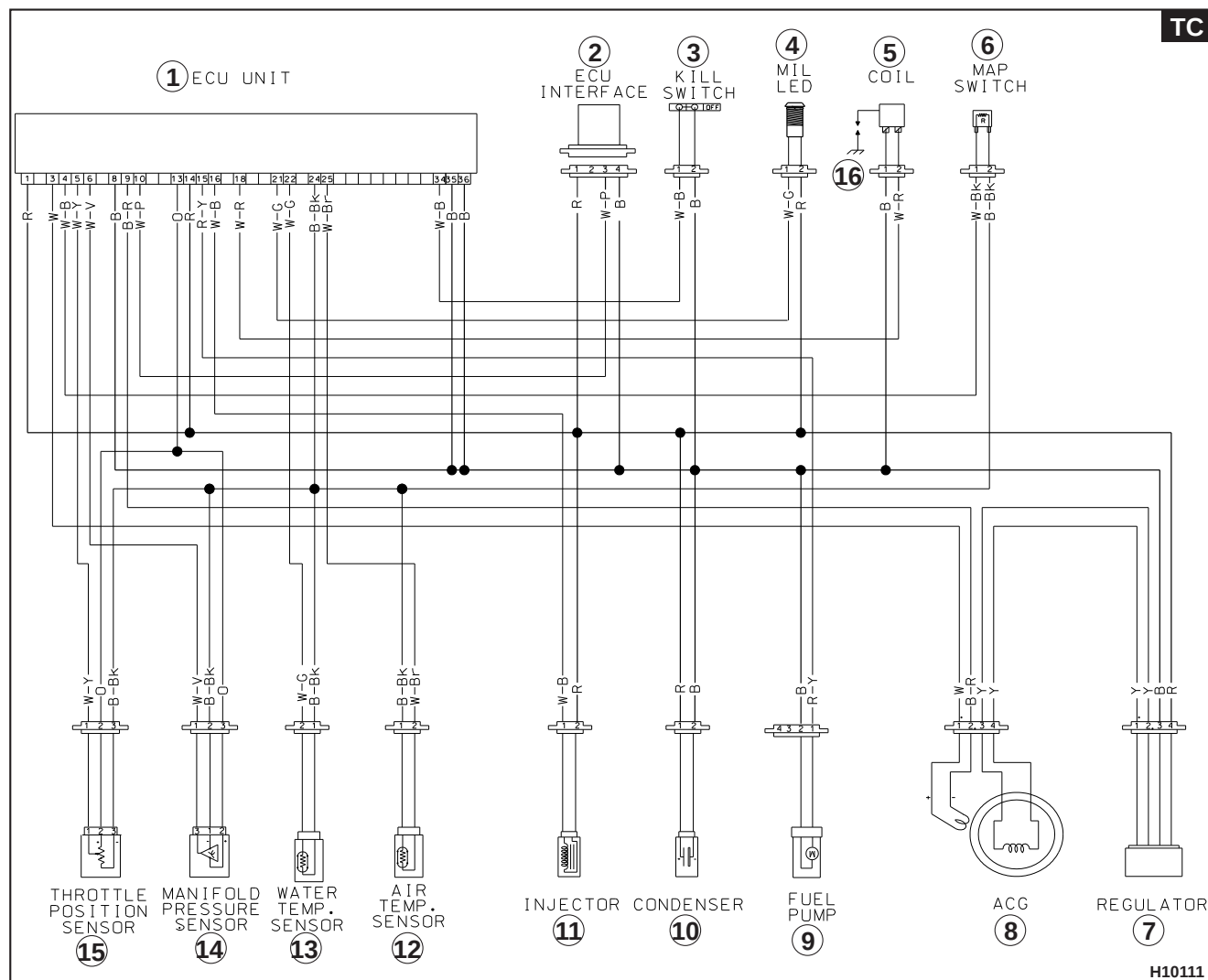




ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Wiring diagram (TC)

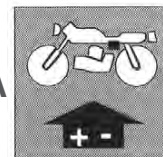


Key to wiring diagram

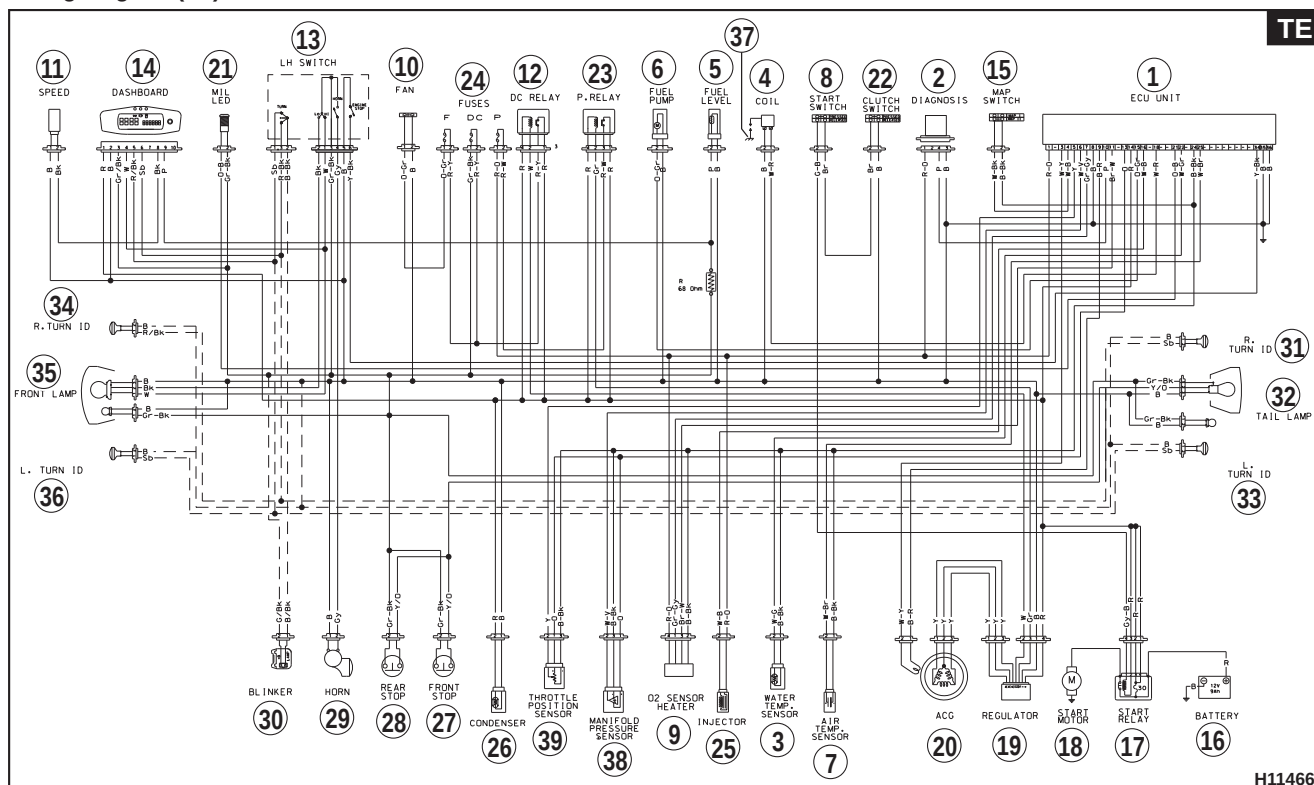
1. Electronic control unit
2. Control unit interface
3. Engine stop
4. Not used
5. Coil / Stick coil
6. Map change connector
7. Voltage regulator
8. Alternator
9. Fuel pump
10. Condenser
11. Injector
12. Air temperature sensor
13. Coolant temperature sensor
14. Air pressure sensor
15. Throttle position sensor
16. Spark plug

Colour coding key

- B Blue
Bk Black
O Orange
R Red
W White
Br Brown
G Green
P Pink
V Violet
Y Yellow



Wiring diagram (TE)



Key to wiring diagram

1. Electronic control unit
2. Diagnosis socket
3. Coolant temperature sensor
4. Coil / Stick Coil
5. Fuel level
6. Fuel pump
7. Air temperature sensor
8. Ignition switch
9. Lambda sensor
10. Cooling fan
11. Speed sensor
12. DC relay
13. L.H. switch
14. Dashboard
15. Gearbox connector map (not used)
16. Battery
17. Solenoid starter
18. Starter motor
19. Voltage regulator
20. Alternator
21. Operation fault light
22. Clutch microswitch
23. Power relay
24. Fuses
25. Injector
26. Condenser
27. Front stop light switch
28. Rear stop light switch
29. Horn

30. Turning indicators flasher
31. Rear R.H. turning indicator
32. Tail light
33. Rear L.H. turning indicator
34. Front R.H. turning indicator
35. Headlamp
36. Front L.H. turning indicator
37. Spark plug
38. Pressure sensor (22)
39. Throttle position sensor

Colour coding key

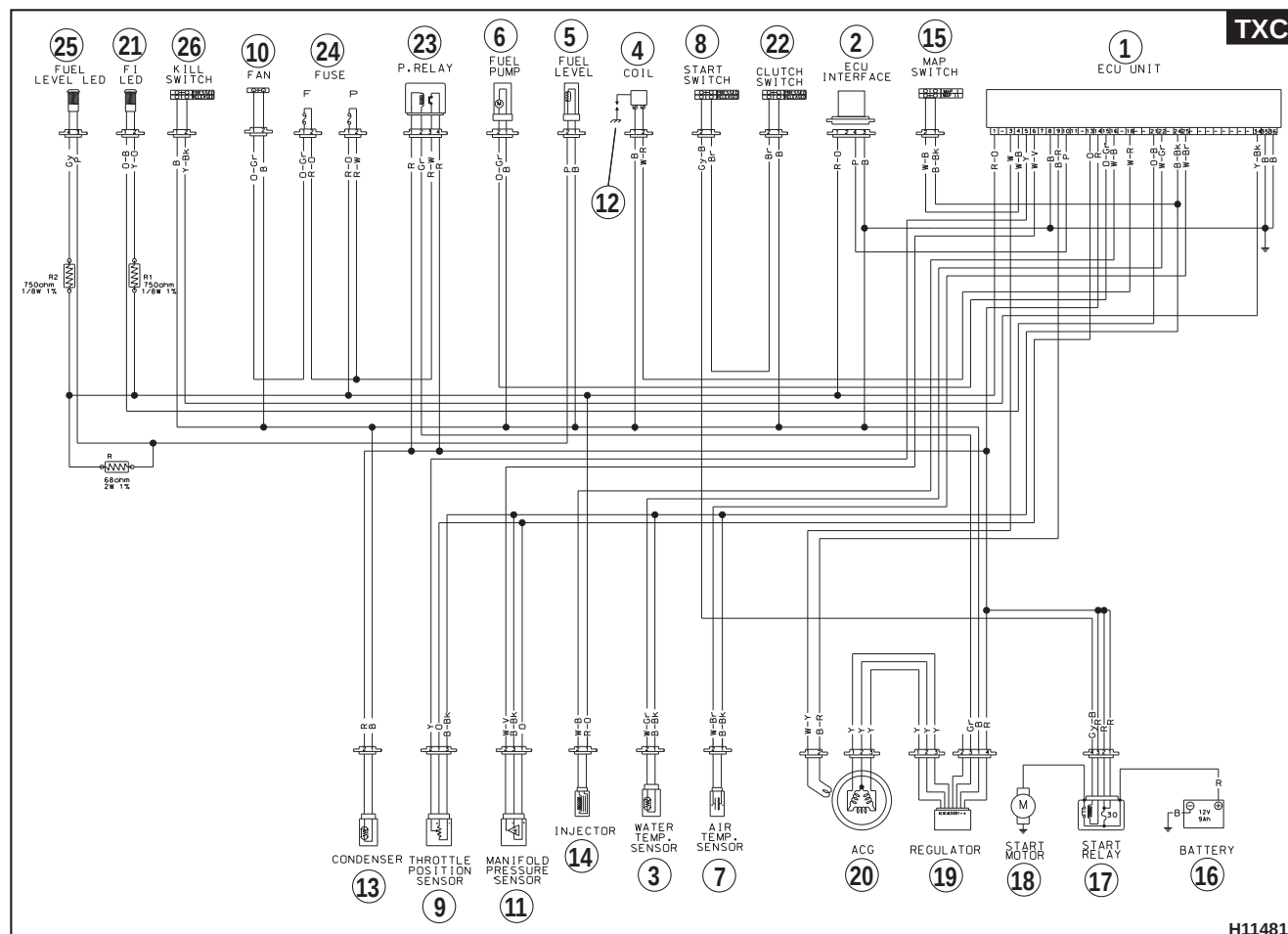
- | | |
|----------|----------|
| B | Blue |
| Bk | Black |
| Br | Brown |
| G | Green |
| Gr | Grey |
| O | Orange |
| Pk | Pink |
| R | Red |
| Sb | Sky blue |
| V | Violet |
| W | White |
| Y | Yellow |



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Wiring diagram (TXC)



Key to wiring diagram

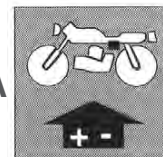
1. Electronic control unit
2. Diagnosis socket
3. Coolant temperature sensor
4. Coil / Stick Coil
5. Fuel level
6. Fuel pump
7. Air temperature sensor
8. Ignition switch
9. Throttle position sensor
10. Cooling fan
11. Pressure sensor
12. Spark plug
13. Condenser

14. Injector

15. Gearbox connector map (not used)
16. Battery
17. Solenoid starter
18. Starter motor
19. Voltage regulator
20. Alternator
21. Operation fault light
22. Clutch microswitch
23. Power relay
24. Fuses
25. Fuel level light
26. Switchoff button

Colour coding key

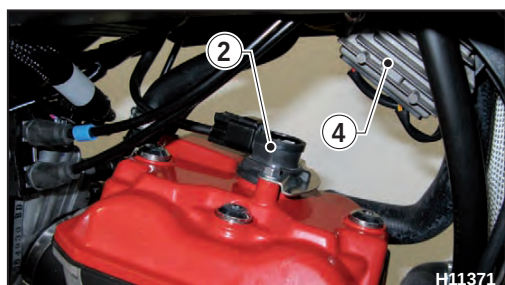
- B Blue
Bk Black
Br Brown
G Green
Gr Grey
O Orange
Pk Pink
R Red
Sb Sky blue
V Violet
W White
Y Yellow



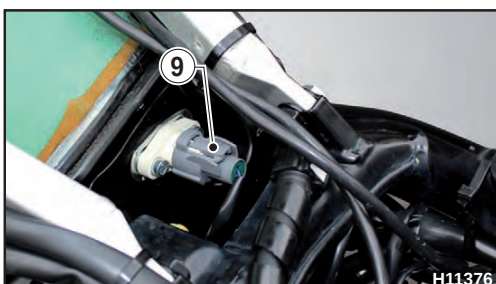
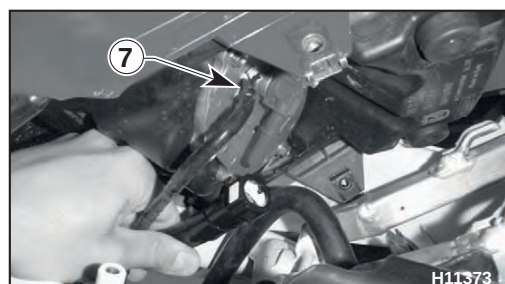
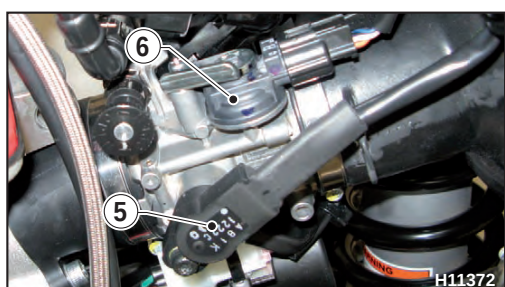
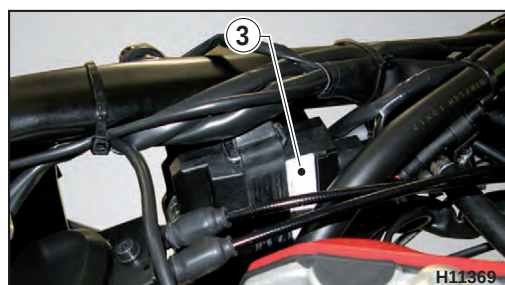
Electrical components location (TC)

The ignition system includes the following elements:

- Generator (1), on the inner side of L.H. crankcase half cover.

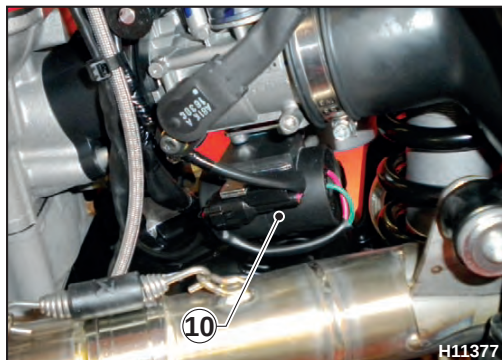


- Coil with integrated spark plug cap (Stick-Coil) (2) fitted on the engine head.
- Electronic control unit (3) under the fuel tank.
- Voltage regulator (4) under the tank.
- Throttle position sensor (5) on the LH of the throttle body.
- Atmospheric pressure sensor (6) on the upper part of the throttle body.
- Fuel pump (7).
- Coolant temperature sensor (8) on the cylinder.
- Air temperature sensor (9) positioned on filter box.

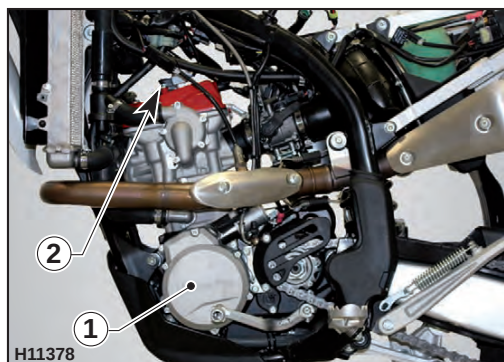




ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



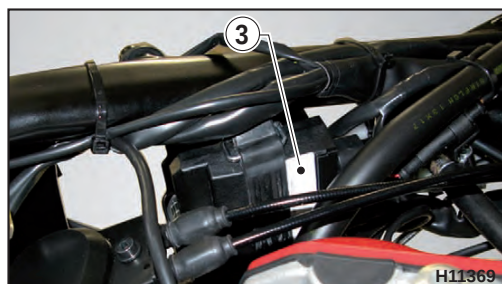
- Condenser (10) connected to a plate strapped to the throttle body.



Electrical components location (TE)

The ignition system includes the following elements:

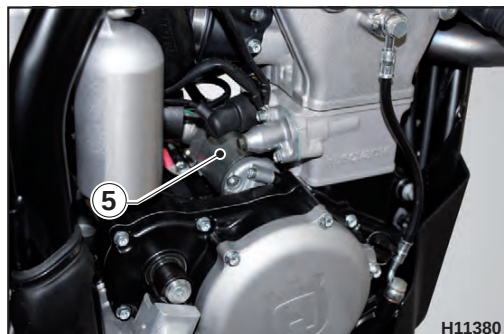
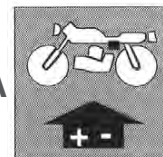
- Generator (1), on the inner side of L.H. crankcase half cover.
- Coil with integrated spark plug cap (Stick-Coil) (2) fitted on the engine head.



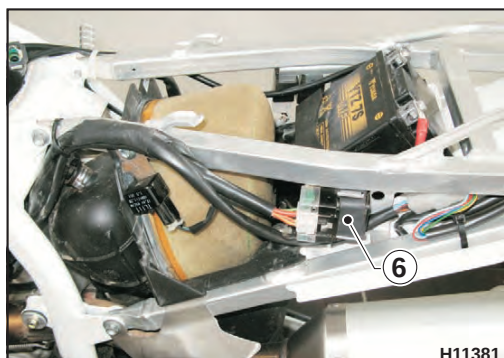
- Electronic control unit (3) under the fuel tank.



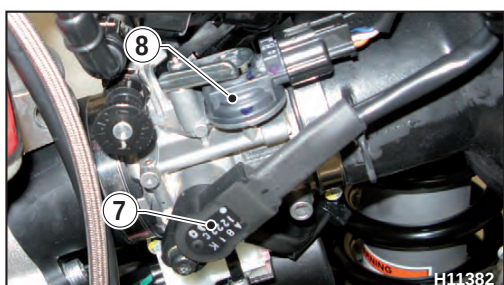
- Voltage regulator (4) on top left side of chassis close to steering tube.



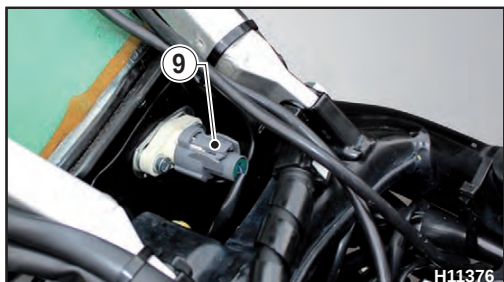
- 12V-350W starter motor (5) behind the cylinder;



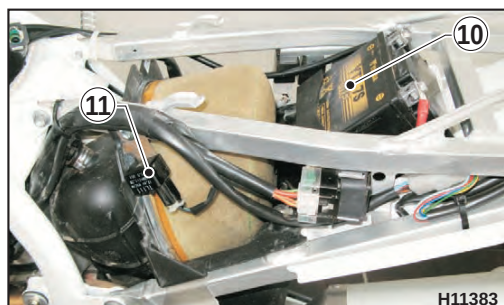
- Electric solenoid starter (6) on left of rear chassis, with 20A fuse.



- Throttle position sensor (7) on the LH of the throttle body.
- Atmospheric pressure sensor (8) on the upper part of the throttle body.



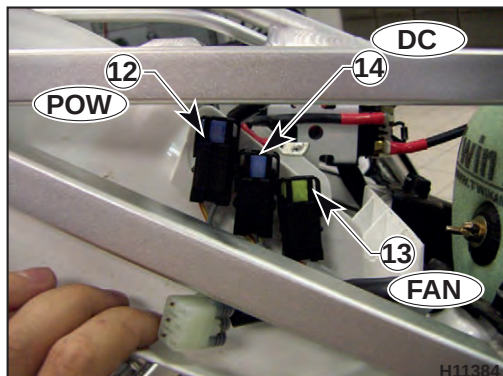
- Air temperature sensor (9) positioned on filter box.



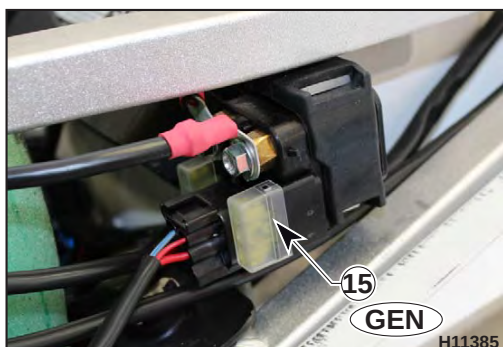
- The electrical system includes the following elements:
- 12V-6Ah battery (10) under the saddle.
 - Turning indicators flasher (11) on left side of rear chassiss.



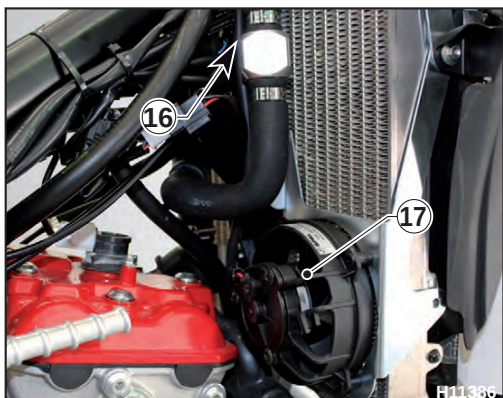
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



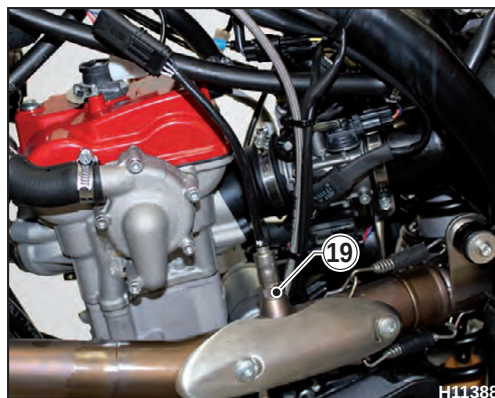
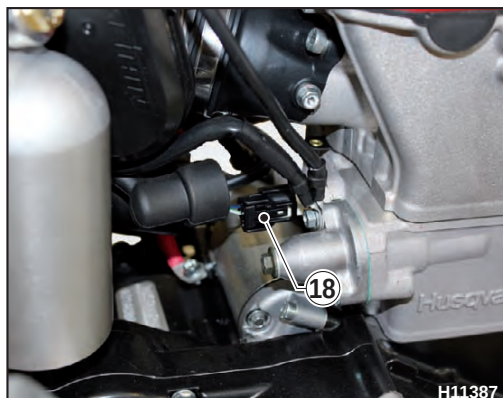
- POW (12): 15A (cable sheath with "POW" written on it): ECU, coil, Lambda probe heater, injector.
- FAN (13): 20A (cable sheath with "FAN" written on it): Electric fan.
- DC (14): 15A (cable sheath with "DC" written on it): Back stop light, full headlights, headlights, parking lights, indicators, horn, dashboard power (to display instrumental features).



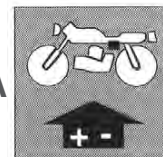
- GEN (15): starter relay fuse (general).



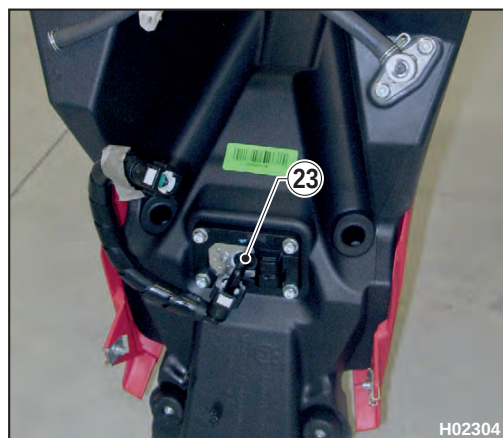
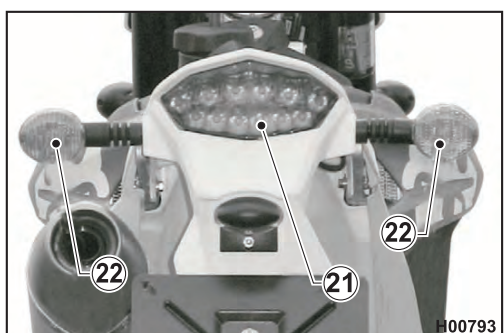
- Thermo Switch (16) (for electric fan).
- Electric fan (17).



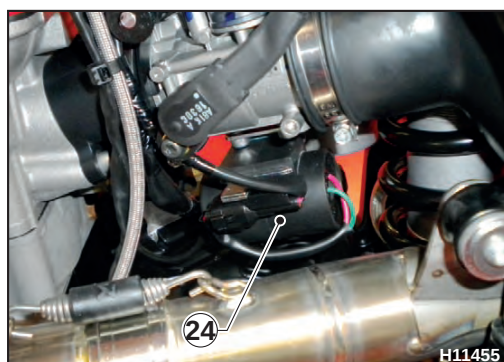
- Coolant temperature sensor (18);
- Lambda sensor (19);



- Headlamp (20) with 12V-35/35W twin halogen bulb and 12V-5W parking light bulb;
- LED tail light (21);
- Turning indicators (22), 12V-10W bulbs;



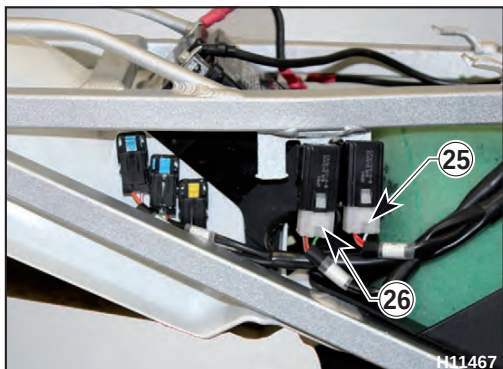
- Fuel pump (23) inside the fuel tank.



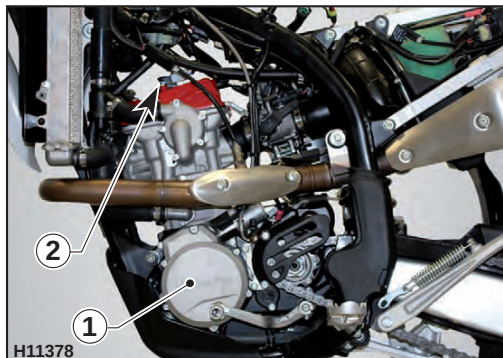
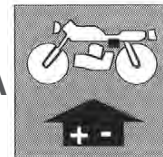
- Condenser (24) connected to a plate strapped to the throttle body.



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



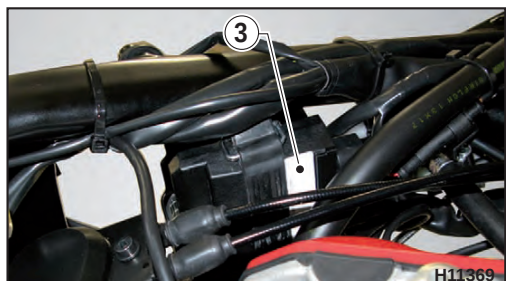
- DC Relay (25): light system, turning indicators, horn, on right side of rear chassis.
- Power Relay (26): coil, injection system, fuel pump, on right side of rear chassis.



Electrical components location (TXC)

The ignition system includes the following elements:

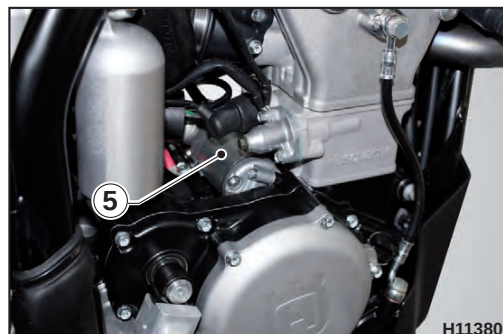
- Generator (1), on the inner side of L.H. crankcase half cover.
- Coil with integrated spark plug cap (Stick-Coil) (2) fitted on the engine head.



- Electronic control unit (3) under the fuel tank.



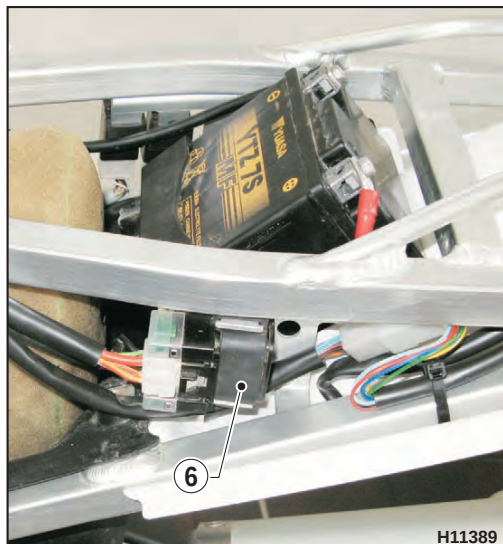
- Voltage regulator (4) on top left side of chassis close to steering tube.



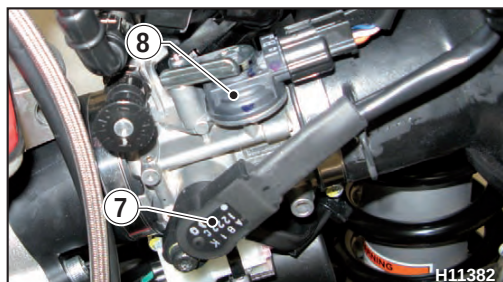
- 12V-350W starter motor (5) behind the cylinder;



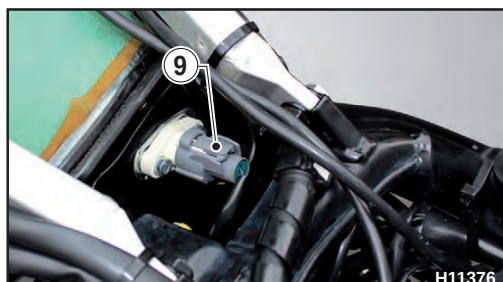
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



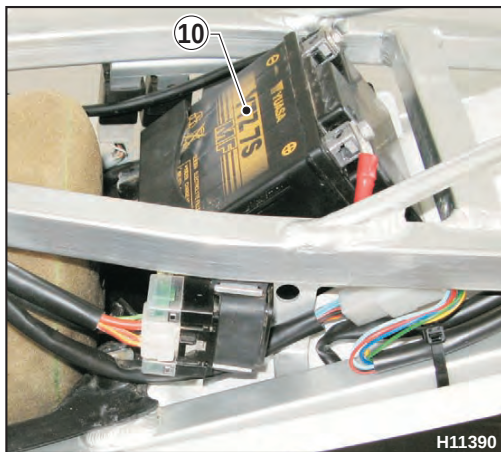
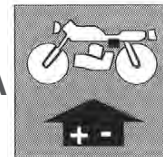
- Solenoid starter (6) on left side of rear chassis;



- Throttle position sensor (7) on the LH of the throttle body.
- Atmospheric pressure sensor (8) on the upper part of the throttle body.

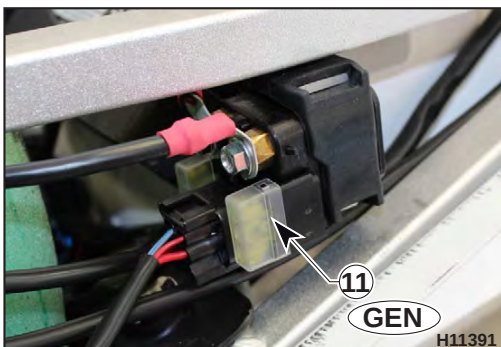


- Air temperature sensor (9) positioned on filter box.

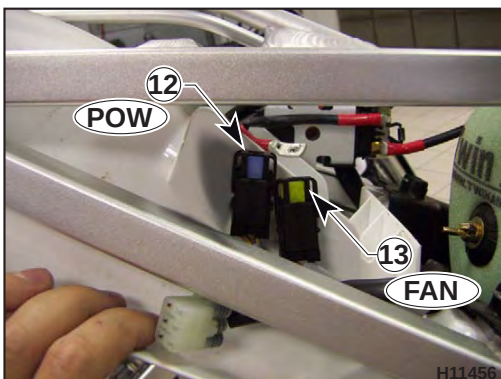


The electrical system includes the following elements:

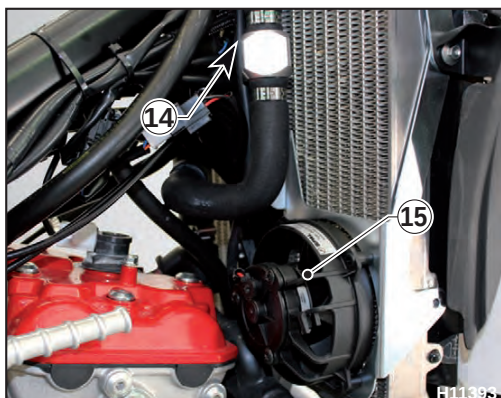
- 12V-6Ah battery (10) under the saddle;



- GEN (11): starter relay fuse (general).



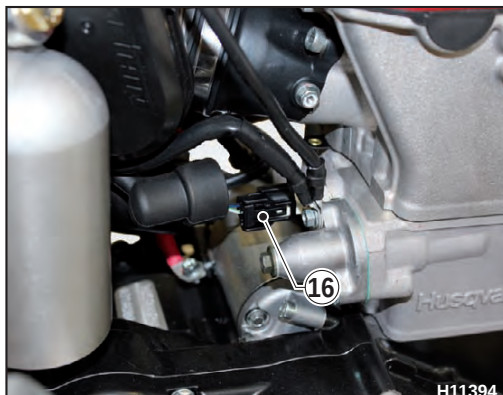
- POW (12): 15A (cable sheath with "POW" written on it): ECU, coil, Lambda probe heater, injector.
- FAN (13): 20A (cable sheath with "FAN" written on it): Electric fan.



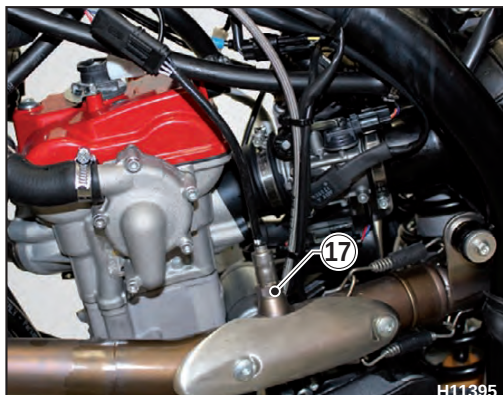
- Thermo switch (14) (for electric fan).
- Electric fan (15).



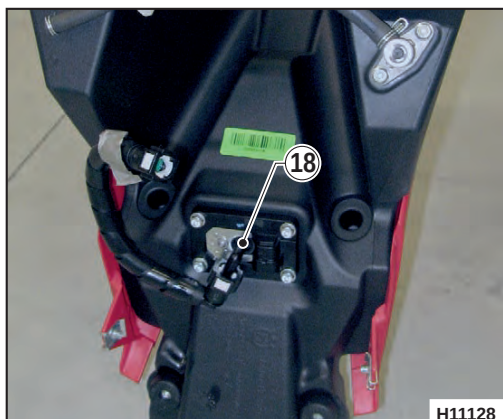
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



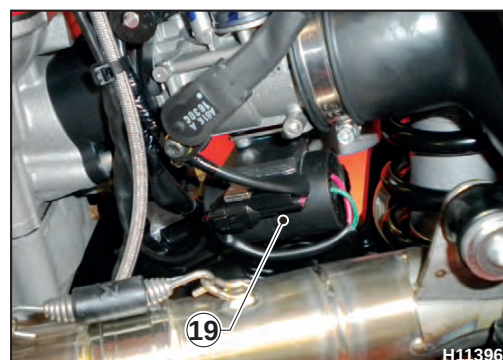
- Coolant temperature sensor (16).



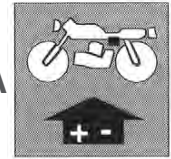
- Lambda sensor (17).



- Fuel pump (18) inside the fuel tank.



- Condenser (19) connected to a plate strapped to the throttle body.



- Relay (20): coil, injection system, fuel pump, on right side of rear chassis.



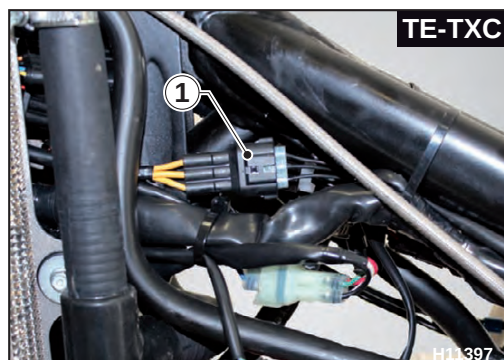
Checking generator stator windings resistance

Disconnect the stator coil connector from the wiring and measure resistance with a meter.



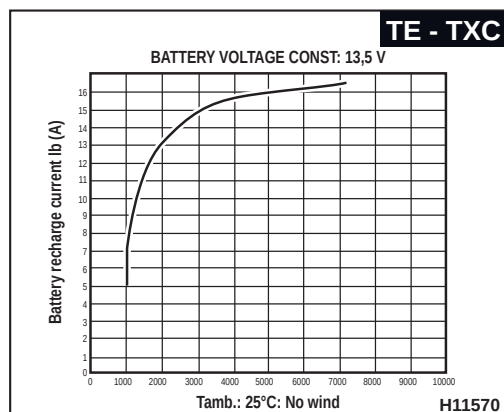
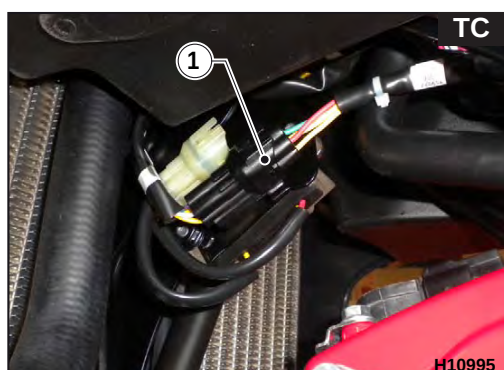


ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



- 1) Measure across the terminals of the connector (1); correct value is about 0.6Ω .

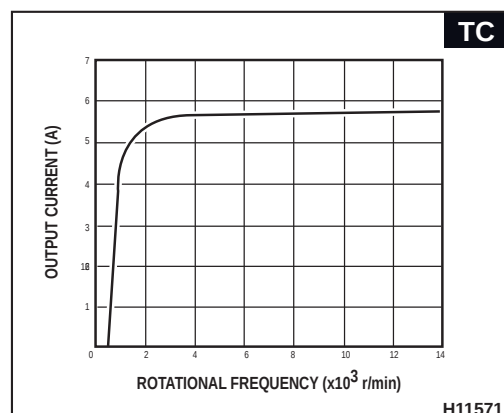
If resistance is outside the specified limits, replace the complete generator.



Generator no-load performance

TE - TXC

RPM	A D.C. (typical)
1200	8.6
2000	13.8
3000	15.5
5000	16.4
6000	16.6

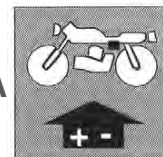


TC

r.p.m.	Standard value
700	2,5A Min
1500	4,5A Min
10000	10A Max



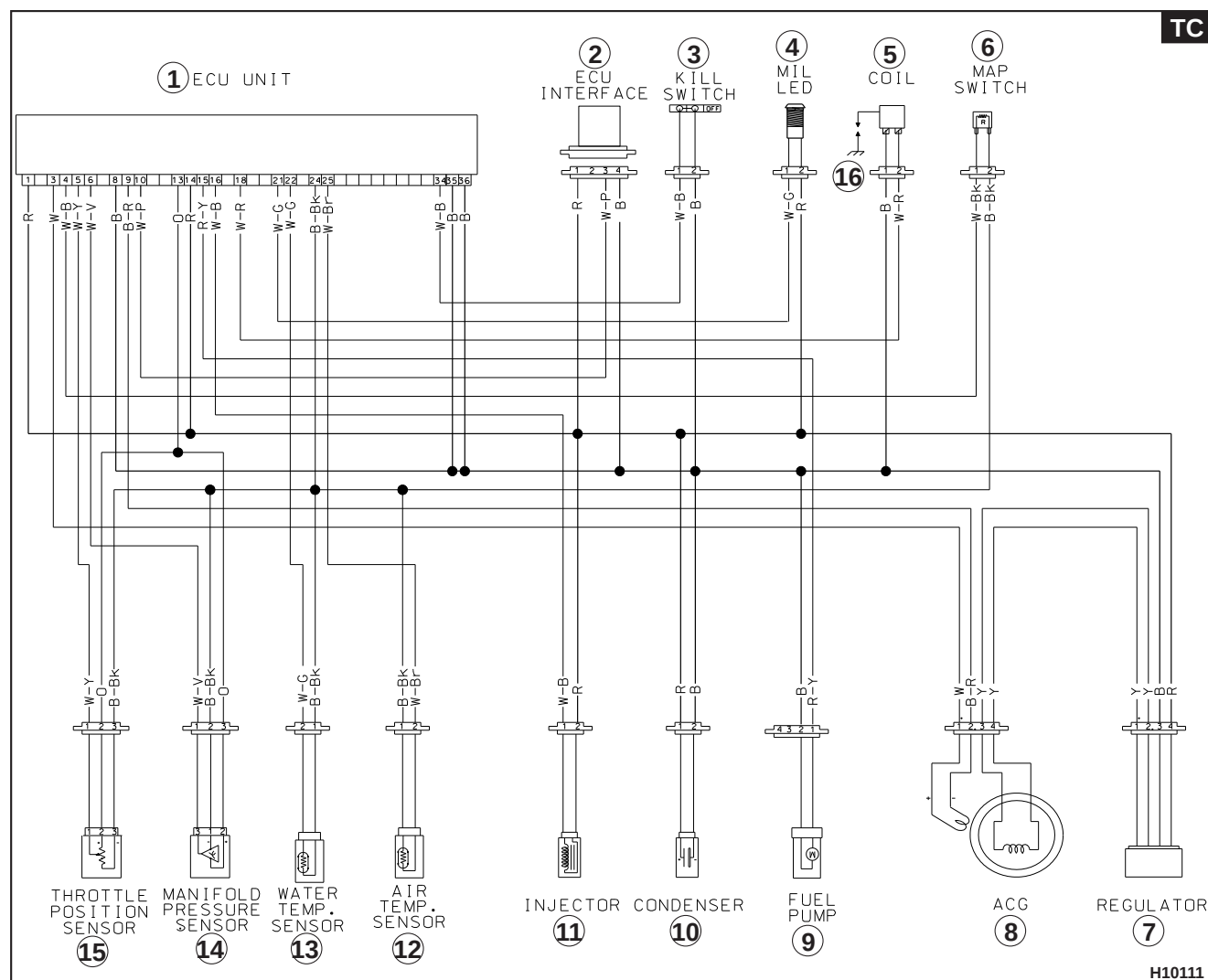
AT EACH ENGINE OVERHAUL, CLEAN FLYWHEEL ROTOR TO REMOVE ANY DEBRIS SUSPENDED IN SWIRLING OIL AND CAPTURED BY THE MAGNETS.



Ignition and starter system (TC)

The engine injection and starter system is controlled by the control unit (ECU); by means of a series of sensors, the ECU controls the status of the engine and of the surrounding environment at each given moment.

The sensors are: a crankshaft position sensor (pick-up), a temperature sensor of the filter box ambient air, a coolant temperature sensor, a throttle position sensor and a pressure sensor on the throttle body.



Key to wiring diagram

1. Electronic control unit
2. Control unit interface
3. Engine stop
4. Not used
5. Coil / Stick coil
6. Map change connector

7. Voltage regulator
8. Alternator
9. Fuel pump
10. Condenser
11. Injector
12. Air temperature sensor

13. Coolant temperature sensor
14. Air pressure sensor
15. Throttle position sensor
16. Spark plug



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

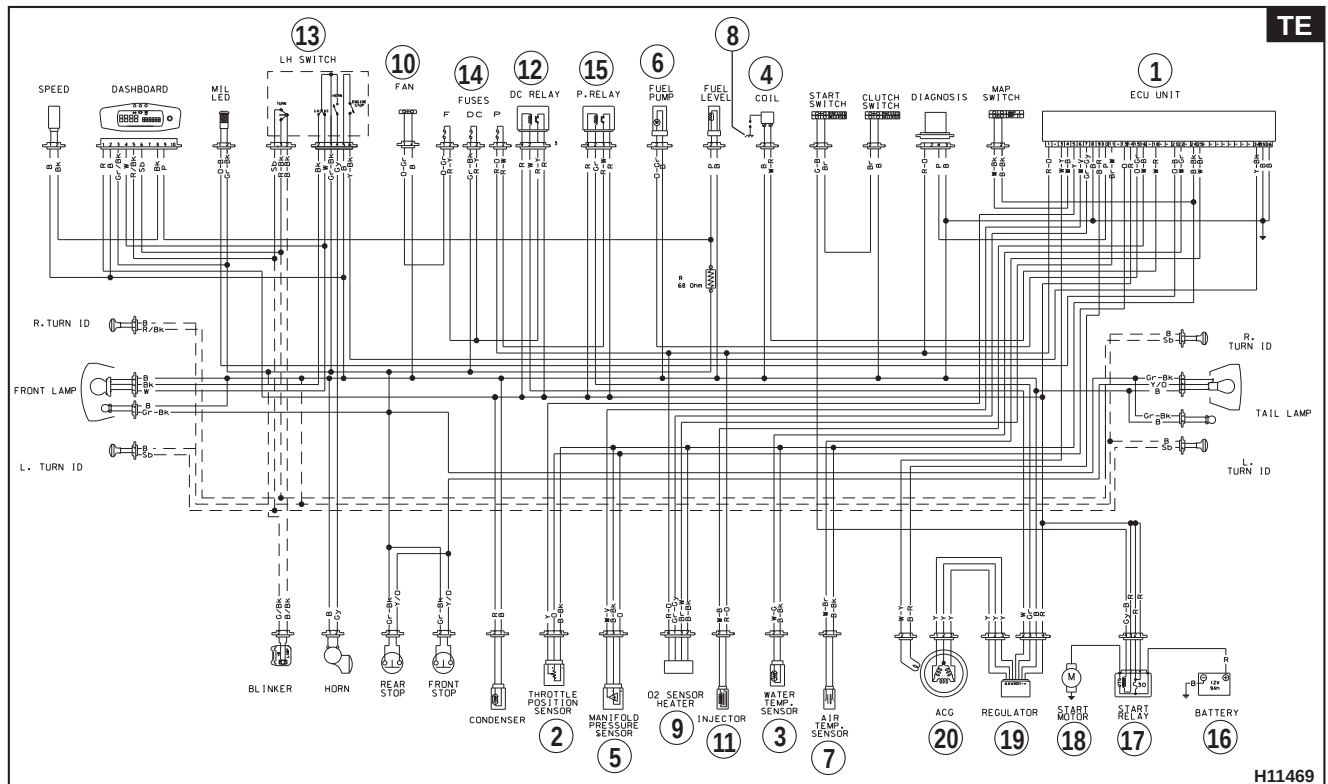


Ignition and starter system (TE-TXC)

The engine injection and starter system is controlled by the control unit (ECU); by means of a series of sensors, the ECU controls the status of the engine and of the surrounding environment at each given moment.

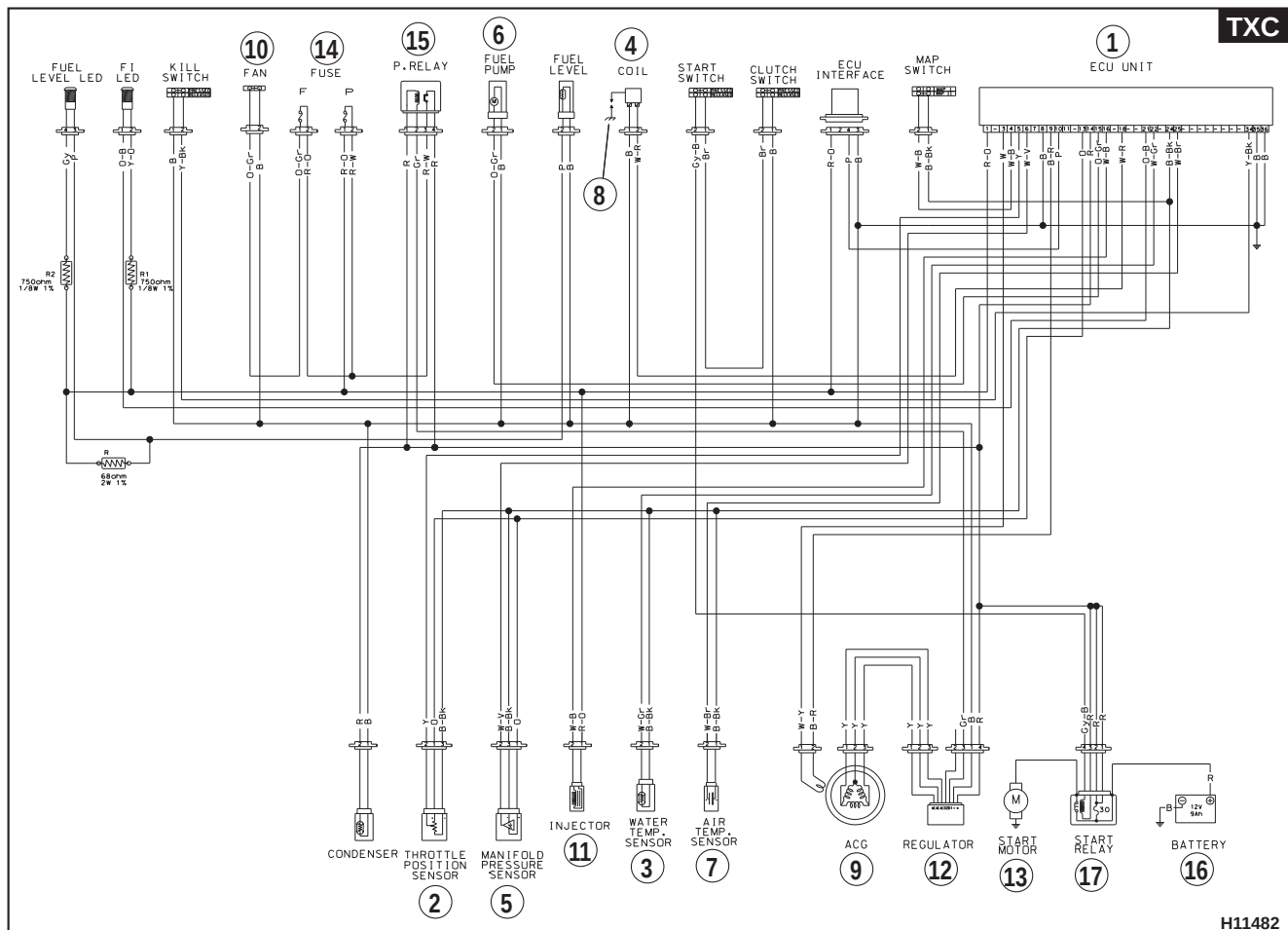
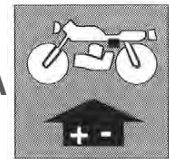
These are : a crankshaft position sensor (pick-up), an ambient air temperature sensor in filter box and a group of sensors providing information relating to pressure, air temperature and butterfly valve opening position.

Moreover, the ECU uses a lambda probe for the constant adjustment of the air-fuel ratio (Euro3 mode).



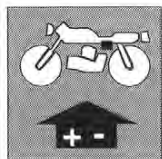
Key

- | | |
|-------------------------------|-----------------------|
| 1. Electronic control unit | 11. Injector |
| 2. Throttle position sensor | 12. DC relay |
| 3. Coolant temperature sensor | 13. L.H. switch |
| 4. Coil / Stick Coil | 14. Fuses |
| 5. Pressure sensor | 15. Power relay |
| 6. Fuel pump | 16. Battery |
| 7. Air temperature sensor | 17. Solenoid starter |
| 8. Spark plug | 18. Starter motor |
| 9. Lambda sensor | 19. Voltage regulator |
| 10. Cooling fan | 20. Alternator |



Key

1. Electronic control unit
2. Throttle position sensor
3. Coolant temperature sensor
4. Coil / Stick Coil
5. Pressure sensor
6. Fuel pump
7. Air temperature sensor
8. Spark plug
9. Alternator
10. Cooling fan
11. Injector
12. Voltage regulator
13. Starter motor
14. Fuses
15. Power relay
16. Battery
17. Solenoid starter



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



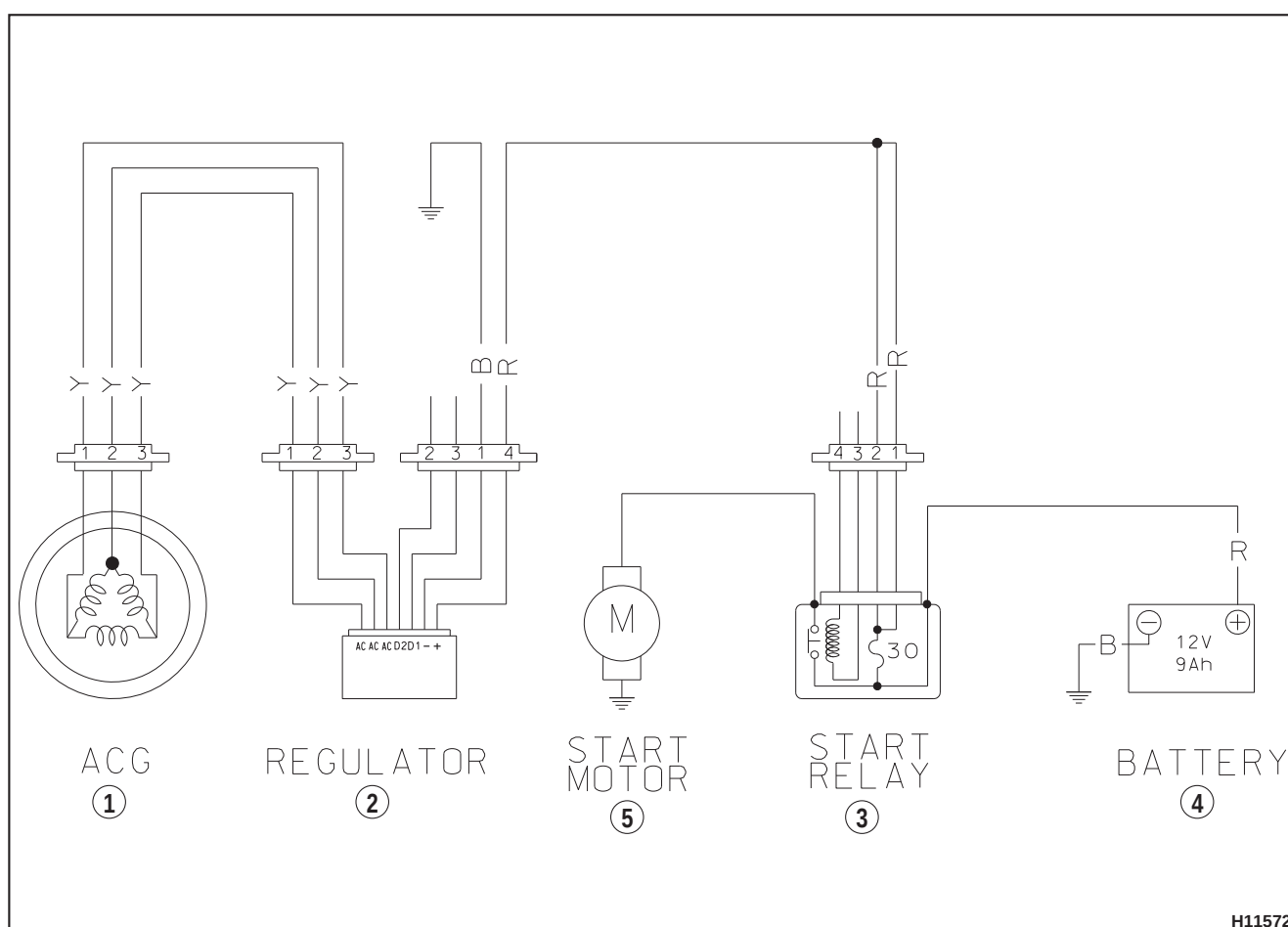
Charging system (TE-TXC)

The charging system is composed of:

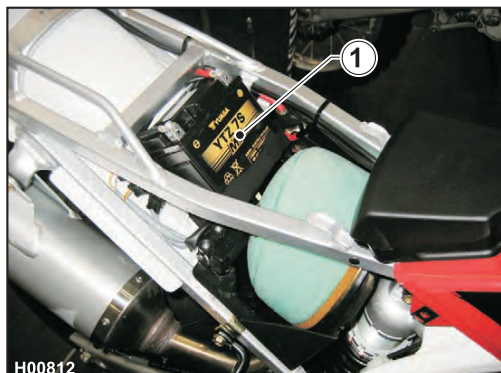
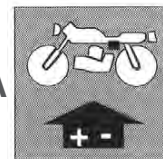
- Alternator (1);
- Voltage regulator/rectifier (2);
- Starter relay (3);
- Battery (4).
- Starter motor (5).

The alternated current generated by the alternator is converted into direct current by the voltage regulator/rectifier. The voltage regulator/rectifier serves a dual purpose: it provides overvoltage protection for the battery and converts alternated current into direct current. All components listed above help keep voltage constant and protect the battery against overloading.

Charging system wiring diagram



H11572



Charging system inspections

Battery (TE-TXC)

Remove the saddle (as described in the relevant paragraph) to gain access to the battery (1).

Disconnect the BLACK negative cable from the battery.

Measure current across the negative terminal of the battery and the negative cable using an ammeter clamp. A reading greater than 1 mA indicates current draw by some utility.

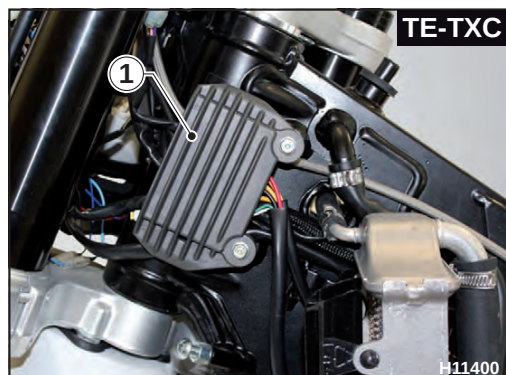


If the vehicle is to remain unused for long periods, it is recommended to disconnect the battery from the electrical system and store it in a dry place.

Regulated voltage (TE-TXC)

Remove the saddle (as described in the relevant paragraph) to gain access to the battery.

With the engine warmed up and running at slightly above 3000 rpm, measure voltage across the positive and negative terminal of the battery using a meter (the battery must be charged when performing this test). If reading is outside a 12.5-14.5 V range, check generator and voltage regulator/rectifier as described in the relevant paragraph.

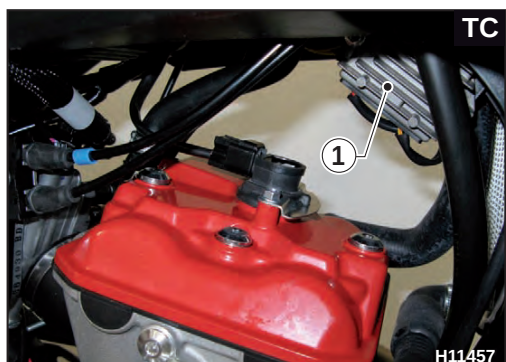


Voltage regulator check (TE-TXC)

With the ignition on and the battery charged (12.5-13 V), start the engine: if battery voltage fails to rise (14 V) within the next two minutes, change the regulator (1) as outlined in the relevant paragraph.

Voltage regulator check (TC)

Start the motorcycle and using a tester make sure the voltage of the red and brown cables is 14.5 ± 0.5 V at 5000 rpm; if the voltage is incorrect, replace the regulator (1).



Voltage regulator

The voltage regulator (1) incorporates the diodes used to rectify the generator current output.

It also incorporates an electronic device that adjusts charging voltage to battery charge: if battery charge is low, charging voltage will be lower.



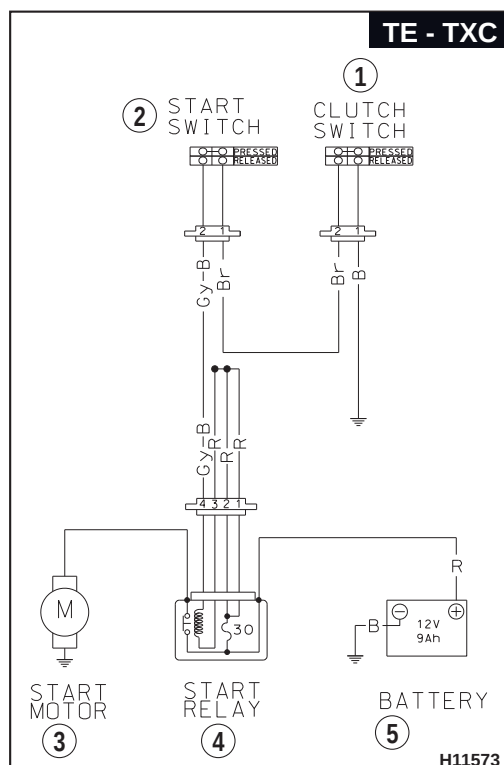
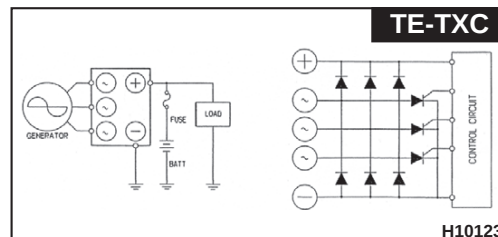
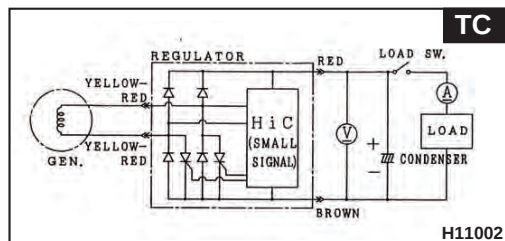
Do not disconnect the battery cables while the engine is running, or the regulator will suffer irreparable damage.



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Voltage regulator/rectifier wiring diagram

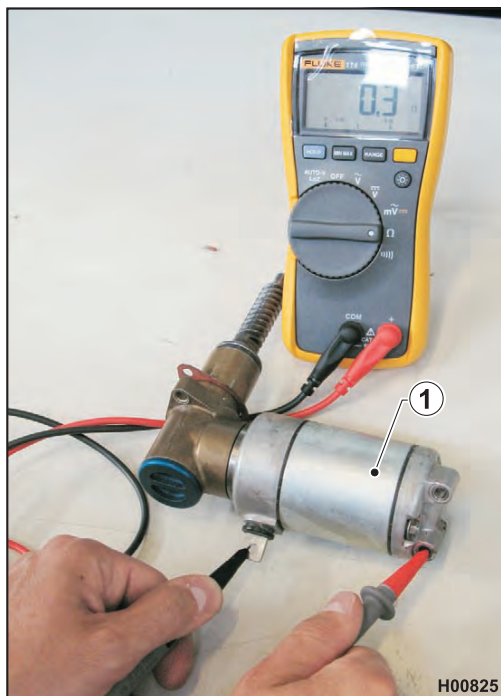
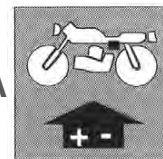


Electrical starting system (TE-TXC)

The starting system is composed of:

- Battery (5);
- Solenoid starter (4);
- Starter motor (3);
- Clutch microswitch (1);
- Ignition switch (2);

For a description of wires and components, please see the key to the wiring diagram.



Starting system inspection

Starter motor inspection (TE-TXC)

Remove the starter motor (1) as described in the relevant paragraph.

Whenever a starter motor fault is detected, check the starter motor as follows:

- connect a meter across ground and starter motor contact.
- Check for continuity between the positive pole and motor ground. If no continuity is found, replace the starter motor. On assembly, apply a small amount of LOCTITE 243 to the starter motor retaining screws.

Starter motor

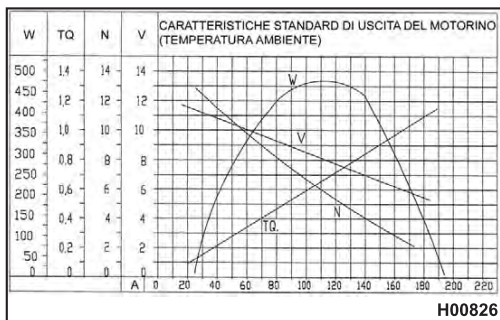
Rated voltage: 12V
Current draw: 350 W

No-load test

Voltage: 11.2 V
Current: 30 A
Speed: 12,000 rpm

Cranking test

Voltage: 10 V
Current: 80 A
Torque: 3.5 Nm - 0.35 Kgm - 2.5 ft/lb



Starter motor test curves (TE-TXC)

- 1 - Output power (W)
- 2- Torque (TQ)
- 3- RPM (N: rpm. x 1000)
- 4 - Light voltage (V)
- 5 - Charging current (A)

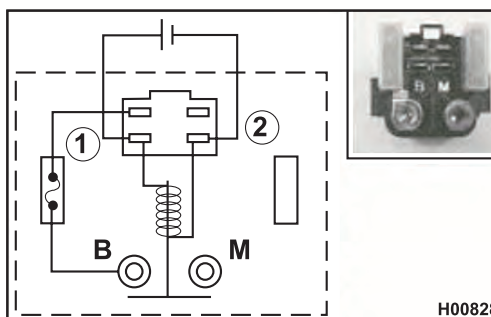
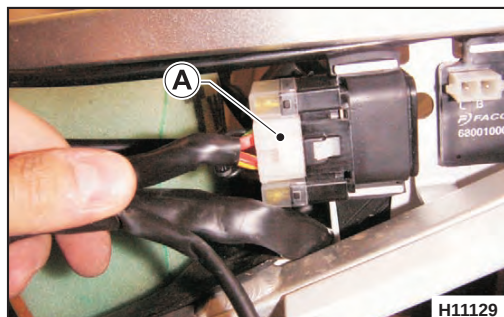
Solenoid starter inspection (TE-TXC)

Disconnect the cables at the battery negative terminal to avoid possible short circuits during disassembly. Disconnect the starter relay connector (A).

Disconnect the starter motor and battery positive cable wires at relay end. Apply 12 Volts to relay terminals (1) and (2) and check for continuity between terminals B-M. **Do not feed battery voltage to the relay longer than 5 seconds** or the relay might overheat, leading to winding damage. Use a multimeter to establish whether the winding is open circuit or resistance exists. A winding in good condition will give the following resistance readings.

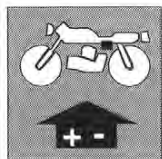
Meter scale setting: Ohm

Starter relay resistance. Standard: 3-6 Ω .

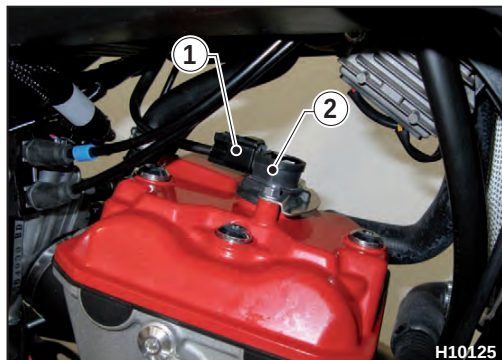


Solenoid starter wiring diagram

1= GROUND
2= + 12 V



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Coil windings resistance inspection

Disconnect the connector (1) from the coil (2).

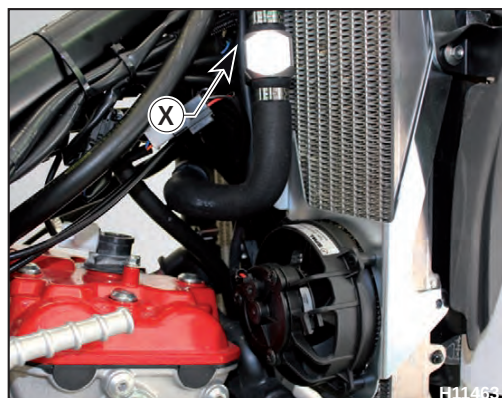
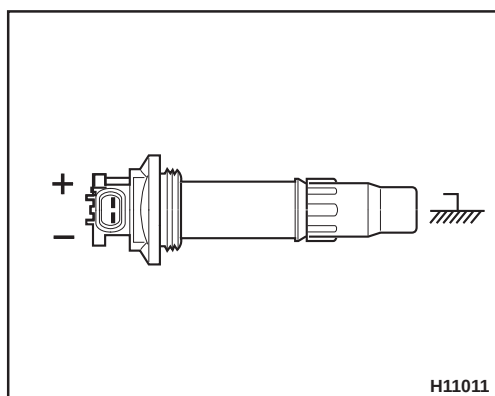
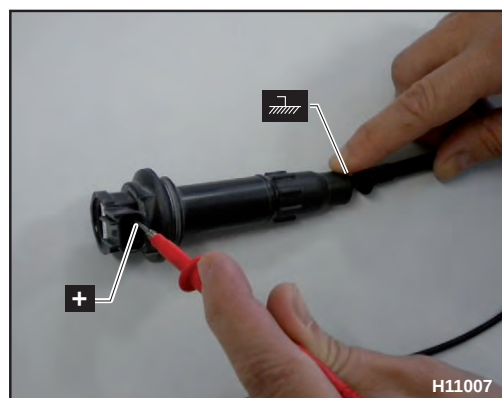
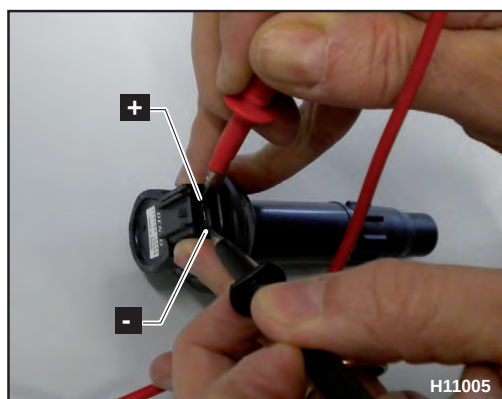
- Remove the coil (2) as described in the relevant paragraph.
- Measure primary and secondary winding resistance with a meter.

- Primary winding resistance: $0,09 \Omega \pm 15\%$ at 20°C .
- Secondary winding resistance: Open circuit.

If resistance is outside the specified limits, replace the coil.

- Terminal cap resistance: $5,7 \text{ K}\Omega \pm 20\%$ at 20°C .

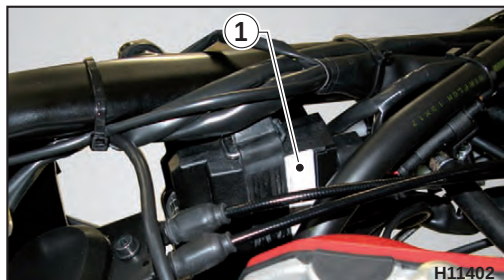
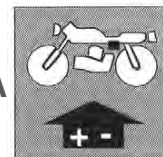
If resistance is outside the specified limits, replace the cap.



Thermo-switch check

- Remove the thermo switch (1) and soak it in hot water.
- Using a tester make sure that when the temperature rises above $97 \pm 3^\circ\text{C}$, the resistance between the two contacts is nil (short circuit).
- Make sure that when the temperature drops below $92 \pm 3^\circ\text{C}$ the resistance between the two contacts is infinite (open circuit).

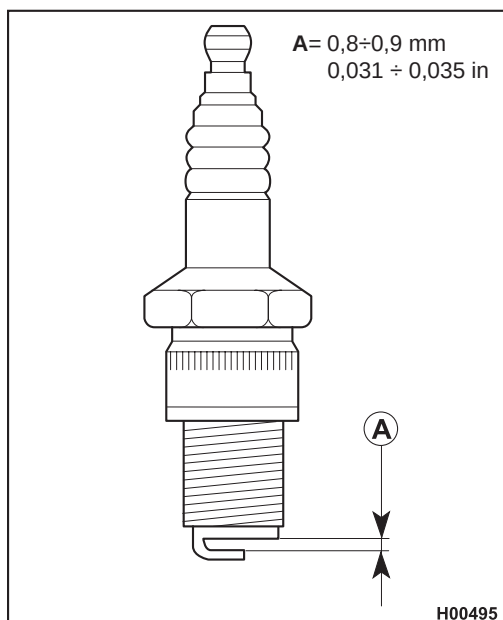
- Switch-on temperature / electric fan start: $97 \pm 3^\circ\text{C}$.
- Switch-off temperature / electric fan stop: $92 \pm 3^\circ\text{C}$.
- Max load on contacts: Max 15A.



Electronic control unit (ECU)

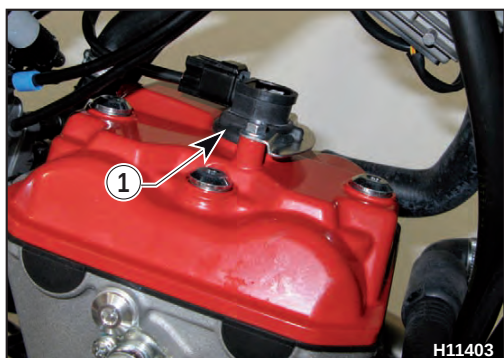
Remove saddle and fuel tank (see Section E) to gain access to the electronic control unit (1).

It is composed of a capacitor, a rectifier circuit that handles input signals received from the pick-up sensor, a circuit that controls ignition timing advance in accordance with pick-up sensor inputs and a switching circuit for capacitor discharge.



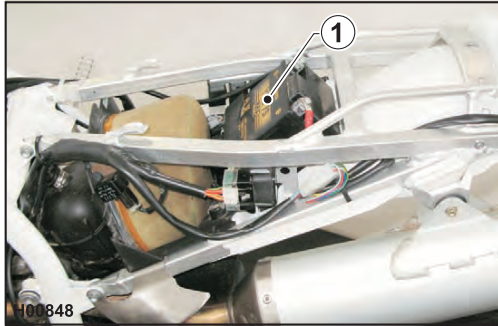
Spark plug

The spark plug (1) is an "NGK" CR9EI spark plug. Check electrode gap "A". A wider gap may cause difficulties in starting the engine and overload the coil. A gap that is too narrow may cause difficulties when accelerating, when idling or poor performance at low speed. Clean off any dirt around spark plug base before removing the spark plug. It is good practice to closely inspect the spark plug after removal, as any deposits on it and the colour of the insulator provide useful indications on spark plug heat rating, carburetion, ignition and the general condition of the engine. Before refitting the spark plug, accurately clean the insulator with a wire brush. Smear some graphite grease on spark plug thread, do it fully home finger tight then tighten it to 10÷12 Nm torque. Loosen the spark plug then tighten it again to 10÷12 Nm. Spark plugs which have cracked insulators or corroded electrodes should be replaced.





ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Battery (TE-TXC)

The battery (1) is a sealed-for-life, maintenance-free battery. If the vehicle remains unused for long periods, it is recommended to disconnect the battery from the electrical system and store it in a dry place. After an intensive use of the battery, it is advisable to carry out a standard slow charging cycle (12V-6Ah battery: 0.6A for 8 hours).

Quick charging is advised only in situations of extreme necessity since the life of lead elements is drastically reduced by such cycle (12V-6Ah battery: 6A for 0.5 hours).

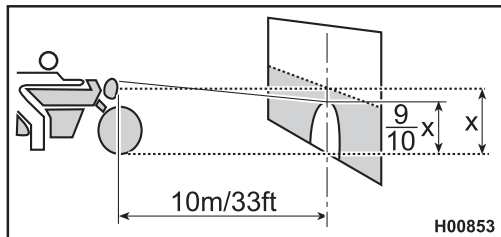
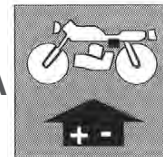
Battery charger

To gain access to the battery (1):

- remove the saddle (as outlined in the relevant paragraph);
- first remove the BLACK negative cable, then the RED positive cable (when reassembling, first connect the RED positive cable, then the BLACK negative cable);
- remove the battery (1) from its housing.

Check, using a voltmeter, that battery voltage is not less than 12.5 V. If it is not so, the battery needs to be charged. Using a battery charger with a constant voltage, first connect the RED positive cable to the battery positive terminal then the BLACK negative cable to the battery negative terminal. At a constant voltage level of 14.4 V, apply "x" Amps according the battery's charge percentage as indicated in the table below. The voltage reaches a constant value only after a few hours, therefore it is suggested NOT to measure it immediately after having charged or discharged the battery. Always check the battery charge before reinstalling it on the vehicle. The battery should be kept clean and the terminals coated with grease.

INDICATIVE CHARGE TIMES DEPENDING ON BATTERY CHARGE STATUS		
AT-REST VOLTAGE * (V)	% OF CHARGE	CHARGE TIME (RATED CURRENT IN AMPS TO BE APPLIED: 0.1x BATTERY RATED CAPACITY)
> 12.7	100	—
~ 12.5	75	4h
~ 12.2	50	7h
~ 12.0	25	11h
~ 11.8	0	14h



Headlamp, tail light (TE)

Headlamp adjustment

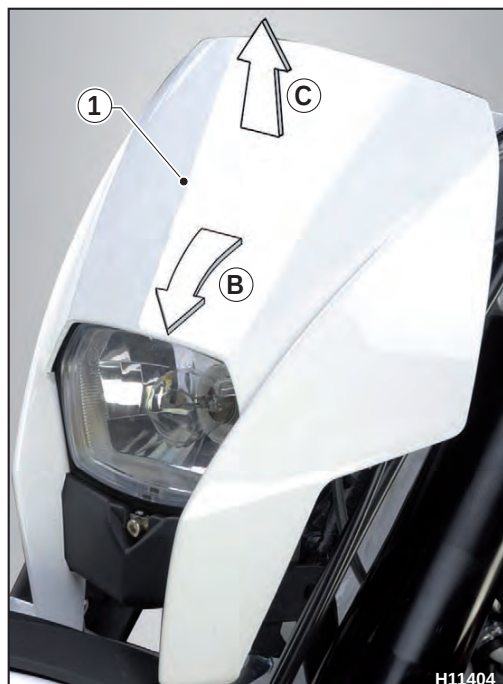
The headlamp features a twin bulb for low and high beam and a festoon bulb for the city or parking light. Beam setting needs to be performed accurately; proceed as follows:

- Place the motorcycle 10 metres away from a vertical wall;
- The motorcycle must be on level ground and the optical axis of the headlamp must be perpendicular to the wall;
- The motorcycle must be upright;
- Measure the height from the ground to the centre of the lamp and draw a cross on the wall at the same height;
- When the low beam is on, the upper edge between dark and lit zone should be at 9/10th of the height of headlamp centre from ground. Beam height can be raised or lowered turning the screw (1).





ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



H11404

Headlamp Bulbs Replacement (TE)

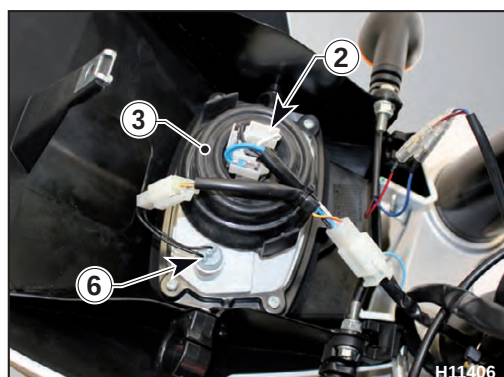
To gain access to the headlamp bulbs, proceed as follows:

- remove the upper fastening screw of the the headlamp carrier to the instrument panel support (A);
- push forward the headlamp carrier (B) and pull it towards the high (C) in order to uncouple from the two lower supports;
- remove the headlamp fairing (1);
- disconnect the connector (2);
- slide off the rubber boot (3);
- release the clip (4) and remove the bulb (5).

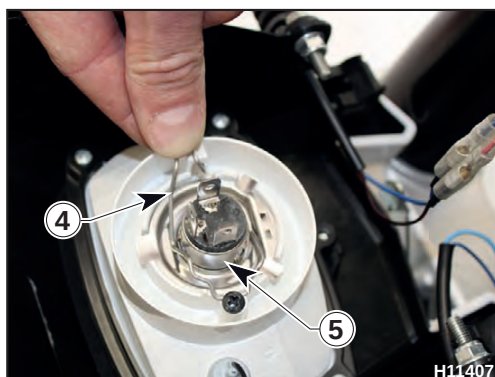
To replace the parking light bulb (6) extract it from the inside cover. After replacement, reverse operations for reassembly.



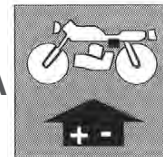
H11405



H11406



H11407



Tail light replacement

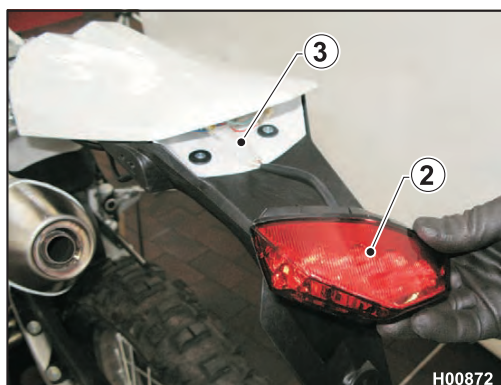
Remove the tail light as follows:

- Loosen the two screws (1) under the rear mudguard.
- Extract the tail light (2) and disconnect the connector (3).

Once the tail light has been replaced, reverse the above procedure to reassemble.



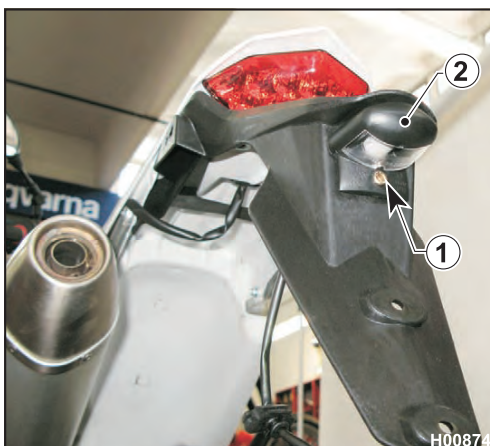
Be careful not to overtighten the screws.



Number plate bulb replacement

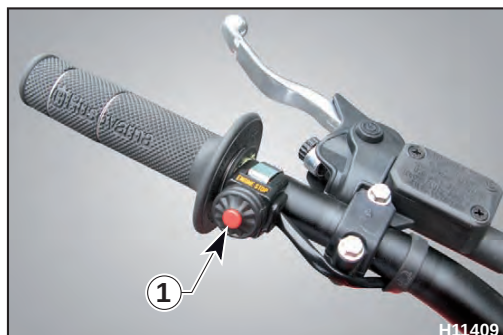
- Loosen screw (1) and remove the number plate bulb (2) from the mudguard.
- Extract the bulb holder (3) with the bulb (4) from the housing.
- Pull the bulb (4) to detach it from bulb holder.

Once the tail light has been replaced, reverse the above procedure to reassemble.





ELECTRICAL SYSTEM TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA TC 250R 2013 - TC 250R 2013 I.E. USA TXC 250R - 310R 2013 I.E. USA



Handlebar switches

Measure continuity on the different switches using a meter. Replace any part found to be faulty.

Left-hand switch (TC)

- 1 Engine stop switch (TC)

POSITION \ COLOUR	B-W	Bk
ON		
OFF		

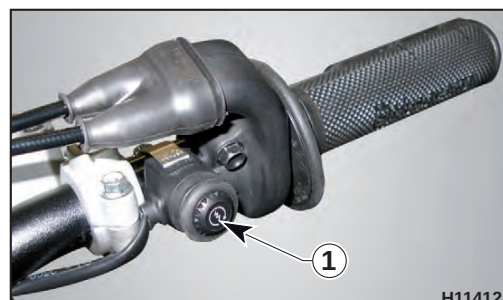
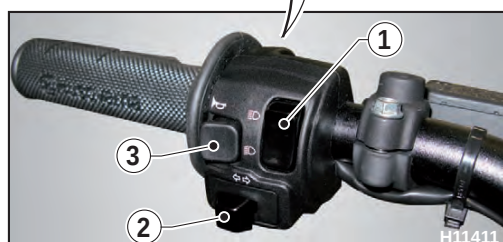


L.H. Handlebar commutator (TE)

Controls:

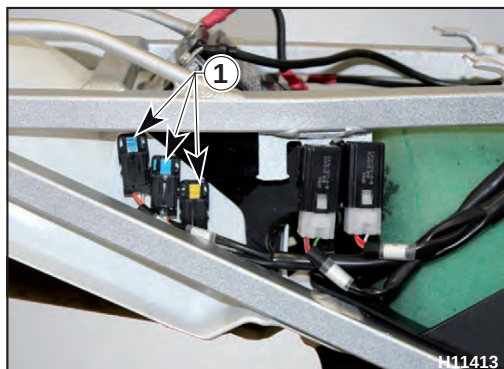
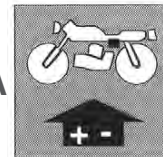
- 1) Selection control High beam
 Selection control Low beam
- 2) Left turn signals (automatic return)
 Right turn signals (automatic return)
- 3) Warning horn.
- 4) Engine stop button.

To deactivate the turn signals, press the control lever after its returning to center.



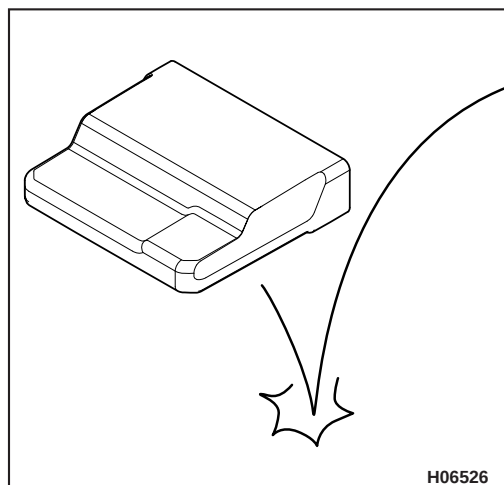
Right-hand switch (TE-TXC)

1. Engine start button.



Fuses (TE-TXC)

- When you find a blown fuse (1), always investigate and eliminate the cause before replacing it.
- Never replace a fuse with another fuse with a different rating.
- Never use a wire or other makeshift repair techniques instead of installing a new fuse.

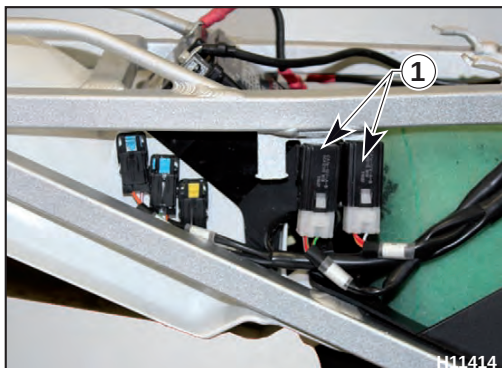


Semiconductor parts

- Be careful to never drop parts that incorporate a semiconductor, such as the ECU or the voltage regulator/rectifier.
- Closely follow the relevant instructions when inspecting these parts. An improper procedure may lead to severe damage.



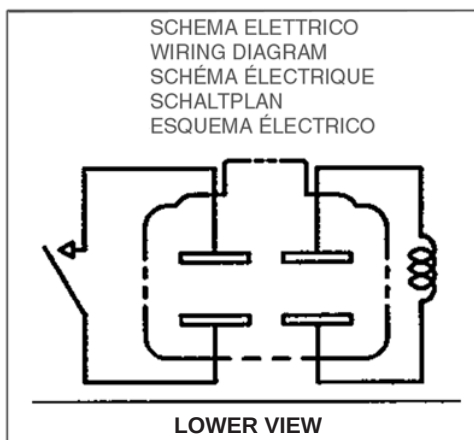
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

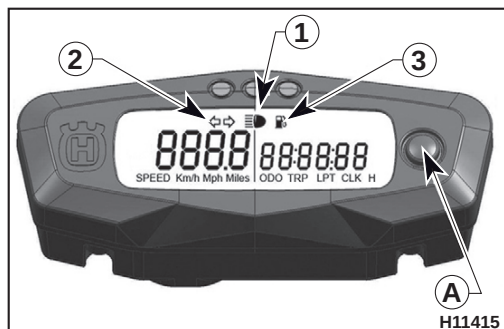
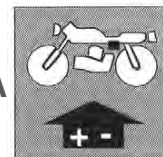


Relay test (TE - TXC)

Remove saddle and fuel tank as described in "Section E". Remove the relays (1) located on the R.H. side of the chassis.

- A: Set the meter to the "Impedance" scale and check the energiser coil for proper operation. Reading should be: 80 Ohm (+/- 10%) at 20 °C.
- B: Set the meter to "Continuity" mode and check the circuit is open.
- C: Feed the coil from a power supply unit with stable 12V output and make sure that the circuit closes.





Digital instrument, warning lights (TE)

The motorcycle is equipped with a digital instrument; on the instrument are located 3 warning lights too: high beam, blinkers and fuel reserve.

- 1- BLUE warning light "HIGH BEAM"
- 2- GREEN warning light "BLINKERS"
- 3- ORANGE warning light "Fuel reserve"

The dashboard is activated only after the engine has been started.

NOTES:

- Every time the engine is started, the dashboard shows the SW version for the first 2 seconds; after the check routine, the dashboard shows the last planned function.
- A few seconds after the engine has been turned off, the dashboard is deactivated.
- To select the instrument functions and to set to zero the functions, use the SCROLL knob (A).



The instrument functions are the following, as shown below.

- 1- SPEED / ODO
 - 2- SPEED / CLOCK
 - 3- SPEED / TRIP
 - 4- SPEED / CHRONO
 - 5- SPEED / HOUR COUNTER (H)
 - 1- SPEED / ODO
-



1- SPEED (km/h or mph) / ODO

To change unit from kilometres to miles or miles to kilometres, proceed as follows:

- 1) with the engine off, press and hold the "SCROLL" button (A), then start the motorcycle to switch the instrument on.
- 2) press and hold the "SCROLL" button (A) until the symbol "Km/h" or "Mph Miles" is displayed, then release.
- 3) "Km/h" and "Mph Miles" are displayed in alternation - press the "SCROLL" button (A) again while the desired unit of measurement is displayed.



2- SPEED / CLOCK

- SPEED: motorcycle speed maximum value: 299 Km/h or 299 mph;
- CLOCK: clock- Reading from 0:00 to 23:59:59;

To reset the clock, push the knob SCROLL (A) for more than 3 seconds in order to increase the hours; release the knob and then, after 3 seconds, it is possible to increase the minutes;



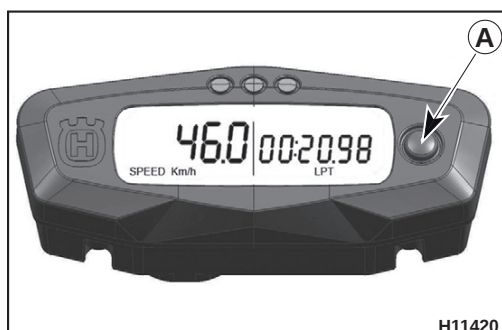
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



3- SPEED / TRIP

- SPEED: motorcycle speed maximum value: 299 Km/h o 299 mph
- TRP: distance- maximum value: 999.9 km (the data will be lost after battery detachment).

To reset TRIP, push the SCROLL button (A) and hold for more than 3 seconds.



4- SPEED / CHRONO (LPT)

- SPEED: motorcycle speed maximum value: 299 Km/h o 299 mph;
- LPT: miles/kilometers covered time;
- Reading from 0:00 to 99:59:59 (the data will be lost after battery detachment).

To activate the function LPT, push the knob SCROLL (A) for more than 3 seconds.

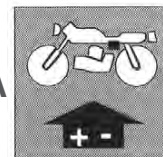
- 1st step: function ON;
- 2nd step: stop to the counters;
- 3rd step: LPT reset;
- 4th step: function ON;
- 5th step: stop to the counters;

.....
and so following

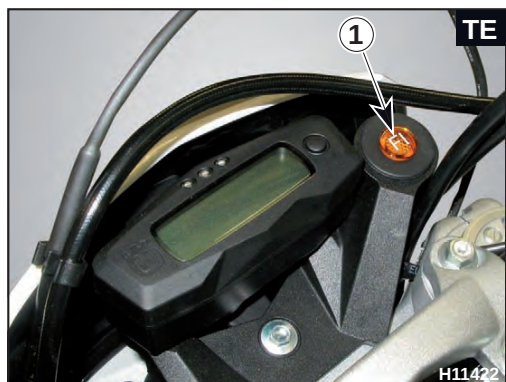


5- SPEED / HOUR COUNTER (H)

- SPEED: motorcycle speed maximum value: 299 Km/h o 299 mph;
- H: it indicates engine operating hours and minutes.
- Data will be lost after disconnecting the battery.
- To activate the function hour counter (H), push the SCROLL button (A) and hold for more than 3 seconds.

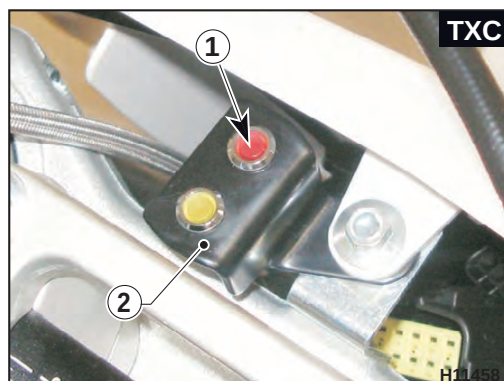


FI Lamp - Operating failures (TE-TXC)



TE:

FI Lamp (1) is located on the side of the digital dashboard.



TXC:

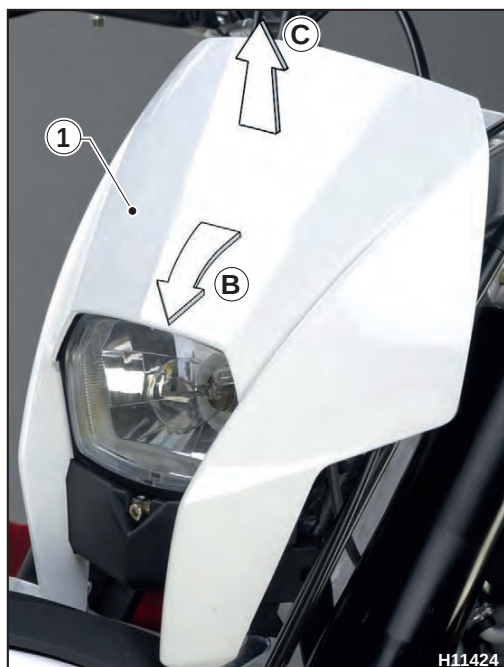
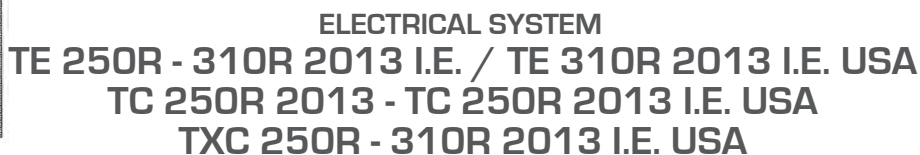
The FI lamp (1) is positioned on panel (2).

NOTE:

FI LAMP - OPERATING FAILURES (TE - TXC)

IN THE EVENT OF ENGINE AND/OR INJECTION SYSTEM MALFUNCTION, THE WARNING LIGHT WILL START BLINKING, THUS COMMUNICATING A FAILURE.

CONNECT THE DIAGNOSIS INSTRUMENT TO DETERMINE THE TYPE OF FAULT WHICH HAS OCCURRED.



Dashboard replacement (TE)

- Remove the upper retaining screw securing headlamp fairing to dashboard bracket (A);
 - slide the headlamp fairing (B) forward and pull upwards (C) to ease it off the two lower mounts;
 - remove the headlamp fairing (1);
- Remove the two retaining screws (3) securing the dashboard to its bracket, disconnect the connector (4) and remove the dashboard (5).
To refit the dashboard, reverse the disassembly procedure.

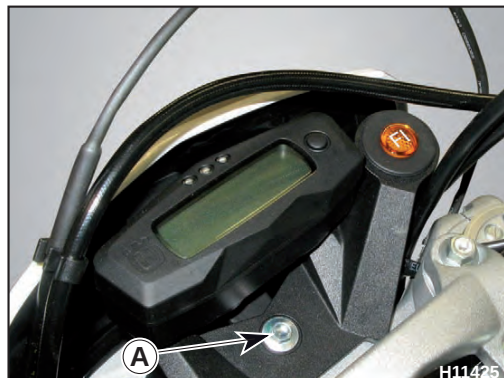
Troubleshooting

Charging system (TE-TXC)

A battery that does not hold charge might be a symptom of:

- 1) current loss (see paragraph "Current loss at the battery");
- 2) incorrect voltage (see paragraph "Regulated voltage");
- 3) no continuity in generator (see paragraph "Checking generator stator windings resistance");
- 4) incorrect no-load performance of generator (see paragraph "Generator no-load performance")
- 5) voltage regulator malfunction (see paragraph "Voltage regulator/rectifier inspection")

- a battery overload indicates:
 - 1) faulty voltage regulator (see paragraph "Voltage regulator/rectifier inspection");
 - 2) faulty battery (see paragraph "Current loss at the battery").



Starting system (TE-TXC)

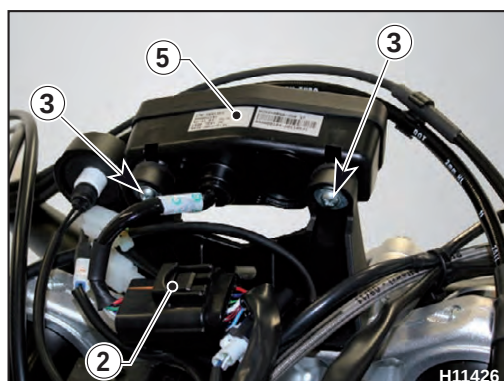
If the starter motor does not start, this might be a symptom of:

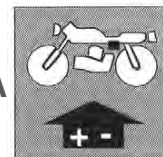
- 1) faulty solenoid starter (see paragraph "Solenoid starter inspection");
- 2) loose starter motor cable;
- 3) faulty starter motor (see paragraph "Starter motor inspection");
- 4) flat battery (see paragraph "Battery charger").

Electronic ignition system

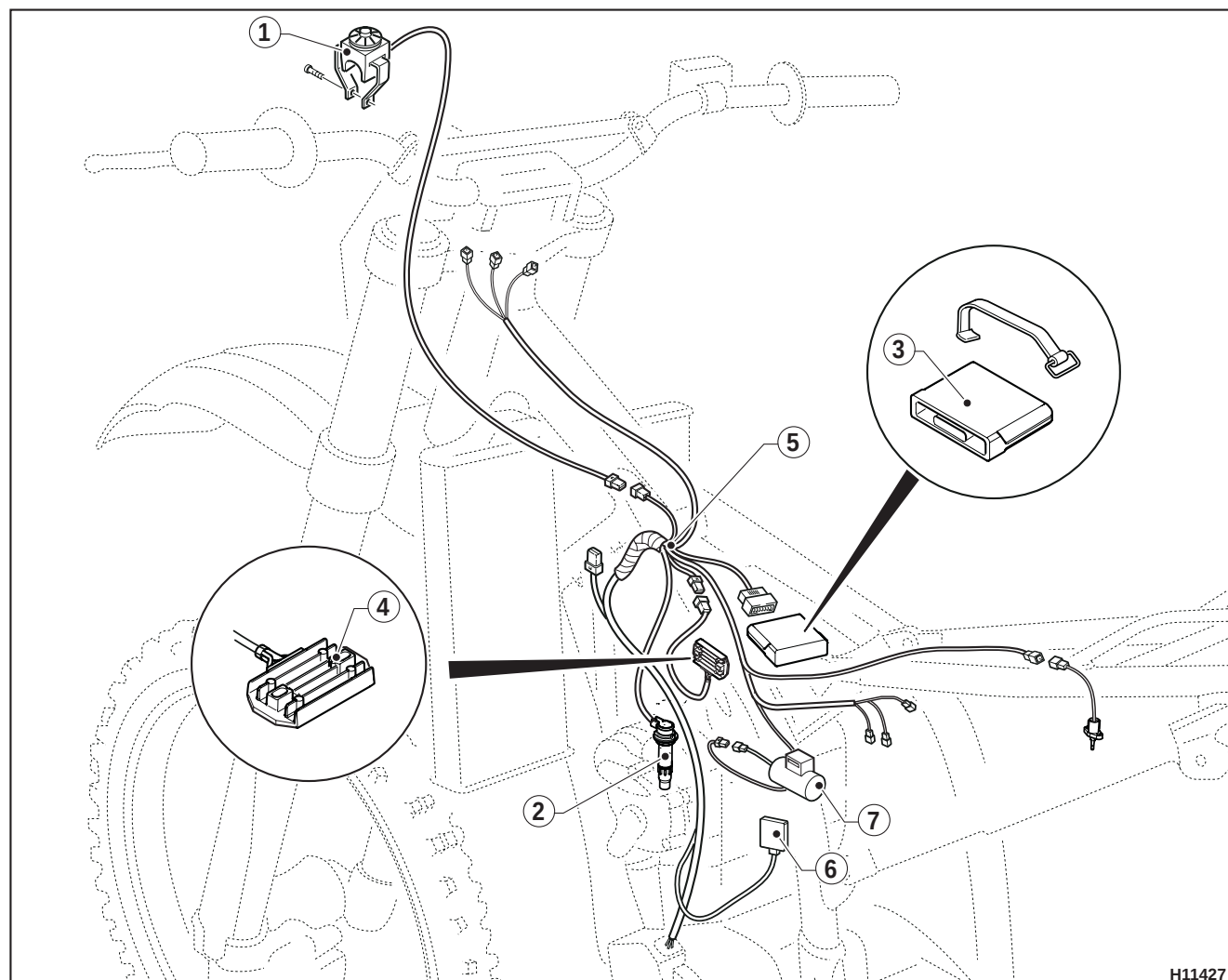
A weak or missing spark might be a symptom of:

- 1) incorrect connections in the electrical system;
- 2) faulty spark plug or wrong heat rating or incorrect spark plug gap (see paragraph "Spark plug");
- 3) faulty ignition coil (see paragraph "Checking coil windings resistance");
- 4) faulty spark plug cap (see paragraph "Checking coil windings resistance").





Wiring (TC)

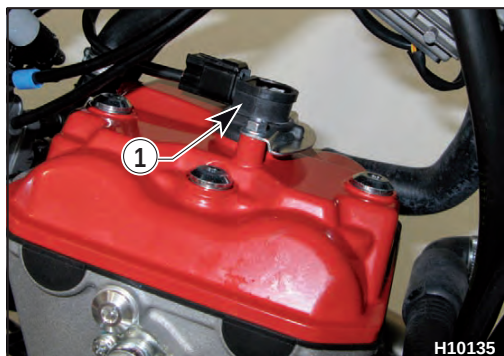


H11427

- 1 Engine stop button
- 2 Coil / Stick-coil
- 3 Control unit
- 4 Voltage regulator
- 5 Main wiring harness
- 6 MAP sensor
- 7 Condenser



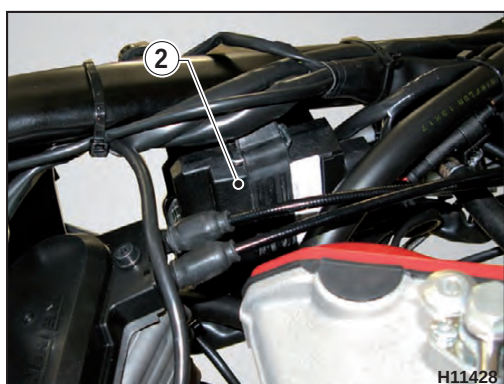
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Cable routing and electrical parts installation instructions (TC)

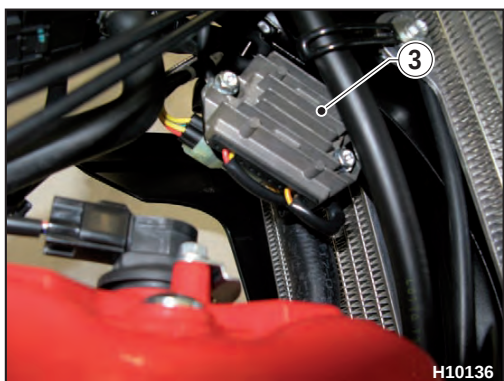
• Position of the coil / stick-coil

Connect the coil / stick-coil (1) as the figure shows.



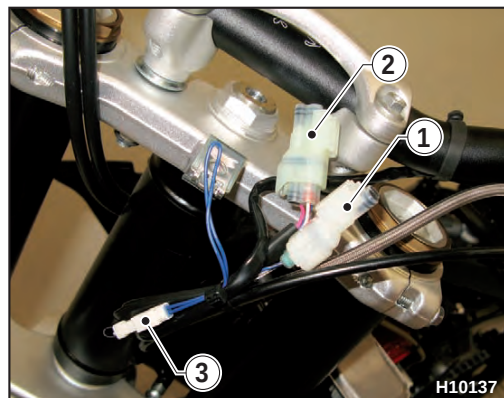
• Fuel injection control unit position (2) (TC)

Electronic control unit installed with the flat side up.



• Position of the voltage regulator (3) (TC)

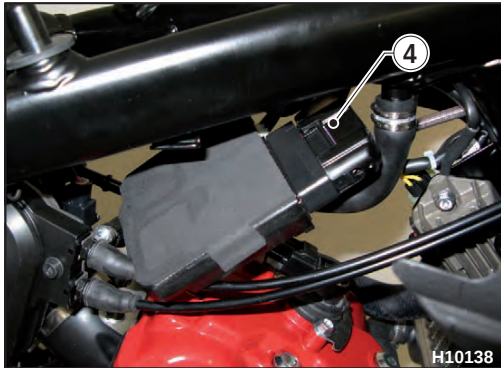
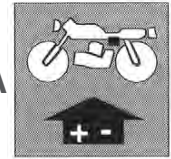
Positioned on the RH under the tank.



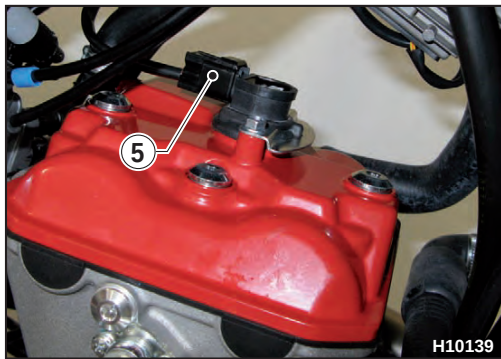
• Position of the connectors front side

On the front side, under the fairing, the following connectors are to be found:

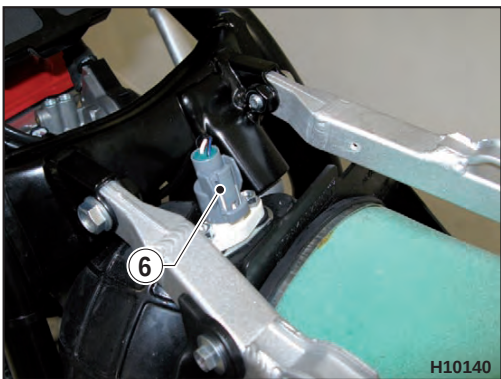
- 1) Mapping connector
- 2) Diagnostic connector
- 3) Connector not in use



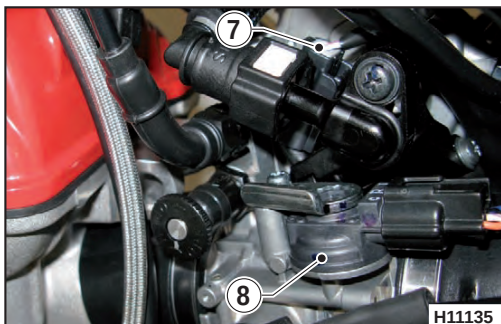
- **Control unit connection (TC)**
Connect the control unit connector (4) as shown.



- **Ignition coil / stick-coil connection (TC)**
Connect the ignition coil / stick-coil connector (5) as outlined.



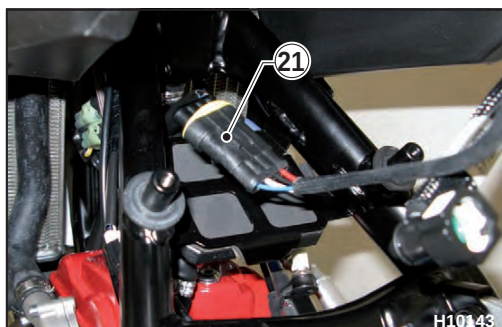
- **Air temperature sensor connection (TC)**
Connect the air temperature sensor (6) as outlined.



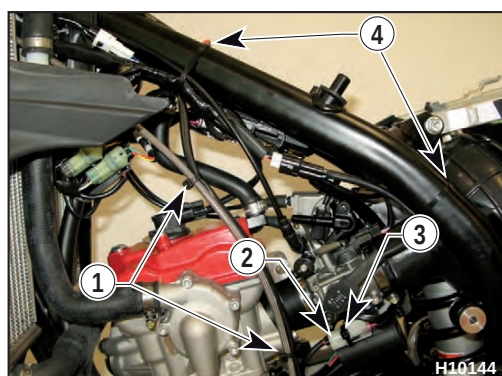
- **Connection of injector (7), butterfly valve position sensor (9) and atmospheric pressure sensor (8)**
- Connect the connectors as outlined.



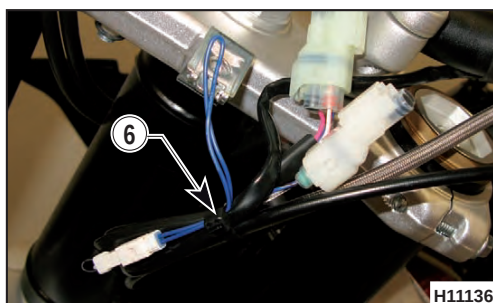
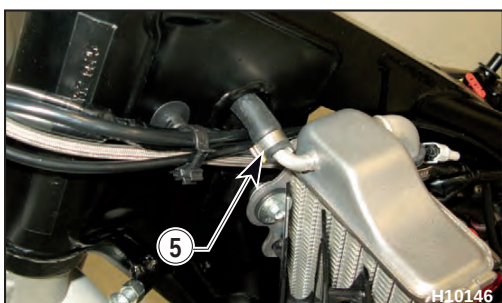
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



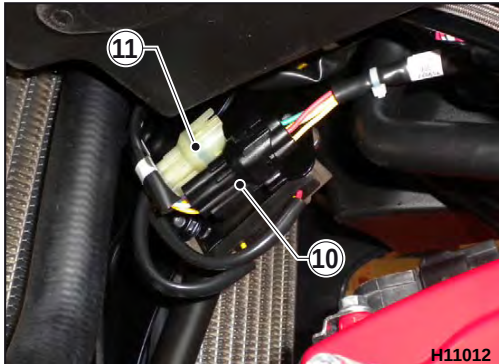
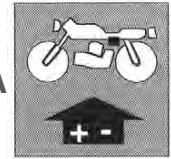
- **Fuel pump connector position (TC)**
Position the fuel pump connector (21) as shown.



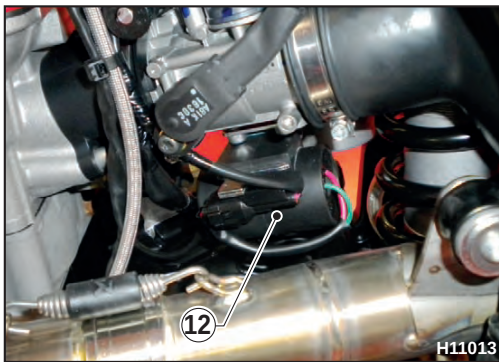
- **Securing the wiring (TC)**
 - Fasten the alternator cable to the clutch tube by means of the clamps (1).
 - Fasten the condenser connector (2) to the support bracket by means of the clamp (3).
 - Fasten the harness to the chassis with the clips (4) as shown.
 - Fasten the cables coming from the front part of the bike to the chassis by means of the openable clamp (5).
 - Fasten the front cables with a clamp (6).



- **Securing the engine stop button cable (TC)**
Secure the engine stop button cable (8) with two clips (9).



- **Voltage regulator connection (TC)**
Connect the connector (10) as shown.
- **Connection of alternator (TC)**
Connect the connector (11) as shown.



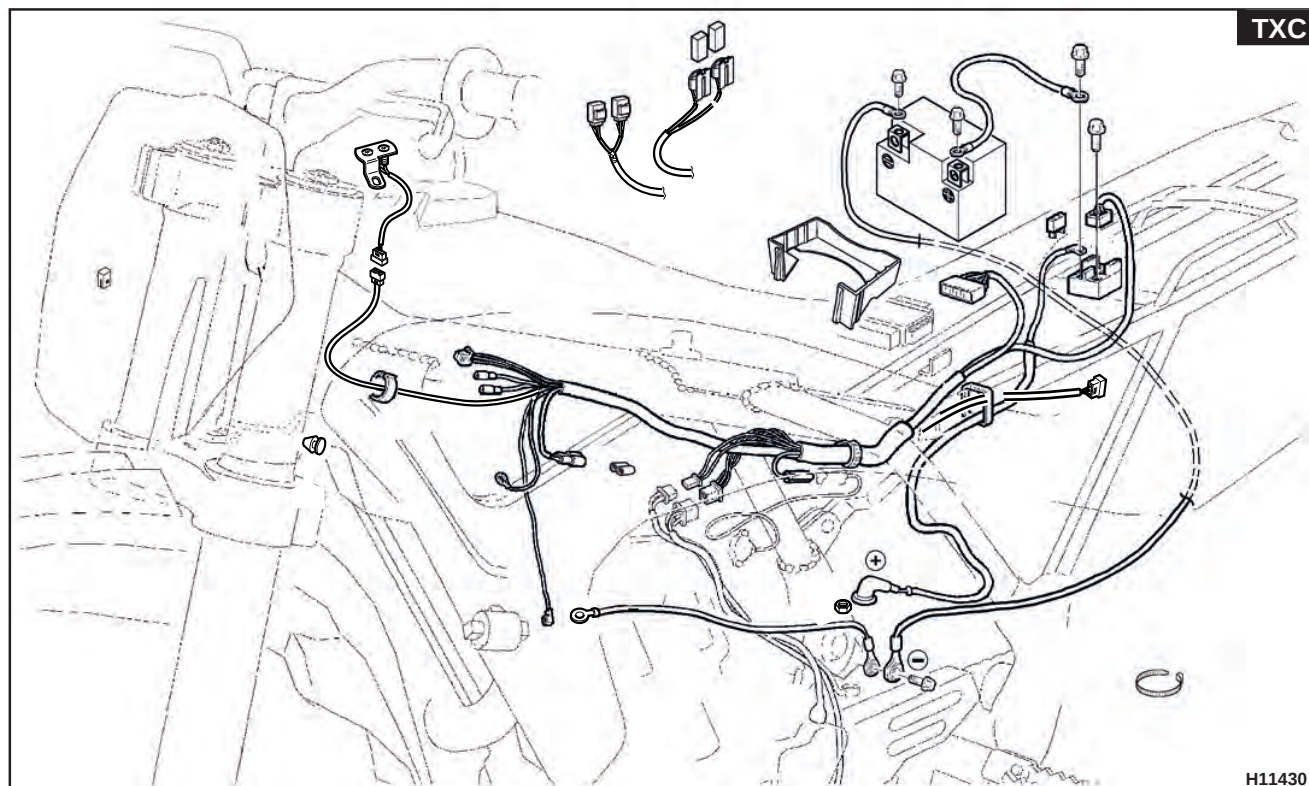
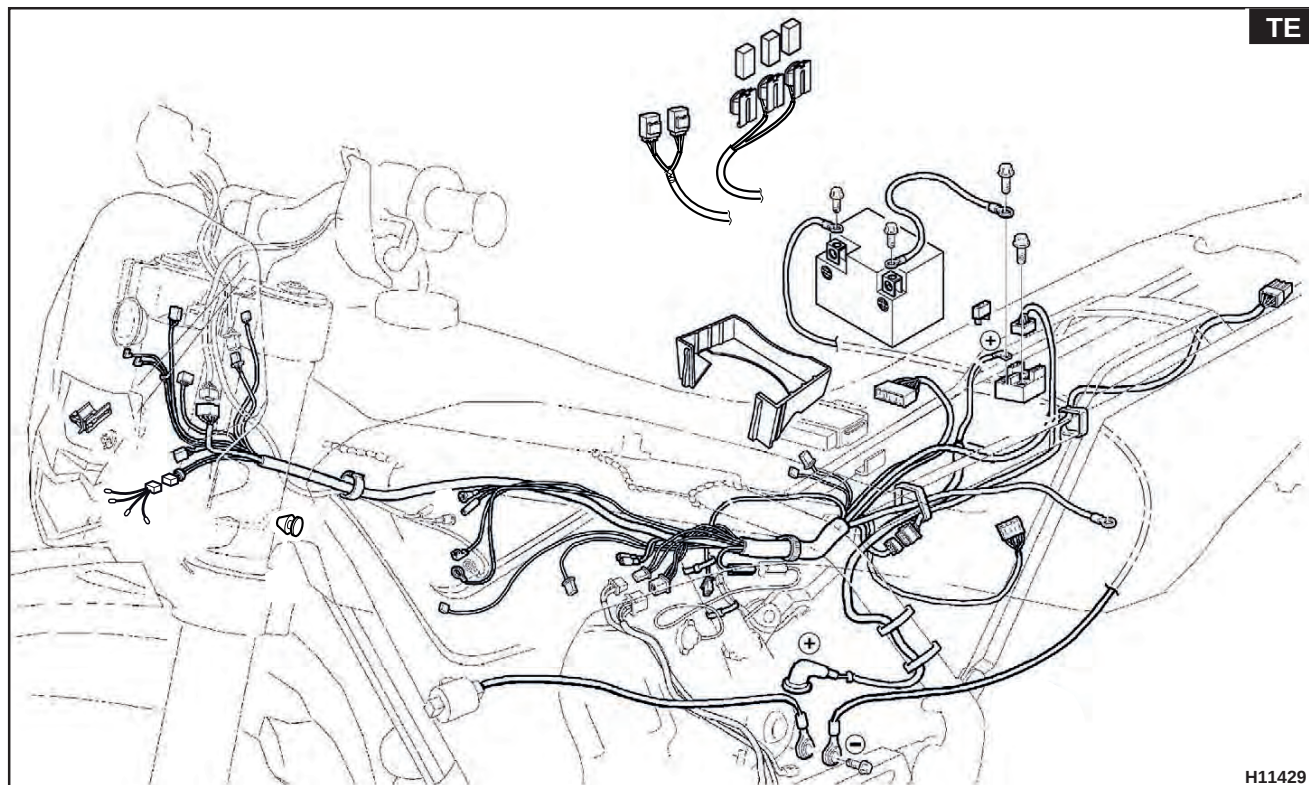
- **Condenser connection (TC)**
Connect the connector (12) as shown.

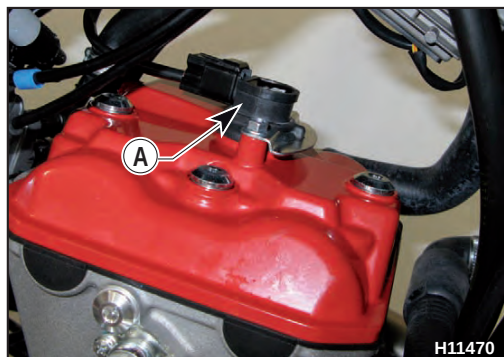
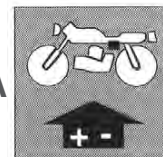


ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Wiring (TE-TXC)

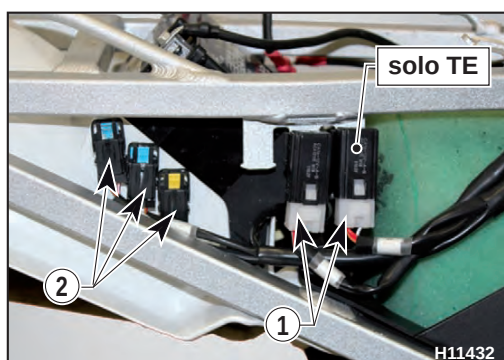




Cable routing and electrical parts installation instructions "TE-TXC"

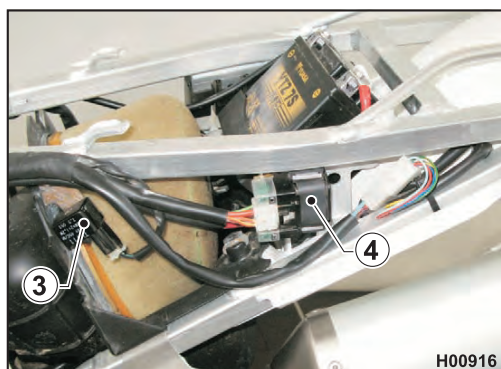
- **Position of the coil / stick-coil**

Connect the coil / stick-coil (X) as the figure shows.



- Relay (1) and fuses (2) position

On right side of motorcycle.

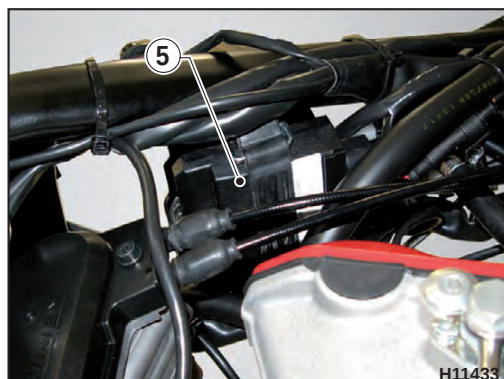


- Turning indicators flasher (3) (TE) and solenoid starter position (4) (TE-TXC)

On left side of motorcycle.



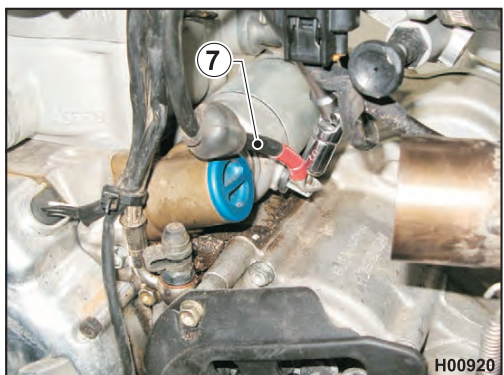
ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



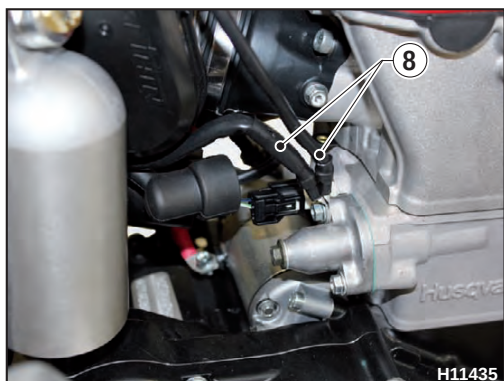
- **Electronic control unit (5) positioning**
Control unit installed with flat side upwards.



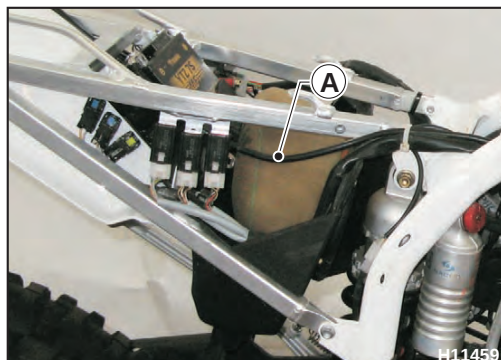
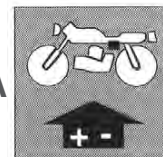
- **Voltage regulator (6) positioning**
Positioned on the left side of the steering tube.



- **Securing the starter motor/solenoid starter cable**
Connect the starter motor/solenoid starter cable (7) as shown in the figure.

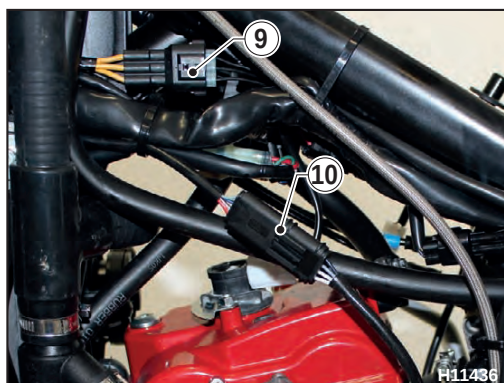


- **Securing the engine ground to chassis and engine ground to battery cables (8)**
The engine ground to chassis and engine ground to battery cables are secured to the timing chain tensioner screw.



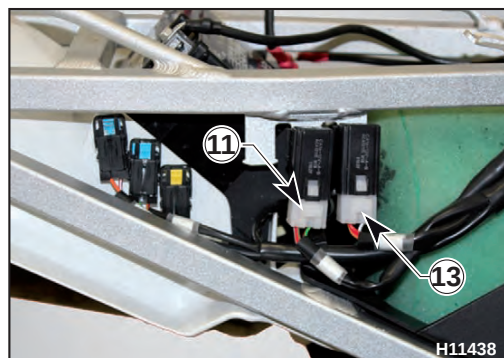
- **Battery negative cable routing (A)**

Routing of engine ground to battery negative cable (A).



- **Wiring connection to voltage regulator**

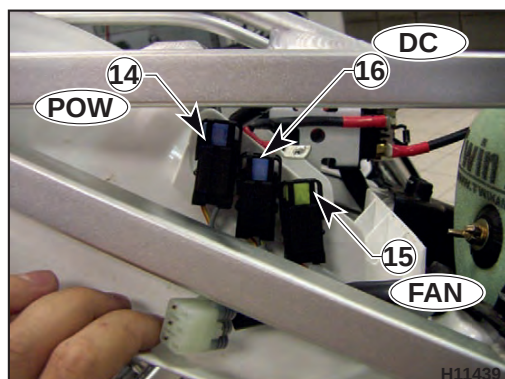
Connect the connectors (9) and (10) and fasten them to the original harness.



- **Connection of relays and fuses**

RELAYS

Connect the cable marked "POW" to relay (11).
Connect the cable marked "DC" to relay (13) (TE only).

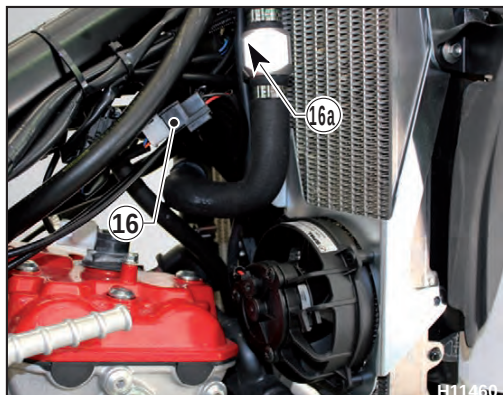


FUSES

Connect the cable marked "POW" to fuse (14).
Connect the cable marked "FAN" to fuse (15).
Connect the cable marked "DC" to fuse (16).

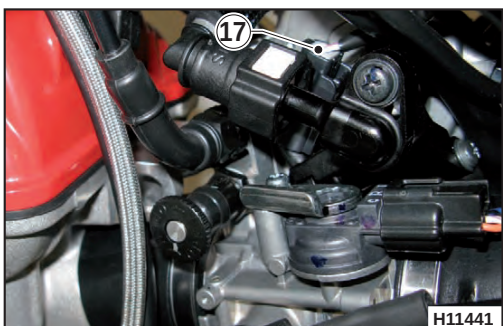


ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



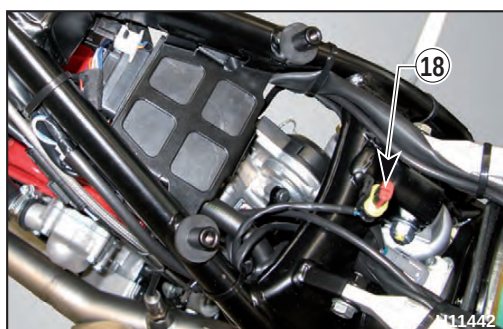
• **Electric fan and Thermo switch connection**

Connect the electric fan connector (16).
Connect the Thermo-switch connector (16a).



• **Injector connection**

Connect the connector (17) to the throttle body.



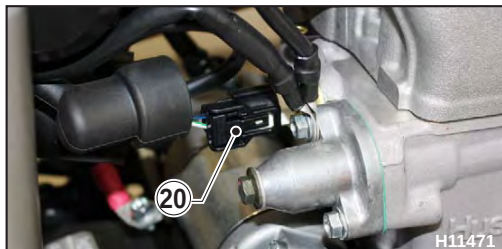
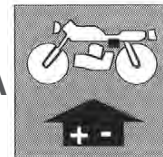
• **Fuel pump connector position**

Position the fuel pump connector (18) as shown.



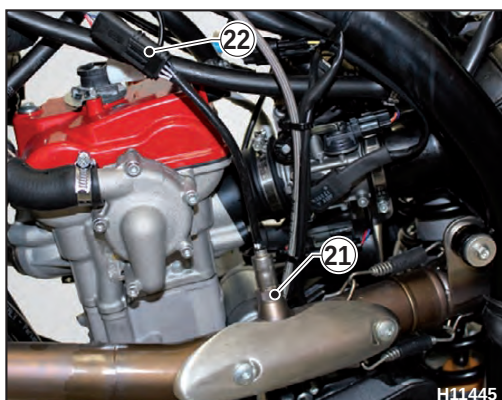
• **Connection of atmospheric pressure sensor connector**

Connect the connector (19) as shown.



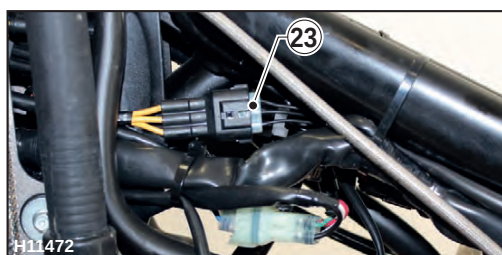
• **Engine water temperature connector**

Connect the engine water temperature connector (20) to the thermostat.



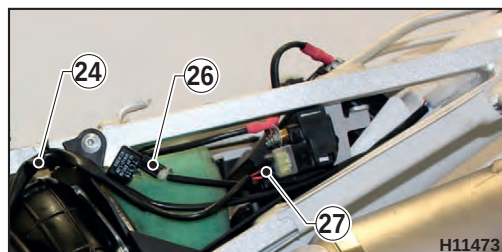
• **Lambda sensor position and connector**

Tighten the Lambda sensor (21) in the corresponding seat.
Connect the Lambda sensor connector (22) as shown.



• **Ignition cable connection**

Connect the ignition connectors (23) as shown.



• **Chassis cable holes and connection to tail light, flasher starter relay**

Route the rear end of the wiring (24) as shown in the figure.

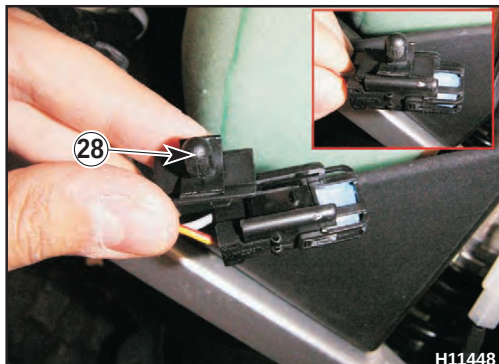
Connect the tail light/turning indicators connector (25) (TE).

- Connect the connector (26) to the flasher (TE).
- Connect the connector (27) to the solenoid starter.





ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



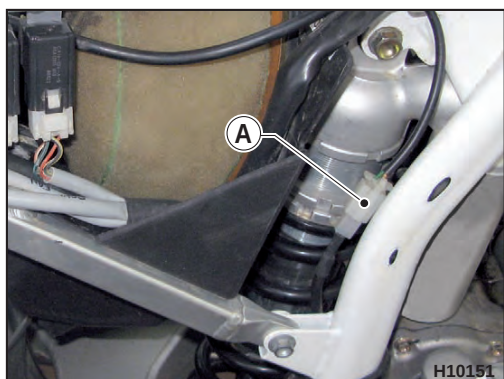
- **Clip installation on fuse holders**

Install the suitable clips (28) on the three fuse holders.



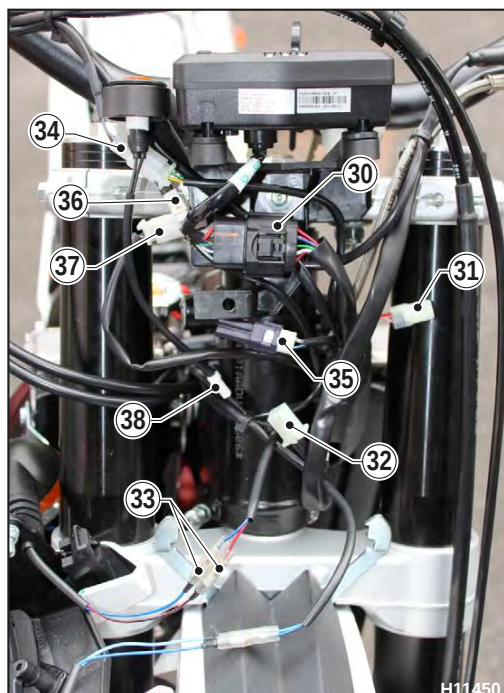
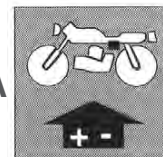
- **Clip installation on fuse holders**

Secure the three fuses to the suitable perforated panel of the rear mudguard.



- **Rear stop connection**

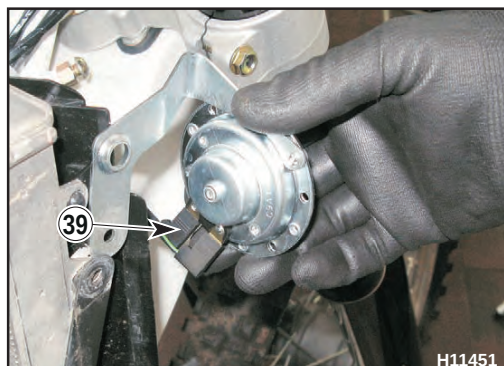
Connect the wiring connector (A) to the rear STOP sensor.



- **Dashboard bracket connectors (TE)**

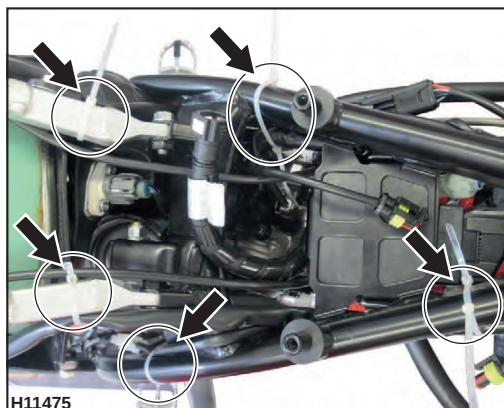
Fasten the instrument connector (30).

Connect the diagnosis instrument to the connector (31).
Connect the headlamp unit to the connector (32).
Connect the connectors (33) to the turning indicators.
Connect the connector (34) to the front brake lever.
Double map connector (35) (not used).
Connect the speed sensor connector (36).
Connect the clutch switch connector (37).
Connect the FI Lamp connector (38).



- **Horn connector (TE)**

Connect the connector (39) to the horn.

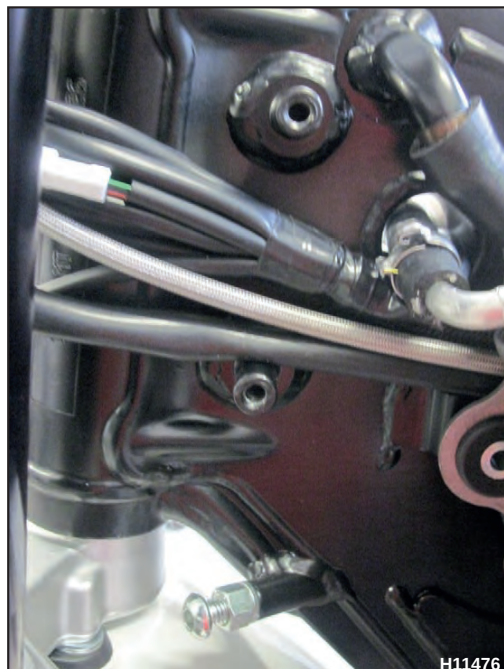


- **Top central view harness fastening**

Strap wiring to rear chassis with clips, as shown in the figure.



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



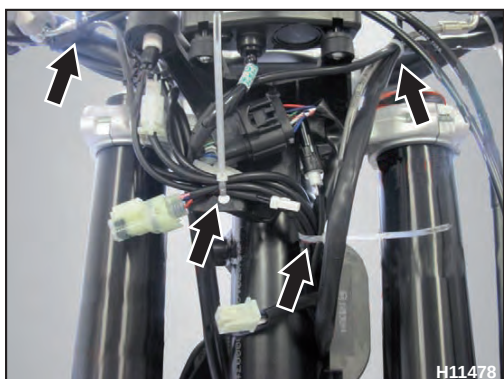
• **Left side steering tube cable fastening (TE)**

Main harness transit front branch and left control cable under voltage regulator.



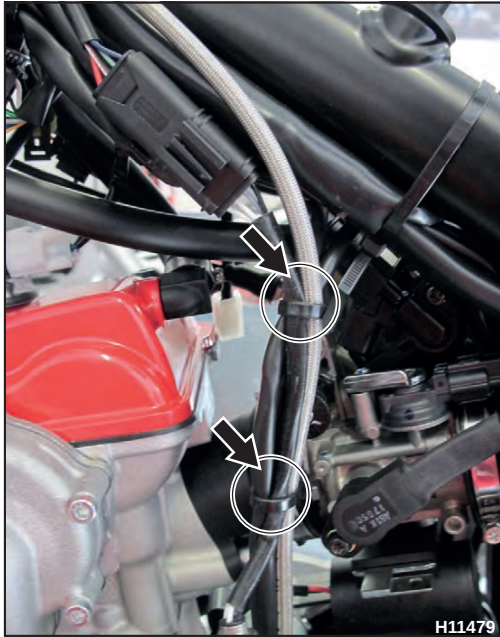
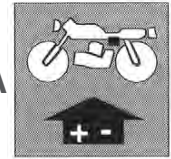
• **Right side steering tube cable fastening**

Fasten the ignition button cable and turning indicator harness (TE) to the clip (1) using a clamp.



• **Front cable fastening, under the headlight (TE)**

Fastening the general harness, instrument, light, turning indicators, ignition button, speed sensor, clutch sensor, left control.



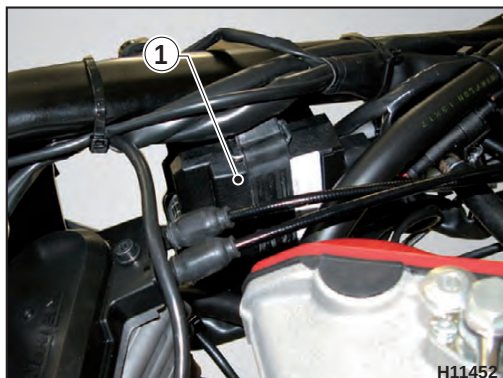
- **Fastening the Lambda probe cables**



- **Fastening the electric fan cable**



ELECTRICAL SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

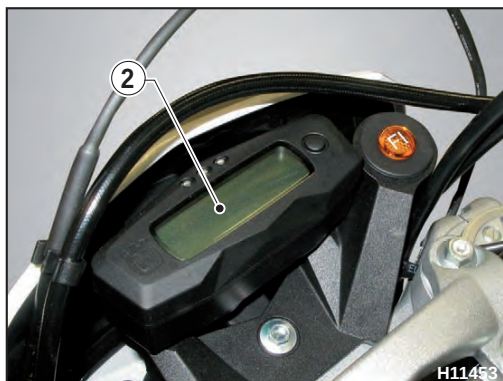


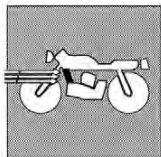
Important

Before washing the motorcycle, it is necessary to duly protect the following parts from water:

- a) Rear opening of the muffler;
- b) Clutch and front brake levers, handgrips, handlebar switches;
- c) Air filter intake;
- d) Steering head, wheel bearings;
- e) Rear suspension drag drop link.

In addition to these precautions, NEVER ALLOW HIGH-PRESSURE AIR OR WATER to get in contact with any ELECTRICAL PARTS, the FUEL INJECTION SYSTEM, and especially the electronic control unit (1) and the digital dashboard (2).





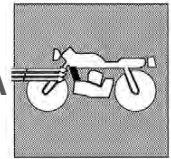
ENGINE COOLING

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

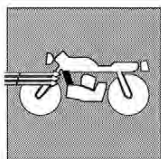


Section

N

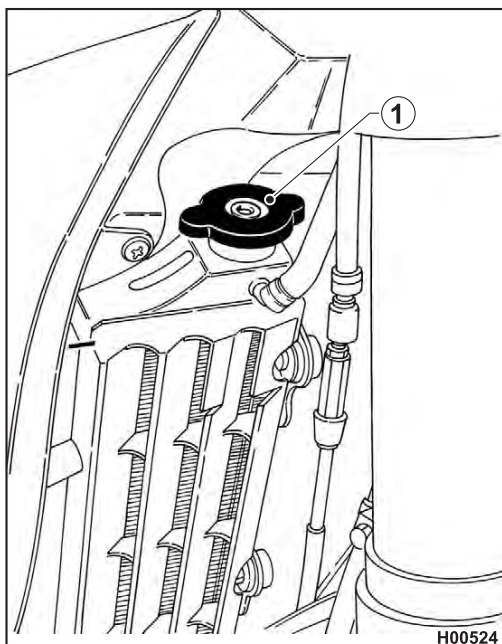


TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



ENGINE COOLING

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Coolant level check

Coolant takes the heat from the piston-cylinder-and-head assembly and transfers it to the radiator, where it is released to the atmosphere. Checking coolant level at regular periods is critical to ensuring proper operation of the cooling system.



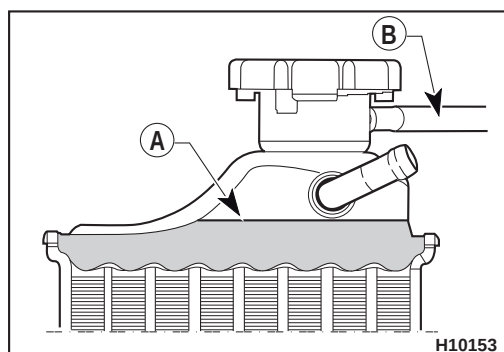
Without cooling medium (water), no heat exchange occurs between cylinder head and radiator. The cylinder and piston assembly will overheat and seize and in the worst scenario, crankshaft damage may result.

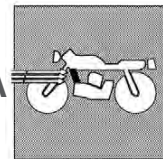
If the event of engine overheating, check that the radiator is full. Level in the radiator must be checked from cold (see Section D). In the event you need to check level when the engine is hot, be sure to discharge pressure gradually. The radiator cap (1) has a pressure-relief position to depressurize the system safely.



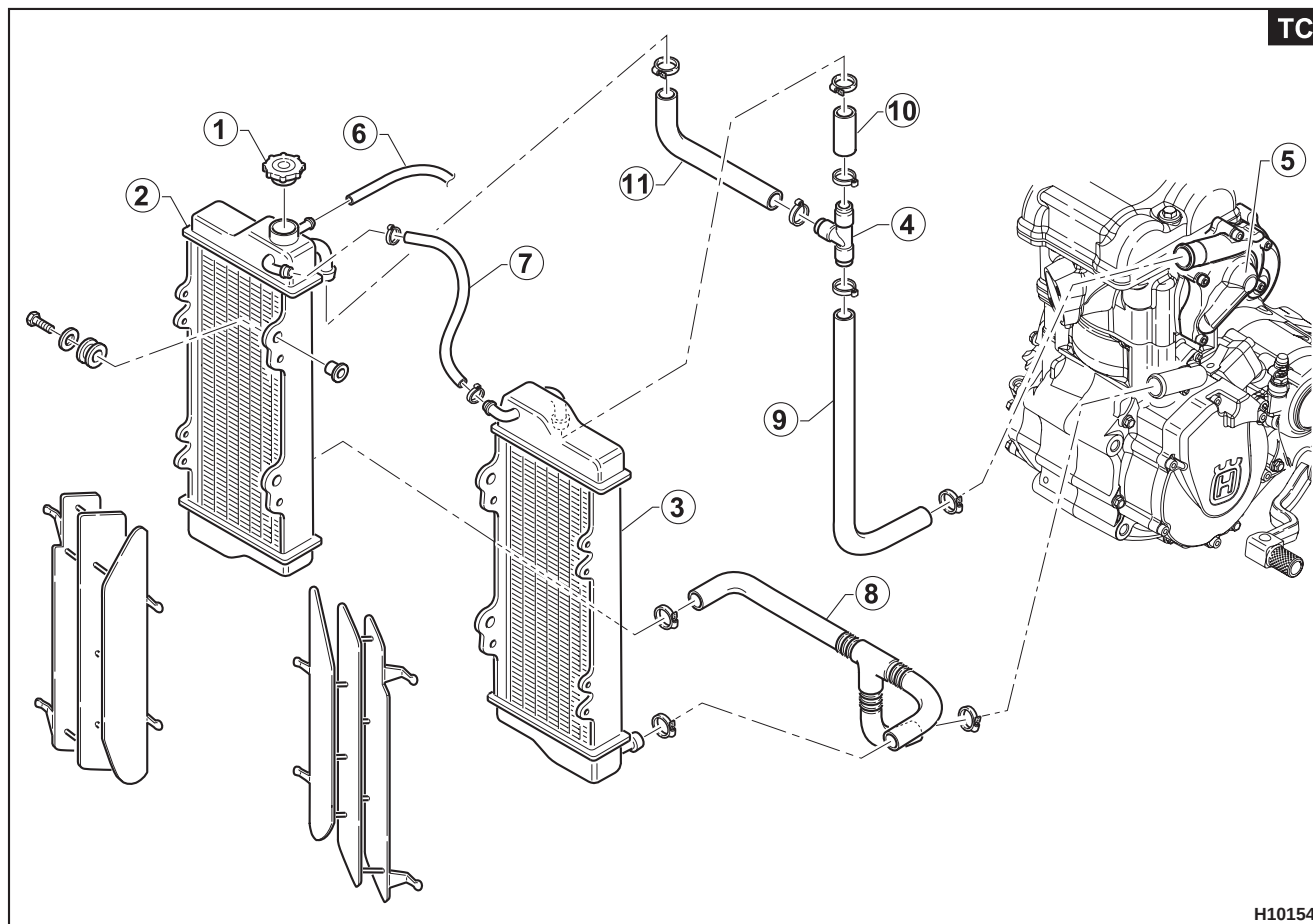
Failure to follow the above instructions will create a risk of scalding for operator and any persons standing nearby.

- A. Coolant level
- B. Breather hose





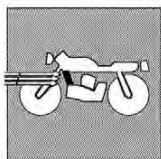
Cooling circuit (TC)



H10154

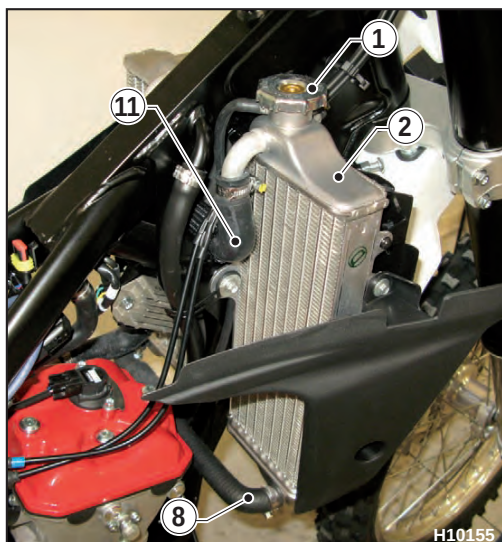
The forced circulation cooling system uses a centrifugal pump (located to the left of the head) and two down-draft radiators.

- 1 Radiator cap
- 2 Right-hand radiator
- 3 Left-hand radiator
- 4 Fitting
- 5 Water pump
- 6 Breather hose
- 7 Radiator connecting pipe
- 8 Radiators to cylinder head pipe
- 9 Water pump to fitting pipe
- 10 Fitting to left-hand radiator pipe
- 11 Fitting to right-hand radiator pipe



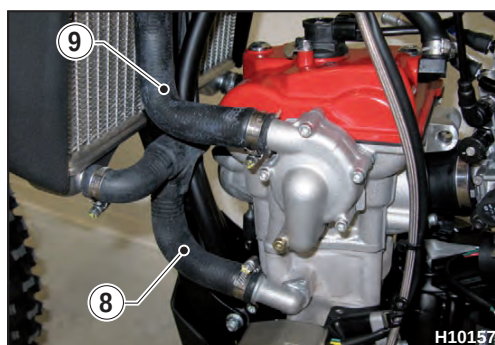
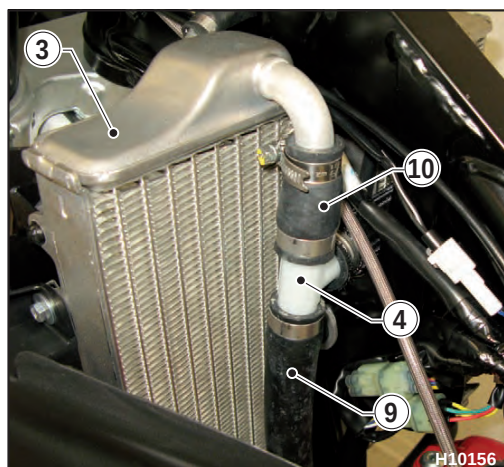
ENGINE COOLING

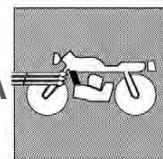
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



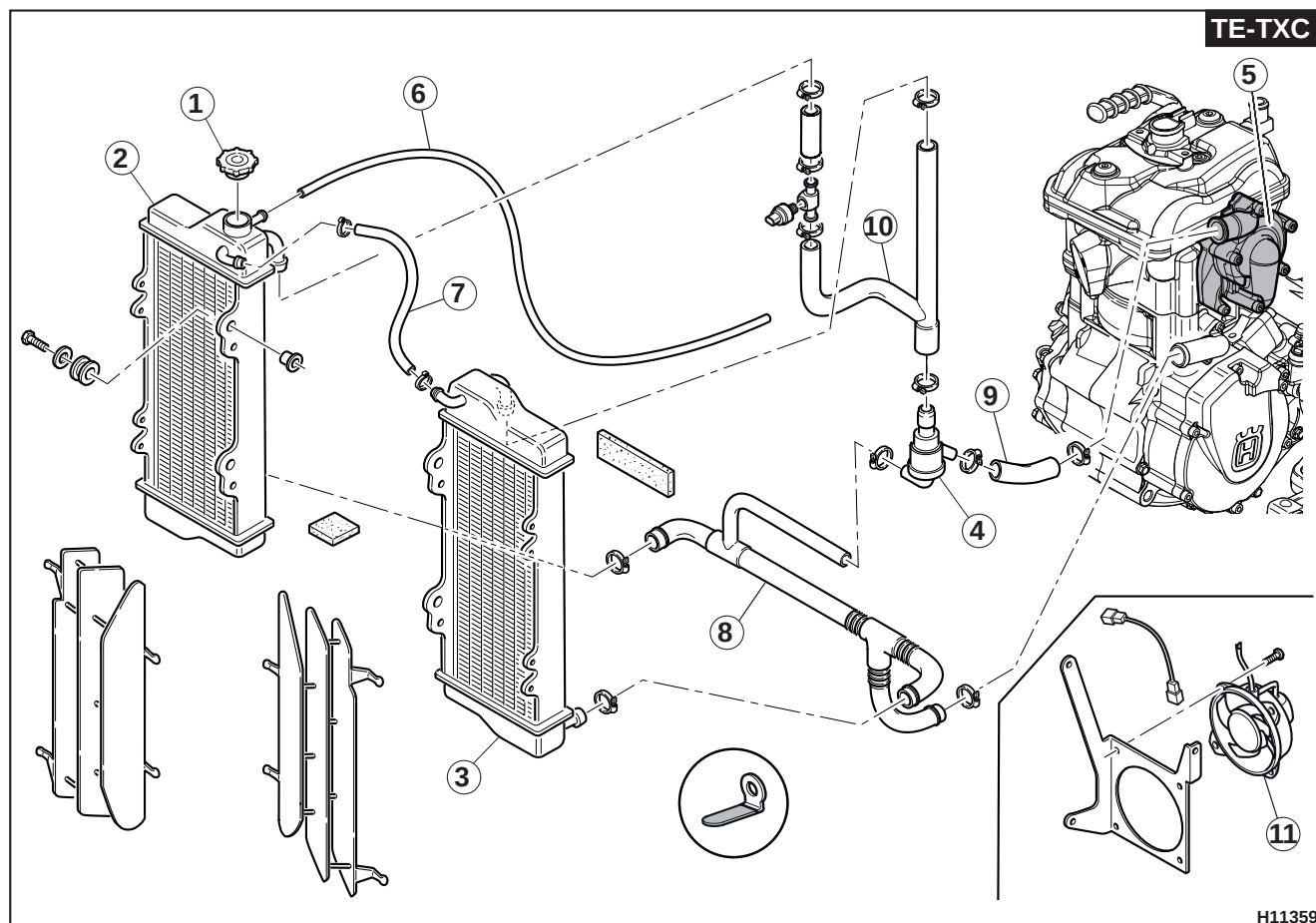
Engine cooling system overhaul (TC)

If the coolant runs too hot, check the radiators. Any foreign matter trapped between the fins (such as leaves, bugs, mud, etc.) will obstruct air flow and must be removed carefully to avoid damage to radiator. Straighten any bent fins to ensure free flow of air. If the cooling mass is clogged or damaged, no more than 20% of its surface must be affected. If damage exceeds this limit, the radiator must be replaced. Periodically check the connecting hoses (see Section B, "Scheduled Maintenance Chart"); this will avoid coolant leakage and consequent engine seizure. If hoses show cracks, swelling or hardening due to sheaths desiccation, their replacement shall be advisable. Check the correct tightening of the clamps.





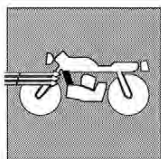
Cooling circuit (TE-TXC)



H11359

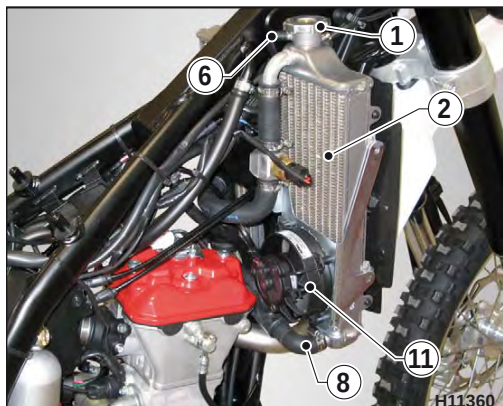
The forced circulation cooling system uses a centrifugal pump (located to the left of the head) and two down-draft radiators.

- 1 Radiator cap
- 2 Right-hand radiator
- 3 Left-hand radiator
- 4 Thermostat
- 5 Water pump
- 6 Breather hose
- 7 Radiator connecting pipe
- 8 Radiators to cylinder head pipe
- 9 Water pump to fitting pipe
- 10 Thermostat to radiators pipe
- 11 Cooling fan



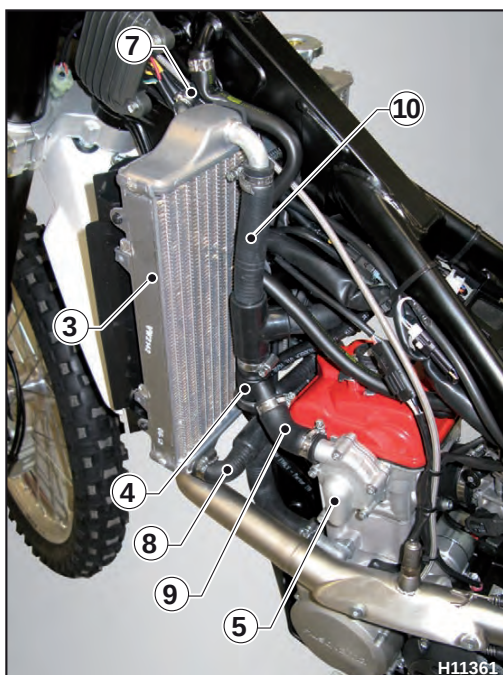
ENGINE COOLING

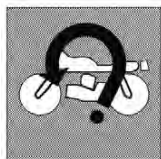
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Engine cooling system overhaul (TE-TXC)

If the coolant runs too hot, check the radiators. Any foreign matter trapped between the fins (such as leaves, bugs, mud, etc.) will obstruct air flow and must be removed carefully to avoid damage to radiator. Straighten any bent fins to ensure free flow of air. If the cooling mass is clogged or damaged, no more than 20% of its surface must be affected. If damage exceeds this limit, the radiator must be replaced. Periodically check the connecting hoses (see Section B, "Scheduled Maintenance Chart"); this will avoid coolant leakage and consequent engine seizure. If hoses show cracks, swelling or hardening due to sheaths desiccation, their replacement shall be advisable. Check the correct tightening of the clamps.



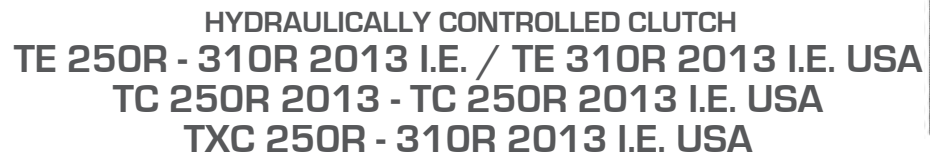


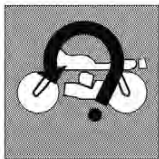
HYDRAULICALLY CONTROLLED CLUTCH
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



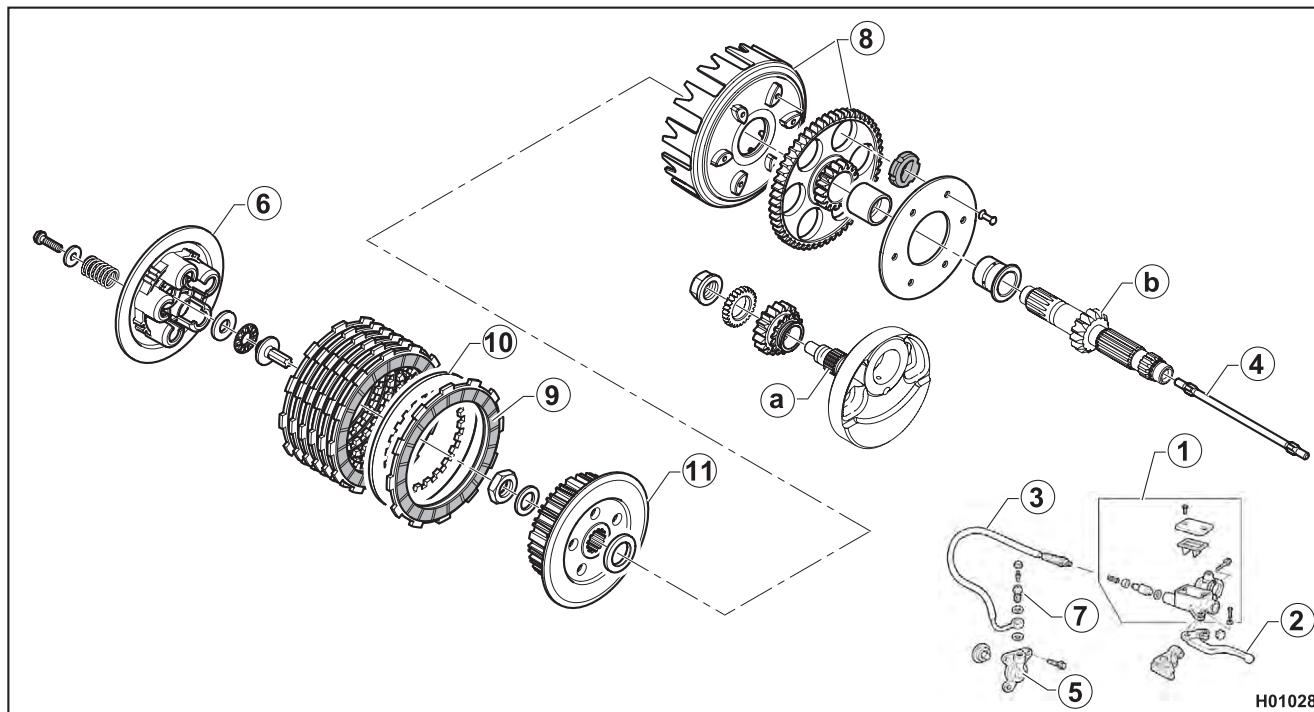
Section

P





HYDRAULICALLY CONTROLLED CLUTCH
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



H01028

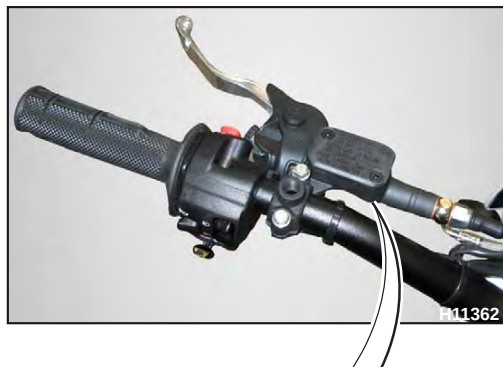
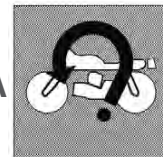
Hydraulic clutch system

The hydraulic circuit is composed of a master cylinder with its reservoir located on the left side of the handlebar, and a piston installed on the left crankcase half. The clutch is disengaged by the piston (5) that actuates the pushrod (4) to operate the pressure plate (6). Drive is transmitted from the crankshaft (a) to the gearbox input shaft (b) via the gear on the clutch housing (8). The clutch housing accommodates friction plates (9) and steel plates (10) that operate the clutch hub (11) secured to the gearbox input shaft.

- 1 Clutch master cylinder
- 2 Clutch lever
- 3 Master cylinder to piston hose
- 4 Pushrod
- 5 Piston assembly
- 6 Pressure plate
- 7 Bleed fitting
- 8 Clutch housing with clutch ring gear
- 9 Steel plate
- 10 Friction plate
- 11 Clutch hub
- a Crankshaft
- b Gearbox input shaft

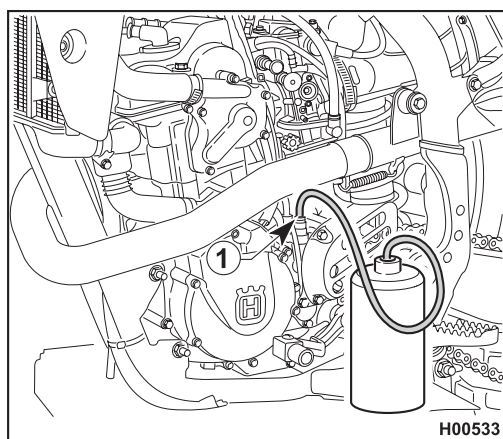
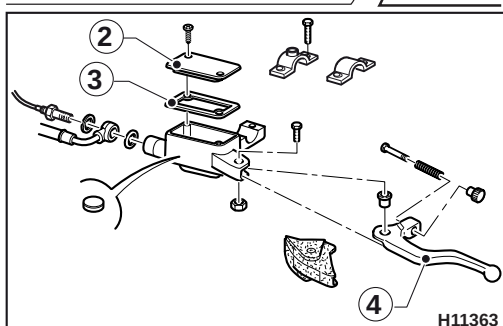


The fluid used in the hydraulic circuit will damage painted parts if spilt on them. Handle it with care when servicing the system.



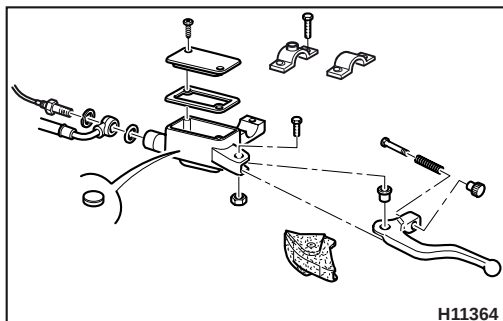
Draining clutch fluid

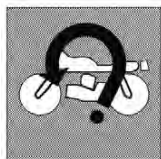
Connect a plastic hose to the bleed valve (1) and the loosen the valve turning it back 1 or 2 turns. Remove reservoir cap (2) and gasket (3) and operate the control lever (4) until draining all fluid.



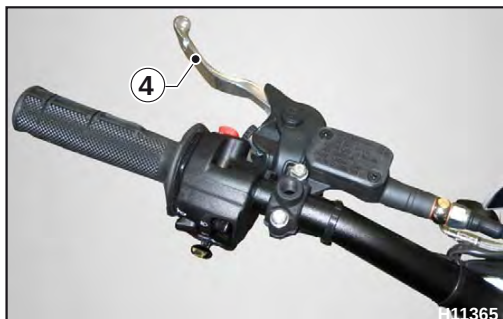
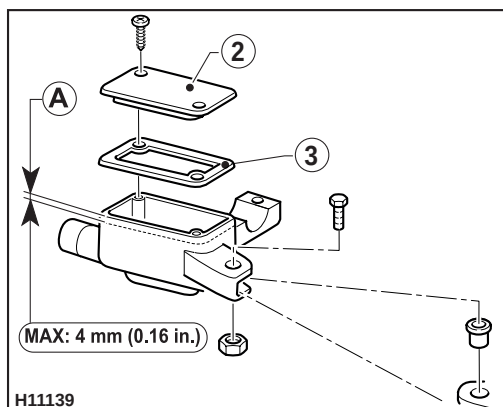
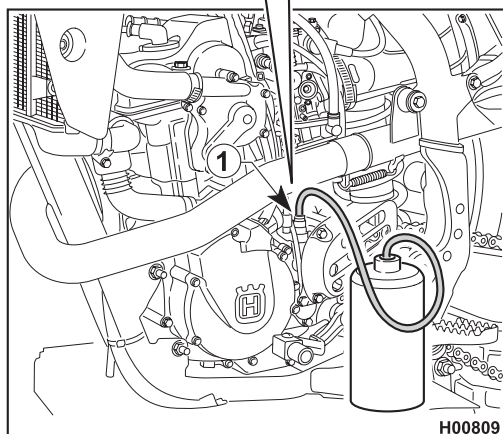
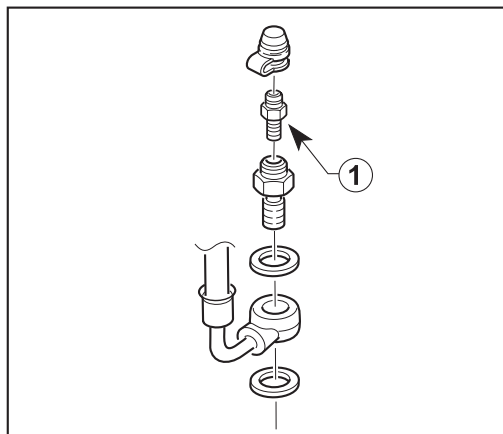
Clutch master cylinder servicing

Drain the circuit, detach the master cylinder from the left side of the handlebar and take it apart. Replace all seals, reassemble the master cylinder and refit it to the handlebar. Reconnect the hose and fill fresh fluid into the reservoir; bleed the system as described in the relevant paragraph.





HYDRAULICALLY CONTROLLED CLUTCH
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Bleeding the clutch system

A long travel and mushy feel of the clutch lever indicate that there is air in the system and the clutch hydraulic system needs bleeding.

Bleeding procedure is as follows:

- Take the rubber cap off the bleed valve (1).
- Attach a clear plastic hose to the bleed valve and place the other end of the hose in a vessel (make sure the hose end stays dipped in the fluid throughout the procedure).
- Remove the reservoir cover (2) and the rubber diaphragm (3) and fill fresh fluid into the reservoir. Use the fluid specified in the lubricant table (see Section A).
- Pull the lever (4) and keep it pulled so that the system remains under pressure, loosen the valve (2), tighten the valve (2) always with the lever pulled, then release the lever.
- Top up the fluid level, wait a few seconds, then repeat a few times the procedure described in the line above until the liquid comes out of the transparent hose without bubbles.
- Lock the valve (1) to the prescribed torque.
- Top up fluid level (A) and refit rubber diaphragm (3) and reservoir cover (2).



Fluid level inside the reservoir shall never drop below the minimum notch during the bleeding procedure.



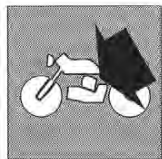
Hydraulic fluid is corrosive. In the event of contact with eyes, rinse with abundant water.



Motorcycle handlebar must be turned to the right during the bleeding procedure. This will keep the master cylinder reservoir higher, making bleeding easier.



Bleed valve tightening torque: 12-16 Nm, 1.2-1.6 Kgm, 8.7-11.6 ft/lb.



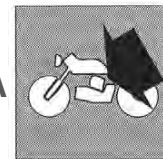
FUEL INJECTION SYSTEM

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section

S



FUEL INJECTION SYSTEM

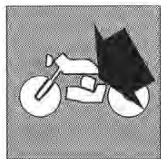
Injection fuel feeding systemS.3

Operation Manual for "HUSQVARNA SERVICE TOOL" for injection

fuel feeding systemS.4

Fuel pump test (TE-TXC)S.5

Fuel pump test (TC).....S.6

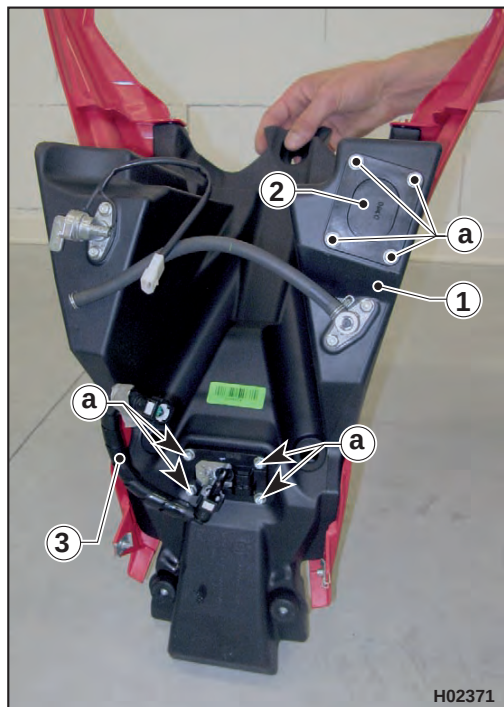


FUEL INJECTION SYSTEM

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA

TC 250R 2013 - TC 250R 2013 I.E. USA

TXC 250R - 310R 2013 I.E. USA



Injection fuel feeding system

The fuel injection system is composed of fuel tank (1), electric pump (2), pipe (3) and injector (4). The fuel in the tank is pumped by the pump. The pressurised fuel flows into the injector installed on the throttle body (6). The electronic control unit (5) located under the saddle signals the injector to open and a fan-shaped spray of fuel is injected into the combustion chamber.

The parameters that play a role in determining proper fuel delivery under all operating conditions are as follows:

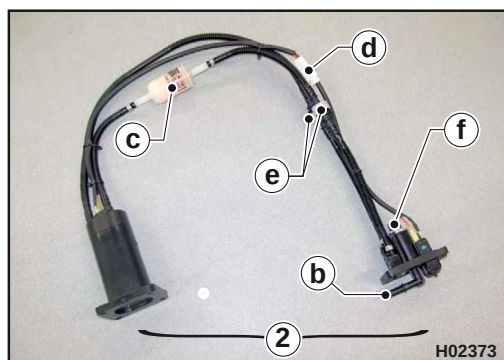
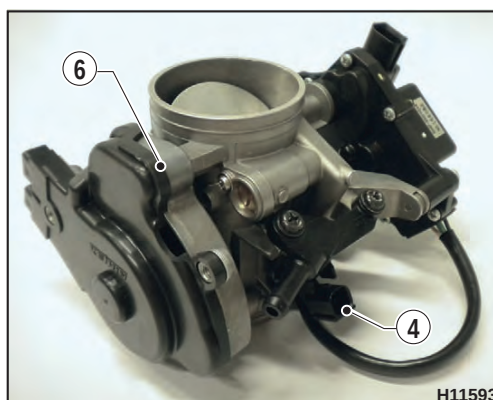
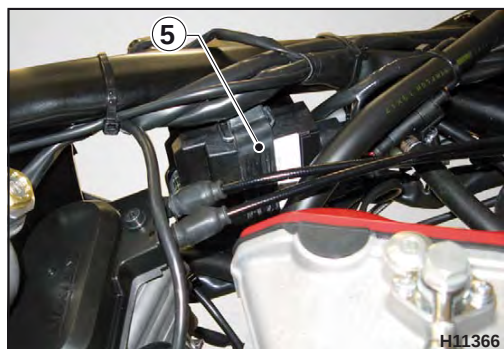
- Air temperature in the filter box;
- Engine coolant temperature;
- Atmospheric pressure in the intake manifold (in current location and at current altitude);
- Throttle opening;
- Battery voltage;
- Gear shift position;
- Fuel injection pulse width;
- Lambda sensor heater (only TE);
- Lean or rich mixture (LAMBDA sensor) (only TE).

The "HUSQVARNA SERVICE TOOL" provides a tool to check these parameters in the event the fuel injection malfunctions.

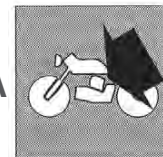
The electric fuel pump (2) is installed on the bottom of the tank (1) and is composed of rotor, magnet, impeller, brushes, pressure regulator.

The electronic control unit (5) switches the pump ON/OFF.

To remove the fuel pump (2) see section "E".



- a- Fuel pump retaining screw
- b- Delivery fitting
- c- Pump filter
- d- Pump electric connector
- e- Delivery/return hose quick fitting
- f- Pressure regulator

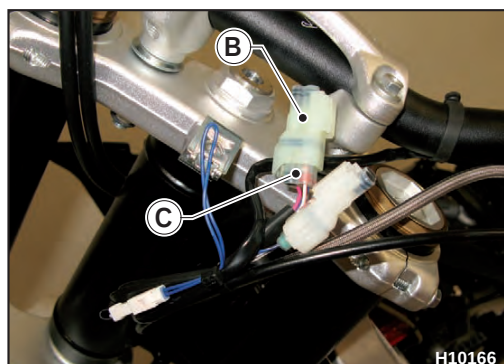


Operation Manual for "HUSQVARNA SERVICE TOOL" for injection fuel feeding system

The injection fuel feeding system does not require scheduled maintenance. The "HUSQVARNA SERVICE TOOL" part no. 8000 H3898 lets you test system components in the event of a malfunction.

The "HUSQVARNA SERVICE TOOL" is composed of:

- 1) "Diagnostic Tool" Software CD-ROM, including User Guide (PDF), Operation Manual (PDF);
 - User Guide hard-copy;
 - Operation Manual hard-copy;
- 2) Diagnosis module part no. 8000H3902
- 3) Do not use
- 4) Module-PC USB cable part no. 8000 H3903
- 5) Diagnostic cable part no. 8000 H5153
- 6) Battery clamps cable part no. 8000 H5952



After installing the Diagnostic Tool Software according to the instructions provided in the User Guide, proceed as follows:

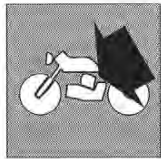
- Remove the saddle and disconnect the fuel pump connector;
- Slip off the cap (B) of the ECU interface connector (C);
- Connect the Kit cable (5) to the connector (C);
- Connect the USB cable (4) to the PC;
- Connect the cable (5) to the battery clamps cable (6);
- Connect the clamps to the battery according to the polarity;
- Start the "Diagnostic Tool" software you have installed and perform the required tests.



This diagnostic software can check the following injection parameters:

- 1 - AIR TEMPERATURE (air temperature in the intake manifold);
- 2 - WATER TEMPERATURE (engine coolant temperature);
- 3 - AIR PRESSURE (atmospheric pressure in current location and at current altitude);
- 4 - THROTTLE POSITION (throttle opening rate);
- 5 - GEAR SHIFT POSITION (currently selected gear shift position);
- 6 - INJECTOR (fuel injection pulse width);
- 7 - IGNITION COIL (device that stores energy in the reel and discharges it to the spark plug);

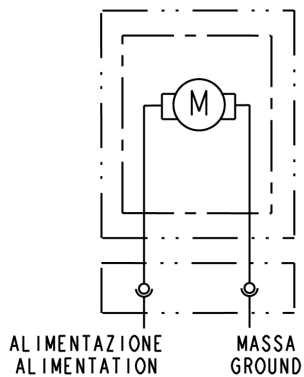
For fuel pump and relay inspections, see relevant paragraphs.



FUEL INJECTION SYSTEM
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



⊕ SCHEMA ELETTRICO
ELECTRICAL OUTLINE



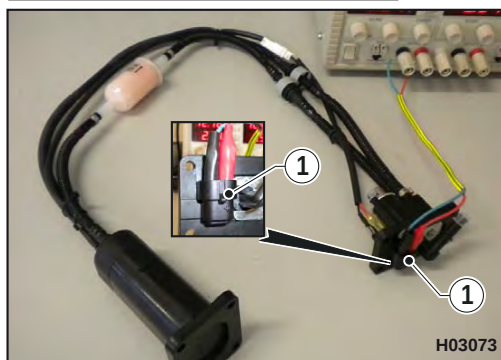
Fuel pump test (TE-TXC)

Remove the pump as described in Section "E".

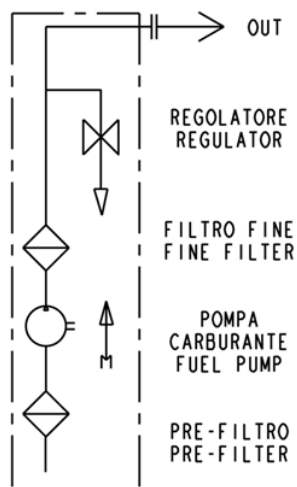
- pump operation
Connect the RED (+) and BLACK (-) wires on the pump connector to a power supply unit with constant 12V output and make sure that the pump runs.

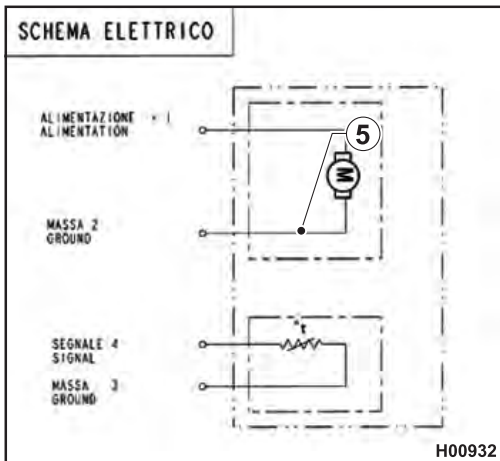
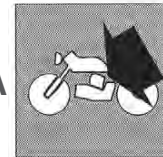


Never keep the pump connected to the power supply unit for more than 3 seconds in a row.



⊕ SCHEMA IDRAULICO
HYDRAULIC OUTLINE





Fuel pump test (TC)

Remove the pump as described in Section "E".

A: fuel reserve sensor

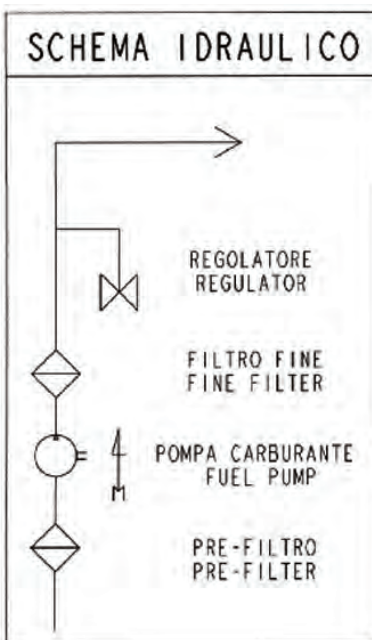
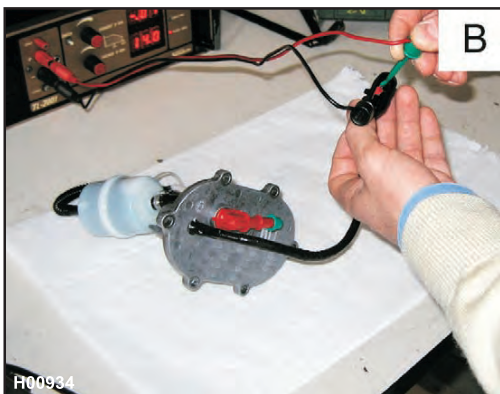
Make sure there is no fuel left in the sensor and then set the meter to the "Impedance" scale and measure across the BLUE and WHITE wires. Correct value is as follows: 1.3 KOhm (+/- 10%) at 20 °C.

B: pump operation

Connect the RED (+) and BLACK (-) wires to a power supply unit with constant 12V output and make sure that the pump runs.



Never keep the pump connected to the power supply unit for more than 3 seconds in a row.





SPECIAL TOOLS

TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



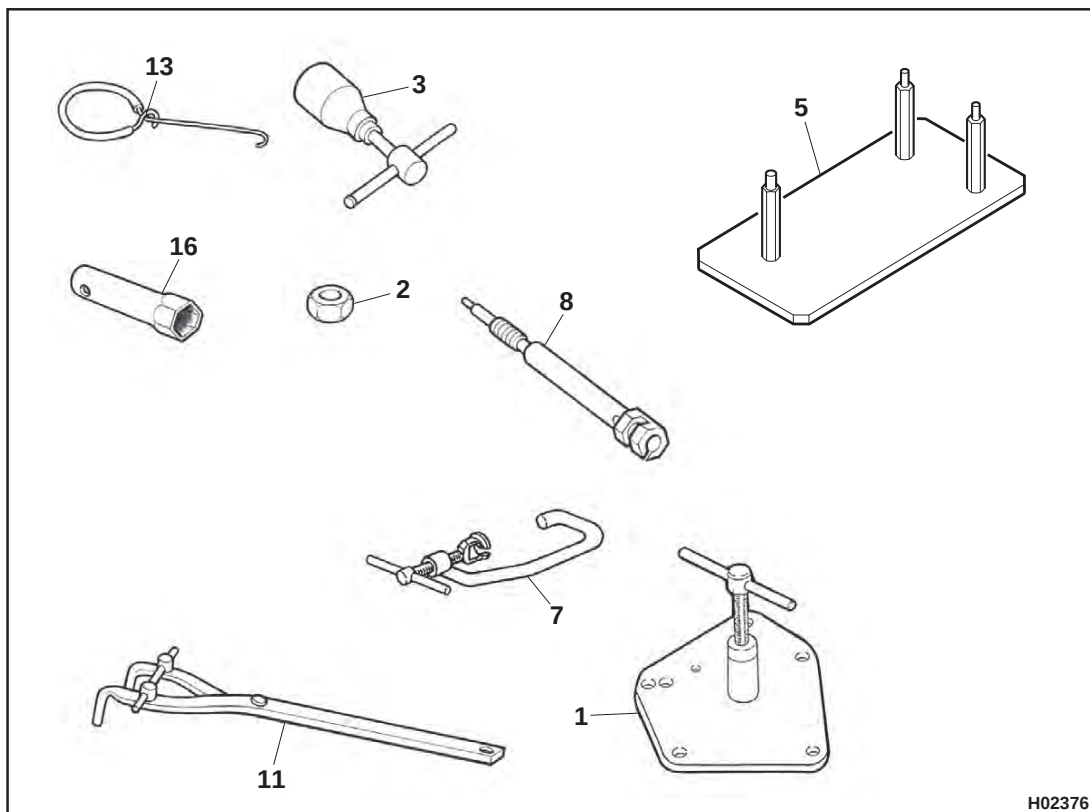
Section

W



SPECIAL TOOLS

- 1 **(8000 A7015)** Crankcase puller
- 2 **(8000 A1580)** T.D.C. timing tool
- 3 **(8000 H2146)** Flywheel puller
- 5 **(8000 A7345)** Jig (TC)
(8000 H7345) Jig (TE-TXC)
- 7 **(8000 A7317)** Valve installation / removal tool
- 8 **(8000 A1625)** Dial gauge mount
- 11 **(8000 79015)** Clutch hub tool
- 13 **(1519 84701)** Spring hook
- 16 **(8000 95749)** Spark plug tool





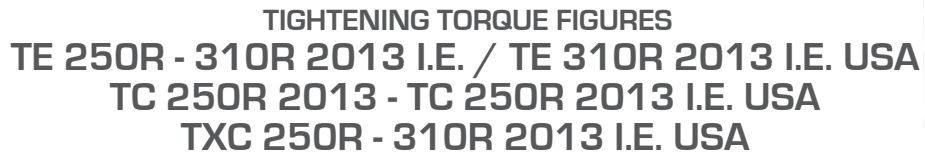
TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Section



Tighten all nuts and screws to the specified torque using a torque wrench. If not tightened securely, a nut or a screw might become damaged or work itself loose, causing damage to motorcycle and injury to rider. An overtightened nut or screw might become damaged, its thread might strip, or the nut/screw might fail and work itself loose. Listed in the table are the tightening torque figures for the most important nuts and screws, which have determined in accordance with thread diameter, pitch and specific application. These figures are obtained after cleaning the threads with solvent.



TIGHTENING TORQUE FIGURES (+/- 5%) ENGINE

Cylinder head			
Special screw	Fastening camshaft mount	1) 7 Nm 2) 11 Nm	0,7 kgm 1,1 kgm
Special screw M6x1	Fastening head cover	8 Nm	0,8 kgm
Special screw M3x0.5	Screw rocker arm lock pin		
Screw TFEI M6x1	Water drain	8 Nm	0,8 kgm
Plug M10x1	Rocker arm shaft hole plug (+LOCTITE 243)	10 Nm	1,0 kgm
Screw TTEI M5x0.8 L.8	Blow-by labyrinth plate (+LOCTITE 243)	6 Nm	0.6 Kgm
Water temperature sensor M10x1.25		5 Nm	0.5 Kgm
Head stud bolt		1) 20 Nm 2) 40 Nm	2.0 Kgm 4.1 Kgm
Drive and transmission			
Flanged nut M16	Drive gear	100 Nm	10.2 Kgm
Timing system			
Cheese-headed Phillips screw M4-L10	Flanged shaft	3 Nm	0.3 Kgm
Screw TEF M6-L8-D14	Chain tensioner closure	8 Nm	0.8 Kgm
Screw TEF M6-L20	Chain tensioner	8 Nm	0.8 Kgm
Special M6x1 screw	Slider (use LOCTITE 243)	8 Nm	0.8 Kgm
Crankcase			
Screw TSEI M5-L12	Crankshaft bearing plate (+LOCTITE 270 or LOCTITE 272)	6 Nm	0.6 Kgm
Screw TEF M5x0.8-CH8-L8	For oil seal retaining plate	6 Nm	0.6 Kgm
Screw TSEI M6-L10	Desmo bearing plate (use LOCTITE 270 - or LOCTITE 243)	8 Nm	0.8 Kgm
Selector spring pin M8x1.25	Use LOCTITE 270 - or LOCTITE 272	25 Nm	2.55 Kgm
Screw TSEI M6-L14	Starter plate (use LOCTITE 270 - or LOCTITE 272)	8 Nm	0.8 Kgm
Screw TEF M6x1-L55	Crankcase joining	8 Nm	0.8 Kgm
Screw TEF M6x1-L60	Crankcase joining	8 Nm	0.8 Kgm
Screw TEF M6x1-L70	Crankcase joining	8 Nm	0.8 Kgm
Screw TEF M6x1-L90	Crankcase joining	8 Nm	0.8 Kgm
Screw TEF M6x1-L20	R.H. cover	8 Nm	0.8 Kgm
Screw TEF M6x1-L50	R.H. cover and clutch cover	8 Nm	0.8 Kgm
Screw TEF M6-L22	Clutch cover	8 Nm	0.8 Kgm
Screw TEF M5-L16	Oil filter cover	6 Nm	0.6 Kgm
Screw TCEI M5 L35	Ignition cover	6 Nm	0.6 Kgm
Screw TCEI M5 L40	Ignition cover	6 Nm	0.6 Kgm
Lubrication			
Screw TCEI M5x0.8 L20	Oil pump body	6 Nm	0.6 Kgm
Oil drain plug M14x1.5		25 Nm	2.55 Kgm
Drilled screw TEF M8x1.25 (alu-minium)	Pipe	8 Nm	0.8 Kgm
Oil filler plug		Finger-tight	
Fuel system			
Screw M6x1 L20	Fastening intake manifold	8 Nm	0.8 Kgm



Electrical System			
Screw TCEI M5-L12	Stator (use LOCTITE 272) (TE - TXC)	6 Nm	0.6 Kgm
Screw TCEI M4-L30	Fastening stator (fit with LOCTITE 272) (TC)	4 Nm	0.4 Kgm
Screw TCEI M5-L20	Pick-up sensor (use LOCTITE 272 - 270)	6 Nm	0.6 Kgm
Flanged nut M12x1	Flywheel	75 Nm	7.65 Kgm
Screw TEF M6x1-CH8-L20	Regulator to chassis	8 Nm	0.8 Kgm
Screw TCEI M5x08 L8	Fastening coil safety plate (TC) (fit with LOCTITE 272 - 270)	6 Nm	0.6 Kgm
Spark plug	M10x1		(*)
Clutch			
Nut M16x1-CH27-SP7	Clutch hub	65 Nm	6.6 Kgm
Screw TEF M6x1-CH8-L20	Pressure plate	8 Nm	0.8 Kgm
Screw TCEI M6-L16	Clutch cylinder	8 Nm	0.8 Kgm
Screw TCEI M6-L12	Clutch cylinder	8 Nm	0.8 Kgm
Starting system			
Screw TCEI M5-L30	Starter motor (TE - TXC)	6 Nm	0.6 Kgm
Short nut M6x1	Gear to starter motor shaft (TE - TXC) (+LOCTITE 270)	8 Nm	0.8 Kgm
Screw TCEI M5-L20	Bevel drive body (TE - TXC)	6 Nm	0.6 Kgm
Screw TSEI M6 L14	Fastening start-up lever (+LOCTITE 272)	10 Nm	1.0 Kgm
Gearbox			
Nut M16x1	Sprocket	90 Nm	9.2 Kgm
Gear shift control			
Selector drum rtng screw M8x1.25	Use LOCTITE 270 (or LOCTITE 243)	25 Nm	2.55 Kgm
Screw TSEI M6-L14	Selector rtng plate (+LOCTITE 243)	8 Nm	0.8 Kgm
Screw TEF M6-L14	Selector rtng plate (+LOCTITE 243)	8 Nm	0.8 Kgm
Screw TEF M5x0.8-CH8-L12	Indicator	6 Nm	0.6 Kgm
Screw TEF M6x1-CH8-L20	Gear shift lever	8 Nm	0.8 Kgm
Cooling			
M5 x 8	Water pump impeller (+LOCTITE 243)	8 Nm	0.8 Kgm
Screw TCEI M5	Cover	6 Nm	0.6 Kgm
Cheese-headed Phillips screw M4-L12	Fitting (+LOCTITE 243)	3 Nm	0.3 Kgm

(*): Smear some graphite grease on spark plug thread, do it fully home finger tight then tighten it to 10÷12 Nm torque. Loosen the spark plug then tighten it again to 10÷12 Nm.

TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



TIGHTENING TORQUE FIGURES (+/- 5%) CHASSIS (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 62796	VITE FISSAGGIO RULLO CATENA SCREW, CHAIN ROLLER ATTACHMENT	M8 x 1.25	800 min	26.95	2.75	
8000 62725	VITE FISSAGGIO RULLO CATENA SCREW, CHAIN ROLLER ATTACHMENT	M6 x 1	800 min	10.4	1.05	-SOLO MOD. VRE, SM -VRE, SM MODELS ONLY
8000 69056	VITE FISS. INFER. TELAIPO POSTERIORE SCREW, LOWER REAR FRAME ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	
8B00 69056	VITE FISS. TELAIPO-PIASTRA MOTORE SCREW, ENGINE-FRAME PLATE ATTACH	M8 x 1.25	800 min.	35.3	3.6	- LOCTITE 270
8E00 69056	VITE FISS. TELAIPO SUPERIORE-PIASTRA MOTORE SCREW, UPPER FRAME-ENGINE PLATE ATTACH	M8 x 1.25	800 min.	35.3	3.6	- LOCTITE 270
8I00 69056	VITE FISS. TELAIPO INFERIORE-PIASTRA MOTORE SCREW, LOWER FRAME-ENGINE PLATE ATTACH	M8 x 1.25	800 min.	35.3	3.6	- LOCTITE 270
8000 80277	VITE FISS. TELAIPO-PIASTRA MOTORE SCREW, ENGINE-FRAME PLATE ATTACH	M8 x 1.25	1000 min.	35.3	3.6	
8C00 69112	VITE FISS. INFERIORE TELAIPO POSTERIORE LOWER REAR FRAME FASTENING SCREW	M8 x 1.25	1000 min.	25.5	2.6	
8000 69111	VITE FISSAGGIO SUPERIORE TELAIPO POSTERIORE SCREW, UPPER REAR FRAME ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	
8000 61357	VITE FISSAGGIO SUPERIORE TELAIPO POSTERIORE SCREW, UPPER REAR FRAME ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	-SOLO MOD. VRE, SM -VRE, SM MODELS ONLY
8000 43928	ANO FISSAGGIO SUPERIORE/INFERIORE TELAIPO POSTERIORE NUT, UPPER/LOWER REAR FRAME ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	
8000 73458	VITE FISSAGGIO ANTERIORE MOTORE SCREW, ENGINE FRONT ATTACHMENT	M8 x 1.25	1000 min	35.3	3.6	-SOLO MOD. 250cc, 360cc -250cc, 360cc MODELS ONLY
8A00 73458	VITE FISSAGGIO ANTERIORE ED INFERIORE MOTORE SCREW, ENGINE UPPER AND LOWER ATTACHMENT	M8 x 1.25	1000 min.	35.3	3.6	-SOLO MOD. 250cc, 360cc -250cc, 360cc MODELS ONLY
8G00 73458	VITE FISSAGGIO INFERIORE MOTORE SCREW, ENGINE LOWER ATTACHMENT	M8 x 1.25	1000 min.	35.3	3.6	
8N00 73458	VITE FISSAGGIO ANTERIORE MOTORE SCREW, ENGINE FRONT ATTACHMENT	M8 x 1.25	1000 min	35.3	3.6	-SOLO MOD. 125cc -125cc MODELS ONLY
8P00 73458	VITE FISSAGGIO INFERIORE MOTORE SCREW, ENGINE LOWER ATTACHMENT	M8 x 1.25	1000 min.	35.3	3.6	-SOLO MOD. 125cc -125cc MODELS ONLY
8000 62795	VITE FISSAGGIO PIASTRA - TELAIPO SCREW, PLATE - FRAME ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	-SOLO MOD. VR, CR -VR, CR MODELS ONLY
8000 62795	VITE FISSAGGIO PIASTRA - MOTORE SCREW, PLATE - ENGINE ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	- LOCTITE 243
8000 97976	VITE ROTAZIONE Gamba laterale SCREW, SIDE STAND ROTATION	M8 x 1.25	800 min.	11.75	1.2	-SOLO MOD. VR -VR MODELS ONLY - LOCTITE 243
8000 97977	VITE ROTAZIONE Gamba laterale SCREW, SIDE STAND ROTATION	M8 x 1.25	800 min.	11.75	1.2	-SOLO MOD. TE -TE MODELS ONLY - LOCTITE 243
8A00 97977	VITE ROTAZIONE Gamba laterale SCREW, SIDE STAND ROTATION	M8 x 1.25	800 min.	11.75	1.2	- LOCTITE 243
8000 A0266	VITE ROTAZIONE Gamba laterale SCREW, SIDE STAND ROTATION	M8 x 1.25	800 min.	11.75	1.2	- LOCTITE 243
8A00 62797	VITE FISSAGGIO PIASTRA-TESTA MOTORE SCREW, ENGINE HEAD- PLATE ATTACHMENT	M10 x 1.25	1000 min.	27.95	2.85	-SOLO MOD. 250cc-360cc -ONLY 250cc-360cc MOD.
8000 62795	VITE FISSAGGIO PIASTRA-TESTA MOTORE SCREW, ENGINE HEAD- PLATE ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	-SOLO MOD. VR 125cc, CR 125cc -VR 125-CR 125 MODELS ONLY
8B00 69056	VITE FISS. SUPPORTO POGGIAPIEDI POSTI REAR FOOT REST SUPPORT FAST. SCREW	M8 x 1.25	800 min.	25.5	2.6	-SOLO MOD. VRE, SM -VRE, SM MODELS ONLY
8000 62725	VITE FISS. FASCETTA ENGINE STOP ENGINE STOP CLIP SCREW	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. CR -CR MODELS ONLY
8000 62725	VITE FISS. SERRATURA CASCO HELMET LOCK FASTENING SCREW	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. VRE, SM -VRE, SM MODELS ONLY
8000 60898	VITE FISS. RIPARO COLLIA MOTORE SCREW, ENGINE GUARD ATTACH	M6 x 1	1000 min.	14.7	1.5	
8000 62627	VITE FISS. PIASTRA CAVALLINO SCREW, SIDE STAND PLATE ATTACHMENT	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. TE/02 -TE/02 MODELS ONLY

1 Nm = 0.73756 ft/lb

NOTE: Unless otherwise specified, standard torque values for the different thread sizes are as follows

M5x0.8	5.6-6.2 Nm	0.57-0.63 Kgm	4.1-4.5 ft/lb
M6x1	7.6-8.4 Nm	0.80-0.85 Kgm	5.8-6.1 ft/lb
M8x1.25	24-26 Nm	2.4-2.6 Kgm	17.3-18.8 ft/lb



TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



TIGHTENING TORQUE FIGURES (+/- 5%) HANDLEBAR AND CONTROLS (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 62729	VITE FISS. CAVALLOTTO CON FRIZIONE E FRENO ANTERIORE SCREW, CLUTCH AND FRONT BRAKE U-BOLT ATTACH.	M6 x 1	800 min	4.9	0.5	
8000 62728	VITE FISS. CAVALLOTTO CON FRIZIONE E FRENO ANTERIORE SCREW, CLUTCH AND FRONT BRAKE U-BOLT ATTACH.	M6 x 1	800 min	4.9	0.5	
8000 62728	VITE FISS. SUPPORTI COMANDO GAS SCREW, GAS SUPPORTS ATTACH.	M6 x 1	800 min	4.9	0.5	
8000 57155	VITE FISS. RACCORDO TUBO POMPA FRENO ANT. (015.777001) SCREW, FRONT MASTER CYLINDER PIPE UNION	M10 x 1	500 min	19.0	1.95	DATI SERR.BREMO: 17 - 20 Nm
8000 57155	VITE FISS. RACCORDO TUBO POMPA FRENO ANT. (015.931091) SCREW, FRONT MASTER CYLINDER PIPE UNION	M10 x 1	500 min	24.7	2.5	-SOLO MOD. CR, TC (DATI SERR.BREMO: 23 - 26 Nm) -CR, TC MODELS ONLY
8000 55902	VITE FISSAGGIO PEDALE FRENO SCREW, BRAKE PEDAL ATTACHMENT	M10 x 1.25	1200 min	41.65	4.25	(A) -LOCTITE 243
8000 62726	VITE FISSAGGIO POMPA FRENO POSTERIORE SCREW, REAR BRAKE PUMP ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 57155	VITE FISS. RACCORDO TUBO POMPA FRENO POST. SCREW, REAR MASTER CYLINDER PIPE UNION	M10 x 1	500 min	19.0	1.95	-SOLO MOD. CR (-DATI SERR.BREMO: 17 - 20 Nm) -CR MODELS ONLY
8000 62725	VITE FISSAGGIO PIASTRINA-POMPA FRENO ANT. SCREW, PLATE-FRONT BRAKE PUMP ATTACHMENT	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. SMR (-BREMO TORQUE W.SET: 17 - 20 Nm) -SMR MODELS ONLY
8000 62725	VITE FISSAGGIO SERBATOIO LIQUIDO FRENI SCREW, BRAKE FLUID TANK ATTACHMENT	M6 x 1	800 min.	2.45	0.25	
8000 62727	VITE FISSAGGIO SERBATOIO LIQUIDO FRENI SCREW, BRAKE FLUID TANK ATTACHMENT	M6 x 1	800 min.	2.45	0.25	
8000 62727	VITE FISSAGGIO POMPA FRENO POSTERIORE SCREW, REAR BRAKE PUMP ATTACHMENT	M6 x 1	800 min.	2.45	0.25	
8000 37891	INTERRUTTORE STOP STOP SWITCH	M10 x 1		19.0	1.5	-SOLO MOD. VR, VRE, SM (DATI SERR.BREMO: 17 - 20 Nm) -VR, VRE, SM MODELS ONLY
8000 94849	INTERRUTTORE STOP STOP SWITCH	M10 x 1		19.0	1.5	-SOLO MOD. TE, SMR (DATI SERR.BREMO: 17 - 20 Nm) -TE, SMR MODELS ONLY
60N1 07701	VITE FISS. CONNETTORE-INTERRUTTORE STOP SCREW, JACK-STOP SWITCH	M2 x 0.4		0.84	0.09	-SOLO MOD. SMR -SMR MODELS ONLY
8A00 55241	VITE FISS. CARRA REGOLAZIONE PEDALE FRENO BRAKE LEVER ADJUSTMENT CAM FASTENING SCREW	M6 x 1	1000 min.	14.7	1.95	
8A00 67997	VITE FISS. PIASTRINA GUIDAFILO SCREW, THREAD PLATE ATTACHMENT	M6 x 1	800 min.	6.0	0.6	(A)
8000 62730	VITE FISS. PIASTRINA-SERBATOIO LIQUIDO FRENI ANT. SCREW, PLATE-FRONT BRAKE FLUID TANK ATTACH.	M6 x 1	800 min.	2.45	0.25	-SOLO MOD. SMR -SMR MODELS ONLY
8000 62712	VITE FISS. LAPPA SERBATOIO OLIO FRENI SCREW, OIL FLUID TANK CAP ATTACH	M3 x 0.5		1.5	0.15	-SOLO MOD. SMR -SMR MODELS ONLY
8000 62728	VITE FISS. CAVALLOTTO SCREW, U-BOLT ATTACH	M6 x 1	800 min.	4.9	0.5	

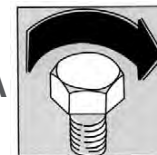
1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES (+/- 5%) FRONT SUSPENSION (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 62796	VITE FISSAGGIO GAMBE FORCELLA SCREW, FORK LEGS ATTACHMENT	M8 x 1.25	800 min.	25.0	2.55	-SOLO MOD. VR, CR (-DATI SERR. HARZOCCHI: 25 Nm) -VR, CR MODELS ONLY (-HARZOCCHI TORQUE W.SET: 25 Nm)
60N1 02557	VITE FISSAGGIO GAMBE FORCELLA SCREW, FORK LEGS ATTACHMENT	M8 x 1.25	800 min.	25.0	2.55	-SOLO MOD. VRE, SM (-DATI SERR. HARZOCCHI: 25 Nm) -VRE, SM MODELS ONLY (-HARZOCCHI TORQUE W.SET: 25 Nm)
8000 62729	VITE BLOCCAGGIO PERNO RUOTA ANTER. SCREW, FRONT WHEEL PIN LOCKING	M6 x 1	800 min.	10.4	1.05	-DATI SERR. HARZOCCHI: 10 Nm -HARZOCCHI TORQUE W. SET: 10 Nm
8000 83395	GRILERA PERNO DI STERZO STEERING PIN RING NUT	M25 x 1	600 min.	3.45	0.35	
8A00 87717	GRILERA PERNO DI STERZO STEERING PIN RING NUT	M25 x 1	600 min.	3.45	0.35	-SOLO MOD. TC, CR -TC, CR MODELS ONLY
8000 69315	DADO PER PERNO DI STERZO NUT, STEERING PIN ATTACHMENT	M24 x 1	400 min	83.3	8.5	
8000 62733	VITE FISSAGGIO MORSETTO SUPER MANUBRIO SCREW, UPPER CLAMP ATTACHMENT	M8 x 1.25	800 min.	28.4	2.9	
8C00 69056	VITE FISSAGGIO MORSETTO SUPER MANUBRIO SCREW, UPPER CLAMP ATTACHMENT	M8 x 1.25	800 min.	28.4	2.9	-SOLO MOD. VR, CR -VR, CR MODELS ONLY
60N1 01219	VITE FISSAGGIO SUPPORTO MANUBRIO SCREW, HANDLEBAR HOLDER ATTACHMENT	M10 x 1.5	800 min.	21.1	2.15	
8000 67997	VITE FISSAGGIO PARASTELI SCREW, FORK LEGS GUARD ATTACHMENT	M5 x 0.8	800 min.	7.85	0.8	
8B00 66525	VITE FISSAGGIO ANELLI SCREW, RINGS ATTACHMENT	M5 x 0.8	800 min.	2.45	0.25	

1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



TIGHTENING TORQUE FIGURES (+/- 5%) REAR SUSPENSION (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 71623	DADO FISS. PERNO FORCELLONE NUT, REAR FORK PIN ATTACH	M16 x 1.5	1000 min.	122.5	12.5	- LOCTITE 243
8A00 69138	VITE FISSAGGIO TELAI - TIRANTE SCREW, FRAME-TIE ROD ATTACHMENT	M10 x 1.25	1000 min.	73.6	7.5	-SOLO MOD. VR, VRE, SM -VR, VRE, SM MODELS ONLY
8000 42023	DADO FISS. BILANCIERE-FORCELLONE/TIRANTE-BILANCIERE NUT, ROCKER ARM-R.FORK/TIE ROD-ROCKER ARM	M12 x 1.25	600 min.	80	8.2	-SOLO MOD. VR (MOD.VRE, SM SOLO PER TIRANTE-BIL.) -VR MODELS ONLY (VRE, SM MOD. FOR TIE ROD-R.A. ONLY)
8000 42023	DADO FISS. BILANCIERE-FORCELLONE/TIRANTE-BILANCIERE NUT, ROCKER ARM-R.FORK/TIE ROD-ROCKER ARM	M12 x 1.25	600 min.	80	8.2	-SOLO MOD. CR -CR MODELS ONLY
8000 42023	DADO FISSAGGIO TELAI - TIRANTE NUT, FRAME-TIE ROD ATTACHMENT	M12 x 1.25	600 min.	80	8.2	-SOLO MOD. CR -CR MODELS ONLY
8000 42023	DADO FISS. BILANCIERE-FORCELLONE NUT, ROCKER ARM-R.FORK	M12 x 1.25	600 min.	80	8.2	-SOLO MOD. VRE, SM -VRE, SM MODELS ONLY
8000 01412	IMPIANTO LUBRIFICATORE LUBRICATOR	M6 x 1		2.95	0.3	
8A00 62797	VITE FISS. AMMORTIZ. TELAI/BILANCIERE-TELAIO SCREW, SHOCK ABSORBER-FRAME/ROCKER ARM-FRAME	M10x1.25	800 min.	52.4	5.35	
8000 62797	VITE FISS. BILANCIERE-AMMORTIZZATORE SCREW, ROCKER ARM-SHOCK ABSORBER	M10x1.25	800 min.	52.4	5.35	
8000 62797	VITE FISS. TELAI-AMMORTIZZATORE SCREW, FRAME-SHOCK ABSORBER	M10x1.25	800 min.	52.4	5.35	
8000 62795	VITE FISSAGGIO STAFFA GUIDACATENA-FORCELLONE SCREW, DRIVE CHAIN SLIDE-REAR FORK ATTACHMENT	M8 x 1.25	800 min.	25.0	2.55	-SOLO MOD. VM, VRE, SM -VR, VRE, SM MODELS ONLY
8000 62731	VITE FISSAGGIO GUIDACATENA - STAFFA SCREW, DRIVE CHAIN - PLATE ATTACHMENT	M6 x 1	800 min.	2.0	0.2	- LOCTITE 243
8000 62795	VITE FISSAGGIO ANT. STAFFA GUIDACATENA - FORCELL. SCREW, DRIVE CHAIN FRONT ATTACHMENT	M8 x 1.25	800 min.	10.4	1.05	-SOLO MOD. CR, TC -CR, TC MODELS ONLY
8000 62725	VITE FISSAGGIO POST. STAFFA GUIDACATENA - FORCELL. SCREW, DRIVE CHAIN REAR ATTACHMENT	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. CR, TC -CR, TC MODELS ONLY
8000 67997	VITE FISS. INT. PATTINO CATENA E PASSATUBO FRENO SCREW, CHAIN SLIDE, LOWER ATTACH AND PIPE BR. CLAMP	M5 x 0.8	800 min.	4.4	0.45	-ANCHE PER FISSAGGIO SUP. MODELLI CR, TC -ALSO FOR UPPER ATTACH., CR, TC MODELS
8A00 67997	VITE FISS. SUP. - ANTERIORE COPRICATENA SCREW, CHAIN GUARD UPPER-FRONT ATTACH.	M5 x 0.8	800 min.	4.4	0.45	
8C00 67997	VITE FISS. SUP. - ANTERIORE COPRICATENA E PATTINO SCREW, CHAIN SLIDE AND GUARD UPPER-FRONT ATTACH.	M5 x 0.8	800 min.	4.4	0.45	
8000 20536	VITE FISS. POST. PATTINO CATENA E PASSATUBO POST. SCREW, REAR PIPE AND CHAIN SLIDE REAR ATTACH	D=4.8		4.4	0.45	-SOLO MOD. CR, TC -CR, TC MODELS ONLY
60N1 01059	VITE FISS. MEDIO ED ANTERIORE COPRICATENA SCREW, CHAIN GUARD REAR AND FRONT ATTACH.	M5 x 0.8	800 min.	4.4	0.45	
8000 17810	DADO FISS. TENDICATENA NUT, CHAIN STRETCHER ATTACH.	M8 x 1.25	600 min.	22.5	2.3	
8E00 67545	VITE FISS. GUIDACATENA SCREW, DRIVE CHAIN ATTACHMENT	M6 x 1	800 min.	10.4	1.05	

1 Nm = 0.73756 ft/lb



TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



TIGHTENING TORQUE FIGURES (+/- 5%) FAIRINGS AND MUDGUARDS (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 36467	VITE FISSAGGIO CONVOGLIATORE A SERBATOIO SCREW CONVEYOR-TANK ATTACHMENT	M6 x 1	800 min.	6.0	0.6	
8000 62726	VITE FISSAGGIO INFERIORE PORTANUMERO ANTERIORE SCREW LOWER PANEL FRONT ATTACHMENT	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. CR, TC -CR, TC MODELS ONLY
8000 62726	VITE FISSAGGIO PROTEZIONE AMMORTIZZATORE SCREW SHOCK ABSORBER PROTECTION ATTACHMENT	M6 x 1	800 min.	6.0	0.6	
8000 62726	-VITE FISS. PORTATARGA -SCREW PLATE HOLDER ATTACH	M6 x 1	800 min.	6.0	0.6	-SOLO MOD. TE -TE MODELS ONLY
8000 62726	-VITE FISS. POS. PARAFFANGO POSTERIORE E RINFORZI -SCREW REAR MUDGUARD & REINFORCEMENTS REAR ATTACH	M6 x 1	800 min.	6.0	0.6	
8000 62726	VITE FISSAGGIO INFERIORE PORTANUMERO SCREW LOW NUMBER REAR ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62726	VITE FISSAGGIO PANNELLO/PORTANUMERO LATERALE -SCREW LOWER/SIDE PANEL ATTACHMENT	M6 x 1	800 min.	3.45	0.35	
8000 62727	VITE FISSAGGIO PARAFFANGO ANTERIORE SCREW FRONT MUDGUARD ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62727	VITE FISSAGGIO PROTEZIONE RADIATORE SCREW RADIATOR GUARD ATTACHMENT	M6 x 1	800 min.	6.0	0.6	
8000 62727	VITE FISSAGGIO PORTANUMERO LATERALE SCREW SIDE PANEL'S ATTACHMENT	M6 x 1	800 min.	3.45	0.35	
8000 62727	VITE FISS. POST. PANNELLO LATERALE DX E SX SCREW RH AND LH SIDE PANELS REAR ATTACH	M6 x 1	800 min.	3.45	0.35	
8000 62727	VITE FISS. PROTEZIONE INF. AMMORTIZZATORE POST. SCREW REAR SHOCK ABSORBER PROTECTION GUARD ATTACH	M6 x 1	800 min.	6.0	0.6	
8000 62727	-VITE FISS. PORTATARGA -SCREW PLATE HOLDER ATTACH	M6 x 1	800 min.	6.0	0.6	-SOLO MOD. VR, TE -VR, TE MODELS ONLY
8000 62727	VITE FISSAGGIO PANNELLO/PORTAN. LATERALE-TELAIETTO SCREW LOWER/SIDE PANEL REAR FRAME ATTACHMENT	M6 x 1	800 min.	6.0	0.6	
8000 62728	VITE FISS. PANNELLO/PORTAN. LATERALE-SCALDA FILTRO SCREW LOWER/SIDE PANEL-FILTER AIR BOX ATTACHMENT	M6 x 1	800 min.	6.0	0.6	
8000 62728	VITE FISSAGGIO PARAFFANGO POSTERIORE SCREW REAR MUDGUARD ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62728	-VITE FISS. ANI. PANNELLO LATERALE DX -SCREW RH SIDE PANEL - FRONT ATTACH.	M6 x 1	800 min.	3.45	0.35	
8000 62730	VITE FISSAGGIO CUPALINO PORTAFARO SCREW HEADLAMP FAIRING ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8C00 67997	VITE FISSAGGIO SUPERIORE PORTANUMERO ANTERIORE SCREW UPPER PANEL FRONT ATTACHMENT	M5 x 0.8	800 min.	6.0	0.6	-SOLO MOD. CR, TC -CR, TC MODELS ONLY
8C00 67997	-VITE FISS. SUP. ANTERIORE COPRICALONA -SCREW CHAIN GUARD UPPER - FRONT ATTACH.	M5 x 0.8		4.4	0.45	-SOLO MOD. VR, VRE, SW -VR, VRE, SW MODELS ONLY
8000 36467	-VITE FISS. CONVOGLIATORE A SERBATOIO -SCREW CONVEYORS TO TANK ATTACH.	M6 x 1	800 min.	6.0	0.6	
8A00 67545	-VITE FISS. SUP. PROTEZIONE AMMORTIZZATORE -SCREW SHOCK ABS. GUARD UPPER ATTACH.	M6 x 1	800 min.	6.0	0.6	
8D00 67545	-VITE FISS. ANI. PANNELLO LATERALE SX -SCREW LH SIDE PANEL, FRONT ATTACH.	M6 x 1	800 min.	3.45	0.35	
8000 40717	BARA FISS. CARADATTORI -NUT, REAR REFLECTOR ATTACH.	M4 x 0.7	600 min.	1.9	0.2	
8A00 37283	VITE FISS. ANELLO A CUPALINO -SCREW RING-HEADLAMP FAIRING ATTACH.	D = 3.5		1.9	0.2	

1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES (+/- 5%) ELECTRICAL SYSTEM (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 62728	VITE FISSAGGIO INDICATORI DI DIREZIONE SCREW BLINKERS ATTACHMENT	M6 x 1	800 min.	6.0	0.6	-SOLO MOD. TE-SHR -TE-SHR MODELS ONLY (LOCTITE 243 PER GRUPPO OTTICO)
8000 62726	VITE FISSAGGIO ANTISTORE ACUSTICO SCREW HORN ATTACHMENT	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. VR, VRE, SW -VR, VRE, SW MODELS ONLY
60N4 95615	VITE FISSAGGIO GRUPPO OTTICO POSTERIORE SCREW REAR OPTICAL GROUP ATTACHMENT	D = 3.9		1.45	0.15	-SOLO MOD. TE-SHR-VRE -TE-SHR-VRE MODELS ONLY
60N4 98033	VITE FISSAGGIO GRUPPO OTTICO ANTERIORE SCREW FRONT OPTICAL GROUP ATTACHMENT	D = 3.9		1.45	0.15	
8000 A0953	VITE FISSAGGIO GRUPPO OTTICO POSTERIORE SCREW REAR OPTICAL GROUP ATTACHMENT	D = 3.9		1.45	0.15	
8000 62725	VITE FISSAGGIO MASSA SCREW EARTH ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62725	VITE FISS. FASCETTA TENSIONI SCREW CLIP ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8SA0 67545	VITE FISSAGGIO CAVI TELEFONICI SCREW STARTER CABLES ATTACHMENT	M6 x 1	800 min.	10.4	1.05	

1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



TIGHTENING TORQUE FIGURES (+/- 5%) FUEL SYSTEM (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 41240	VITE FISSAGGIO TAMPONE PER SERBATOIO SCREW, PAD ATTACHMENT	M8 x 1.25	800 min.	22.5	2.3	
60N1 02507	VITE FISSAGGIO TAMPONE PER SERBATOIO SCREW, PAD ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 37745	VITE FISSAGGIO ROTTINELLA BENZINA SCREW, FUEL COCK ATTACHMENT	D = 5.5	--	2.45	0.25	
8A00 67545	VITE FISSAGGIO POSTERIORE SERBATOIO SCREW, TANK REAR ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
60N1 04134	VITE FISSAGGIO ATT. SELLA SU SERBATOIO SCREW, SEAT ATTACHMENT ON FUEL TANK	M6 x 1	500 min.	6.0	0.6	
60N1 04134	VITE FISSAGGIO DISTANZIALE SELLA SCREW, SEAT SPACER ATTACHMENT	M6 x 1	500 min.	6.0	0.6	
8000 67545	VITE FISSAGGIO DISTANZIALE SELLA SCREW, SEAT SPACER ATTACHMENT	M6 x 1	500 min.	6.0	0.6	
8000 62725	VITE FISSAGGIO ANTERIORE SCATOLA FILTRO SCREW, FILTER BOX FRONT ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62726	VITE FISSAGGIO ANTERIORE SCATOLA FILTRO SCREW, FILTER BOX FRONT ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62726	VITE FISSAGGIO ANTERIORE SERBATOIO SCREW, TANK FRONT ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62727	VITE FISSAGGIO COPERCHIO SCATOLA FILTRO SCREW, FILTER BOX COVER ATTACHMENT	M6 x 1	800 min.	3.5	0.35	
8000 62728	VITE FISSAGGIO POSTERIORE SCATOLA FILTRO SCREW, FILTER BOX REAR ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 40718	DADO FISSAGGIO FLANGIA SCATOLA FILTRO NUT, FILTER BOX FLANGE ATTACHMENT	M5 x 0.8	600 min.	3.45	0.35	

1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES (+/- 5%) WHEELS AND BRAKES (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIA DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m ±5%	Kg m ±5%	
8000 62733	VITE FISSAGGIO PIAZZA FRENO ANTERIORE SCREW, FRONT BRAKE CALIPER ATTACHMENT	M8 x 1.25	800 min.	25.5	2.6	
8000 57155	VITE FISS. ACCORDO TUBO PIAZZA FRENO ANT. E POST. SCREW, FRONT AND REAR CALIPER PIPE UNION	M10 x 1	500 min.	19.0	1.95	-DATI SERR. BREMBO: 17 - 20 Nm -BREMBO TORQUE W. SET: 17 - 20 Nm
8000 48773	VITE FISSAGGIO PERNO RUOTA ANTERIORE SCREW, FRONT WHEEL PIN ATTACHMENT	M10 x 1.5	1200 min.	51.45	5.25	
8000 94060	VITE FISSAGGIO PIAZZA FRENO ANTERIORE A PIASTRA SCREW, FRONT BRAKE CALIPER-PLATE ATTACH.	M10 x 1.5	800 min.	25.5	2.6	-SOLO MODELLI SMR -SMR MODELS ONLY
8000 94060	VITE FISSAGGIO PIAZZA A PIEDINO SCREW, FRONT BRAKE CALIPER-BOTTOM FORK ATTACH.	M10 x 1.5	800 min.	25.5	2.6	-SOLO MODELLI SMR -SMR MODELS ONLY
8000 96933	TAPPO PERNO RUOTA ANTERIORE FRONT WHEEL PIN PLUG	M20 x 1.5		51.45	5.25	-SOLO MODELLI TC -TC MODELS ONLY
8A00 55241	VITE FISSAGGIO DISCO FRENO ANTERIORE SCREW, FRONT BRAKE DISC ATTACHMENT	M6 x 1	1000 min.	14.7	1.5	- LOCTITE 243
69N4 29004	NIPPLI PER RAGGIO RUOTA ANTERIORE FRONT WHEEL SPOKE NIPPLES	M4.07x0.75		4.4	0.45	
8000 A0081	NIPPLI PER RAGGIO RUOTA ANTERIORE FRONT WHEEL SPOKE NIPPLES	M4.07x0.75		4.4	0.45	
8000 43928	DADO FRENO FISSAGGIO CORONA NUT, SPROCKET ATTACHMENT	M8 x 1.25	800 min.	34.3	3.5	- LOCTITE 243
8000 55878	VITE FISSAGGIO DISCO FRENO POSTERIORE SCREW, REAR BRAKE DISC ATTACHMENT	M6 x 1	1000 min.	14.7	1.5	- LOCTITE 243
8000 62726	VITE FISSAGGIO DISCO FRENO POSTERIORE SCREW, REAR BRAKE DISC ATTACHMENT	M6 x 1	1000 min.	14.7	1.5	- LOCTITE 243
8000 96940	PERNO RUOTA POSTERIORE REAR WHEEL PIN	M20 x 1.5	1000 min.	142.1	14.5	-SOLO MOD. VR, CR -VR, CR MODELS ONLY
8D00 64938	PERNO RUOTA POSTERIORE REAR WHEEL PIN	M20 x 1.5	1000 min.	142.1	14.5	-SOLO MOD. VRE, SM -VRE, SM MODELS ONLY
69N4 29005	NIPPLI PER RAGGIO RUOTA POSTERIORE FRONT WHEEL SPOKE NIPPLES	M4.5x0.75		4.4	0.45	
8000 A0086	NIPPLI PER RAGGIO RUOTA POSTERIORE FRONT WHEEL SPOKE NIPPLES	M4.5x0.75		4.4	0.45	
8000 93072	DADO PERNO RUOTA POSTERIORE NUT, REAR WHEEL PIN	M20 x 1.5	1000 min.	142.1	14.5	
8000 62153	VITE FISSAGGIO PIGNONE SCREW, PINION ATTACHMENT	M8 x 1.25	800 min.	24.6	2.5	-SOLO MOD. VR 360 -VR 360 MODELS ONLY
60N1 01140	VITE FISSAGGIO PIGNONE SCREW, PINION ATTACHMENT	M8 x 1.25	800 min.	24.6	2.5	-SOLO MOD. VRE -VRE MODELS ONLY
8A00 92876	VITE FISSAGGIO DISCO FRENO ANTERIORE SCREW, FRONT BRAKE DISC ATTACHMENT	M8 x 1.25	1000 min.	34.7	3.54	
8000 28327	VITE FISS. PIASTRA COPRICATENA A CARTER SCREW, CHAIN GUARD PLATE-CARTER	M6 x 1	800 min.	10.4	1.05	
8000 62725	VITE FIS. COPERCHIO A PIASTRA SCREW, CAP-PLATE ATTACHMENT	M6 x 1	800 min.	10.4	1.05	

1 Nm = 0.73756 ft/lb



TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



TIGHTENING TORQUE FIGURES (+/- 5%) EXHAUST (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIE DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m +5%	Kg m +5%	
8000 62725	VITE FISSAGGIO RACCORDO SILENZIATORE A TELAIO SCREW, SILENT PIPE UNION TO FRAME ATTACH.	M6 x 1	800 min.	10.4	1.05	
8000 62725	VITE FISSAGGIO ADDIZIONALE AL TELAIO E AL TUBO SCREW, SILENT BLOCK TO FRAME AND PIPE ATTACH.	M6 x 1	800 min.	10.4	1.05	
8000 62726	VITE FISSAGGIO ADDIZIONALE AL TUBO SCREW, SILENT BLOCK TO PIPE ATTACH.	M6 x 1	800 min.	10.4	1.05	-SOLO MOD. SH -SH MODELS ONLY
8000 62730	VITE FISSAGGIO SILENZIATORE SCREW, EXHAUST ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8A00 67545	VITE FISSAGGIO ANTIFORNO SILENZIATORE SCREW, FRONT EXHAUST ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8E00 67545	VITE FISSAGGIO POSTERIORE SILENZIATORE SCREW, REAR EXHAUST ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62731	VITE FISSAGGIO POSTERIORE SILENZIATORE SCREW, REAR EXHAUST ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 60898	VITE FISSAGGIO GRIGLIA A TUBO SCARICO SCREW, GRILL TO EXHAUST PIPE ATTACH.	M6 x 1	1000 min.	14.7	1.5	
60N4 07335	VITE FISSAGGIO TUBO SCARICO ALLA TESTA SCREW, EXHAUST PIPE TO ENGINE HEAD ATTACH.	M6 x 1	800 min.	10.4	1.05	
8000 62726	VITE FISSAGGIO TUBO SCARICO ALLA TESTA SCREW, EXHAUST PIPE TO ENGINE HEAD ATTACH.	M6 x 1	800 min.	10.4	1.05	

1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES (+/- 5%) INSTRUMENTS (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIE DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m +5%	Kg m +5%	
8000 61313	AVVIO FISSAGGIO CONTAGGI NUT, ODOMETER ATTACHMENT	M6 x 1	600 min.	6.0	0.6	-SOLO MOD. VRE, SH -VRE, SH MODELS ONLY
8000 67997	VITE FISSAGGIO PIASTINA SUPPORTO CONTAGGI SCREW, ODOMETER PLATE ATTACHMENT	M5 x 0.8	800 min.	6.0	0.6	-SOLO MOD. VRE, SH -VRE, SH MODELS ONLY
8A00 67997	VITE FISSAGGIO GUIDACABLO A PIASTINA DI SIERZO SCREW, CABLE GUIDE-SIERFING GEAR PLATE ATTACHMENT	M5 x 0.8	800 min.	6.0	0.6	-SOLO MOD. VRE, SH -VRE, SH MODELS ONLY
8B00 66525	VITE FISSAGGIO ANELLO GUIDA TRASMISSORE SCREW, DRIVE GUIDE RING ATTACH.	M5 x 0.8	800 min.	2.45	0.25	-SOLO MOD. VRE, SH -VRE, SH MODELS ONLY
8B00 66525	VITE FISSAGGIO ANELLO CAVO CONTAGGI SCREW, ODOMETER CABLE RING ATTACHMENT	M5 x 0.8	800 min.	2.45	0.25	-SOLO MOD. VRE, SH -VRE, SH MODELS ONLY
8000 89069	VITE FISSAGGIO STRUMENTO SCREW, INSTRUMENT ATTACHMENT	D=4.8		3.45	0.35	

1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES (+/- 5%) COOLING SYSTEM (99669)

N° DISEGNO DRAWING N°	DESCRIZIONE DESCRIPTION	DIMENSIONI DIMENSIONS	CLASSE DI RESISTEN. PROPERTY CLASS	COPPIE DI SERRAGGIO TORQUE WRENCH SETTINGS		NOTE NOTES
			N / mmq	N m +5%	Kg m +5%	
60N1 02525	VITE FISSAGGIO RADIATORE INTERNO SCREW, INTERM. RADIATORS ATTACHMENT	M6 x 1	800 min.	7.0	0.72	
8000 62725	VITE FISSAGGIO ANELLO GUIDACABLO SCREW, PIPEGUIDE RING ATTACHMENT	M6 x 1	800 min.	10.4	1.05	
8000 62725	VITE FISSAGGIO RADIATORE SUPERIORE SCREW, UPPER RADIATORS ATTACHMENT	M6 x 1	800 min.	7.0	0.72	
8000 62728	VITE FISSAGGIO RADIATORE INFERIORE SCREW, LOWER RADIATORS ATTACHMENT	M6 x 1	800 min.	7.0	0.72	
8000 62729	VITE FISSAGGIO RADIATORI SCREW, RADIATORS ATTACHMENT	M6 x 1	800 min.	7.0	0.72	

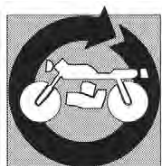
1 Nm = 0.73756 ft/lb

TIGHTENING TORQUE FIGURES
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



NOTE: Unless otherwise specified, standard torque values for the different thread sizes are as follows (+/- 5%)

Steel screws on plastic, with metal spacers	M4	2 Nm	0.2 Kgm	1.45 ft/lb
Steel screws on brass, copper, aluminium	M4	2 Nm	0.2 Kgm	1.45 ft/lb
Steel screws on iron, steel	M4	3 Nm	0.3 Kgm	2.2 ft/lb
Steel screws on plastic, with metal spacers	M5	4 Nm	0.4 Kgm	3 ft/lb
Steel screws on brass, copper, aluminium	M5	4 Nm	0.4 Kgm	3 ft/lb
Steel screws on iron, steel	M5	6 Nm	0.6 Kgm	4.4 ft/lb
Steel screws on plastic, with metal spacers	M6	6.5 Nm	0.65 Kgm	4.8 ft/lb
Steel screws on brass, copper, aluminium	M6	6.5 Nm	0.65 Kgm	4.8 ft/lb
Steel screws on iron, steel	M6	10.5 Nm	1 Kgm	7.7 ft/lb
Steel screws on brass, copper, aluminium	M8	16 Nm	1.6 Kgm	11.8 ft/lb
Steel screws on iron, steel	M8	26 Nm	2.6 Kgm	19.1 ft/lb
Steel screws on iron, steel	M10	52 Nm	5.2 Kgm	38.3 ft/lb
Steel screws on iron, steel	M12	100 Nm	10 Kgm	73.8 ft/lb
Steel screws on iron, steel	M14	145 Nm	14.5 Kgm	107 ft/lb

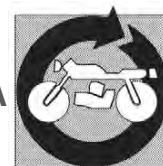


CHASSIS AND WHEELS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



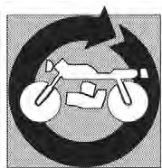
Section

Y



TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

Chassis.....	Y.3
Lubrication points (lubricant)	Y.4
Front wheel.....	Y.5
Removing the front wheel	Y.6
Reassembling the front wheel	Y.7
Speed sensor (TE)	Y.7
Rear wheel	Y.8
Removing the rear wheel.....	Y.9
Wheel servicing	Y.10
Wheel axle warpage.....	Y.10
Axle runout over 100 mm	Y.10
Wheel spokes	Y.11
Wheel rim warpage.....	Y.11
Rear chain sprocket, secondary drive sprocket and chain	Y.12
Tightening torque figures.....	Y.12
Checking pinion and sprockets for wear.....	Y.13



CHASSIS AND WHEELS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA

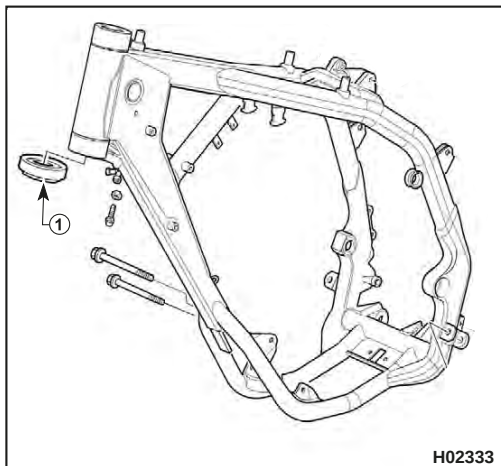
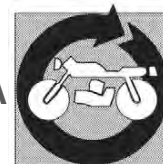


Chassis

The single frame branches off at the exhaust and is made of steel tubes with circular, rectangular and ellipsoidal section; the rear chassis is made from light alloy.

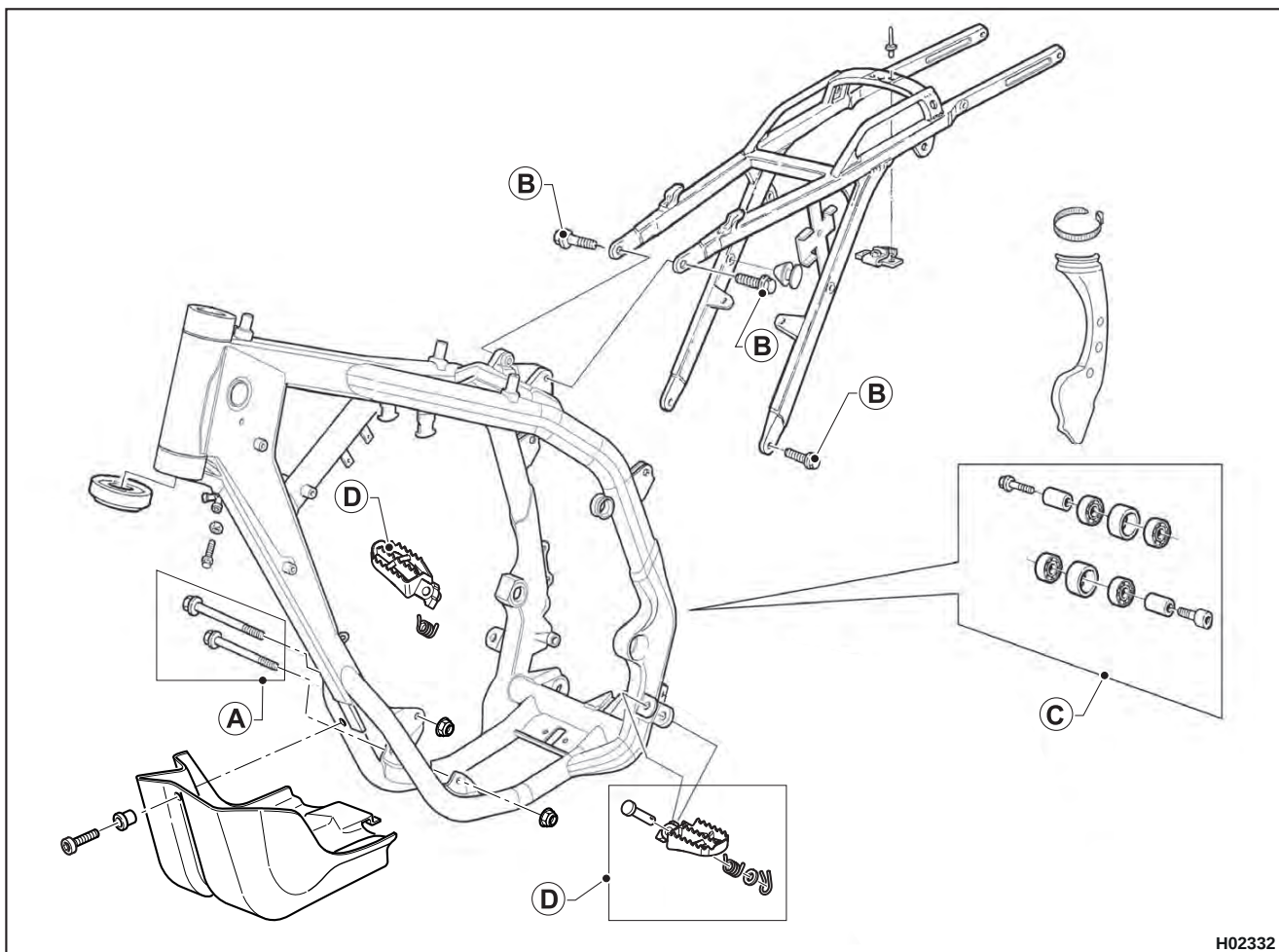


A badly damaged chassis must be replaced.



Lubrication points (lubricant)

- 1 Steering bearings (grease)



Check the assemblies shown in the figure for cracks or damage.

If any are found, replace the part.

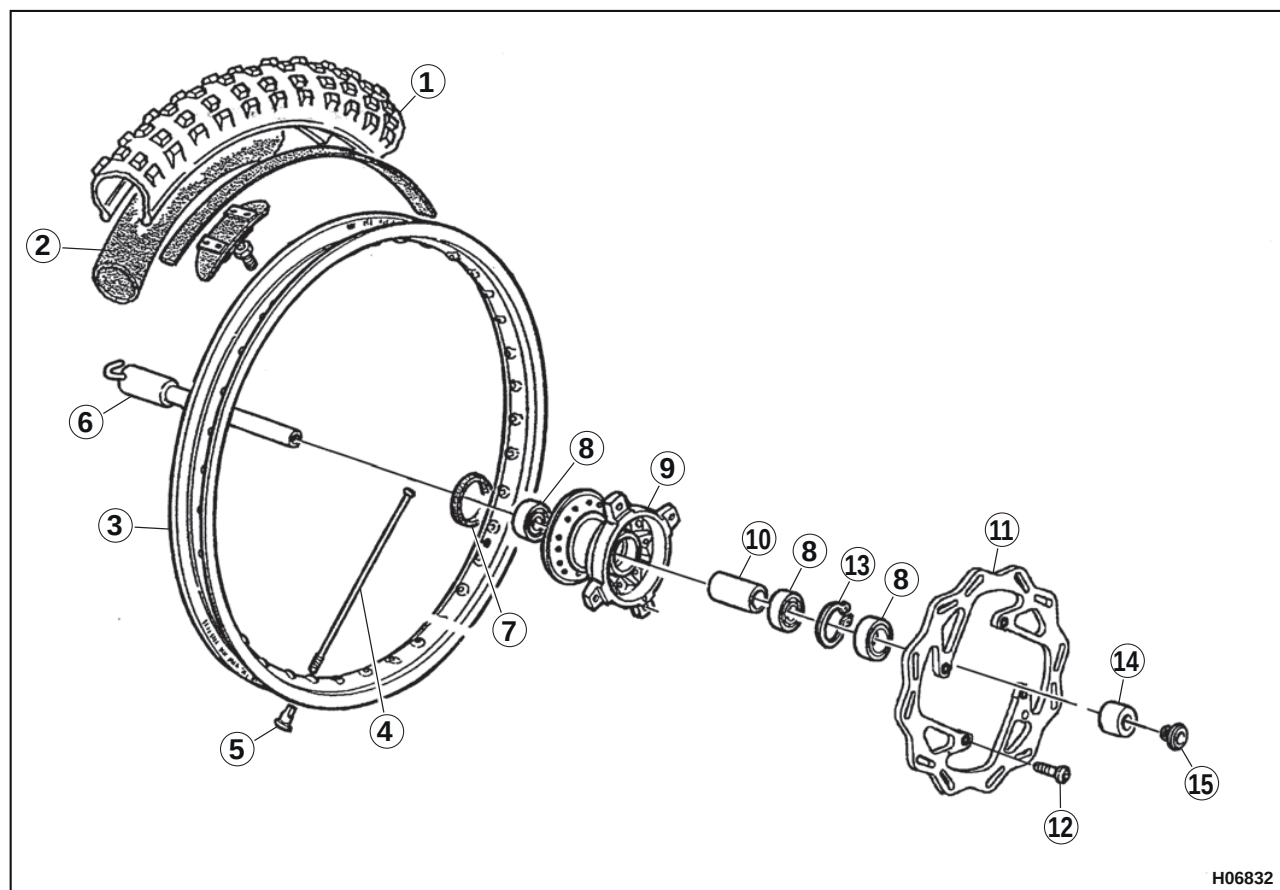
- A ENGINE MOUNTING BOLTS
- B REAR CHASSIS MOUNTING BOLTS
- C CHAIN GUIDE ROLLER/BEARING
- D FOOTPEGS/PINS/SPRINGS



CHASSIS AND WHEELS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Front wheel

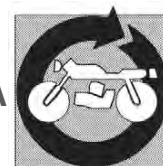


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Legend

- 1) Tyre
- 2) Inner tube
- 3) Rim
- 4) Spoke
- 5) Nipple
- 6) Wheel axle
- 7) Seal
- 8) Bearings
- 9) Hub
- 10) Spacer
- 11) Brake Disc
- 12) Brake disc retaining screw
- 13) Circlip
- 14) Outer spacer
- 15) Pin retaining screw

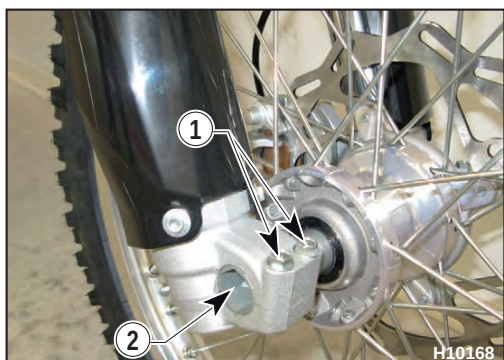
For technical characteristics regarding the front wheel, see section "A" General Information of this manual.



Removing the front wheel

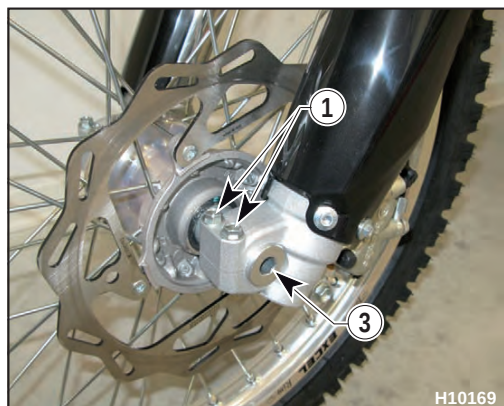
Set a stand or a block under the engine and see that the front wheel is lifted from the ground.

H11282



Loosen the bolts (1) holding the wheel axle (2) to the front fork mounts.

H10168



Hold the head of the wheel axle in place, and unscrew the bolt (3) on the opposite side; draw the wheel axle out.

H10169



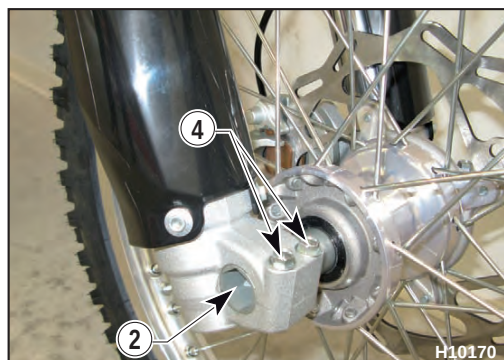
Do not operate the front brake lever when the wheel has been removed; this causes the calliper pistons to move outwards.



After removal, lay down the wheel with brake disc on top.



CHASSIS AND WHEELS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



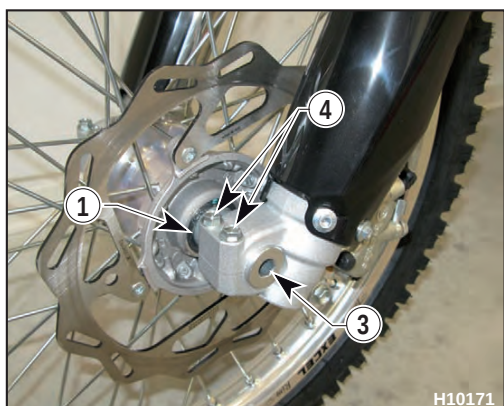
Reassembling the front wheel

Fit the L.H. spacer (1) on the wheel hub.

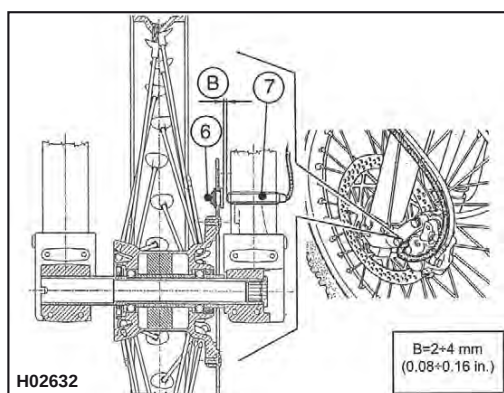
Fit the wheel between the fork legs so as to set the brake disc into the calliper.

Fit the wheel axle (2) from the R.H. side, after greasing it and push it fully home against the L.H. fork leg; during this operation, the wheel should be turned.

Tighten the screw (3) on the fork L.H. side but DO NOT lock it. Now, pump for a while, pushing the handlebar downwards until you are sure that the fork legs are perfectly aligned. Lock: the screws (4) on the R.H. leg (10.4 Nm, 1.05 Kgm, 7.7 ft/lb), the screw (3) on the L.H. side (51.45 Nm, 5.25 Kgm, 38 ft/lb), the screws (1) on the L.H. leg (10.4 Nm, 1.05 Kgm, 7.7 ft-lb).



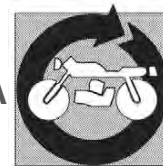
After reassembly, pull the brake control lever until the pads are against the brake disc.



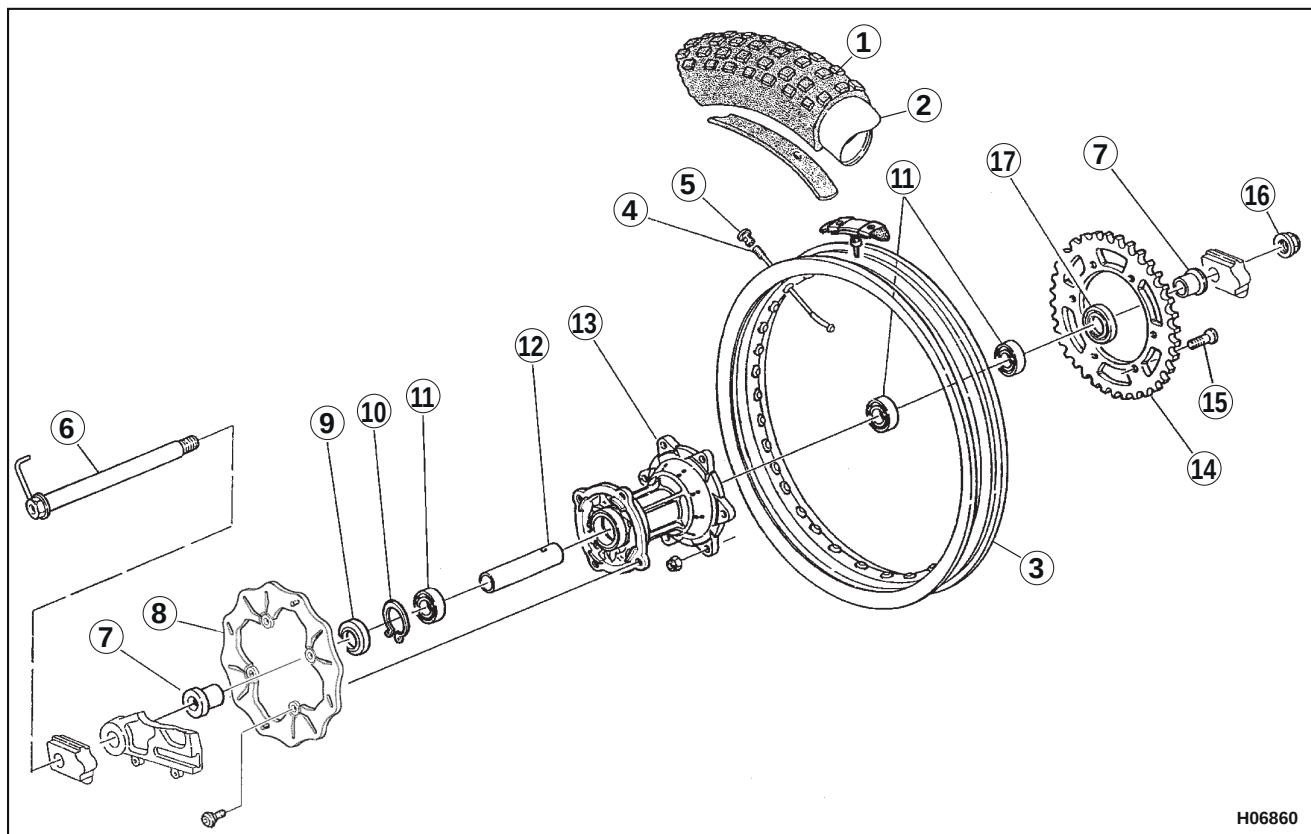
Speed sensor (TE)

Check the gap "B" between magnet (6) on brake disc and sensor (7) on brake calliper.

B=2±4 mm
(0.08±0.16 in.)



Rear wheel



H06860

Key

- 1) Tyre
- 2) Inner tube
- 3) Rim
- 4) Spoke
- 5) Nipple
- 6) Wheel axle
- 7) Spacer
- 8) Brake Disc
- 9) Seal
- 10) Circlip
- 11) Bearings
- 12) Inner spacer
- 13) Hub
- 14) Sprocket
- 15) Sprocket retaining screw
- 16) Wheel axle locking nut
- 17) Sealing ring

For technical characteristics regarding the rear wheel, see section "A" General Information of this manual.

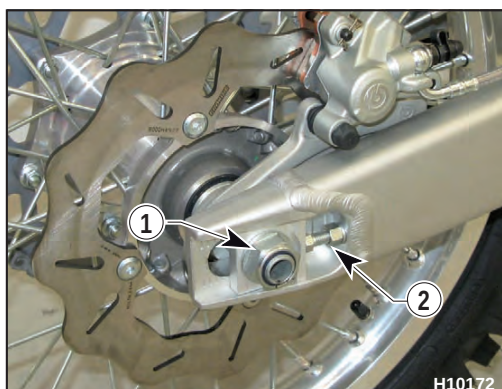


CHASSIS AND WHEELS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Removing the rear wheel

Set a stand or a block under the engine and see that the rear wheel is lifted from the ground.



Unscrew the nut (1) of the wheel axle (3) and extract it. It is not necessary to loosen the chain tensioners (2); in this way, the chain tension will remain unchanged after reassembly. Extract the complete rear wheel, keeping the spacers located at the hub sides. To reassemble, reverse the above procedure remembering to insert the brake disc into the calliper.



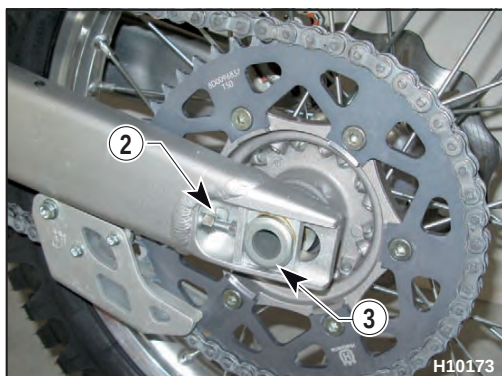
Do not operate the rear brake pedal when the wheel has been removed; this causes the calliper pistons to move outwards.



After removal, lay down the wheel with brake disc on top.

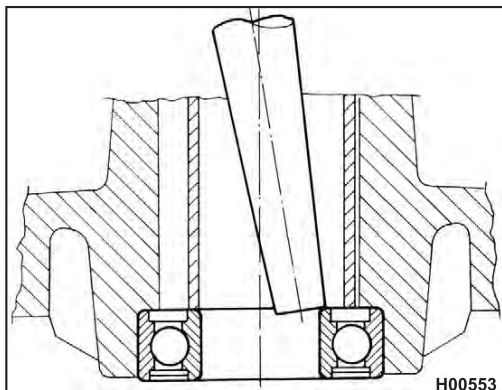
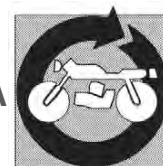


After reassembly, depress the brake pedal until the pads are against the brake disc.



Tightening torque figures

1: 142.1 Nm, 14.5 Kgm, 104.8 ft/lb



Wheel servicing

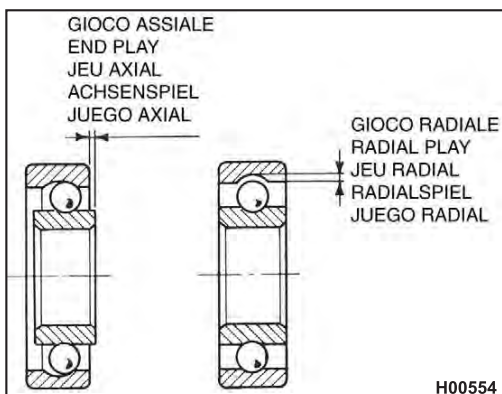
Check the wheel hub bearings for wear. If you find too much (radial or axial) clearance, replace the bearings as follows:

- place the hub on a flat surface with an appropriate hole (for when you knock out the bearing);
- use a hammer and a punch to knock out the bearing; apply pressure only on the inner race of the bearing (see figure);
- tap at different positions so as to keep the bearing square in its seat;
- remove the spacer and use the same procedure for the other bearing.

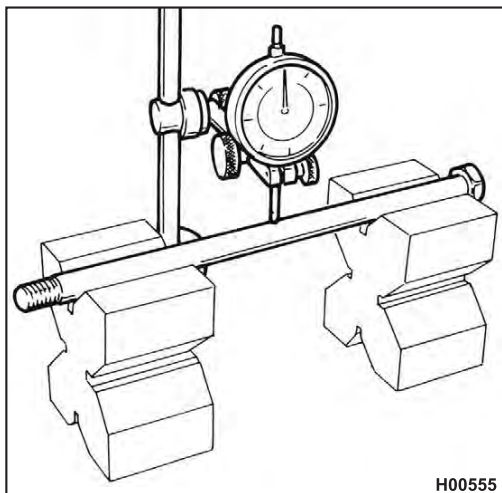


Discard the bearings after removal. Never reuse them.

Before installing the new bearings, check to ensure the seat is clean and shows no grooves or scratches. Lubricate the seat before installing the bearing. Drive the bearing into place using the special installer that only applies pressure to the outer race. Fit the spacer and the other bearing. Check for perfect alignment as you slide the axle into place.



Wheels should be balanced after each service.

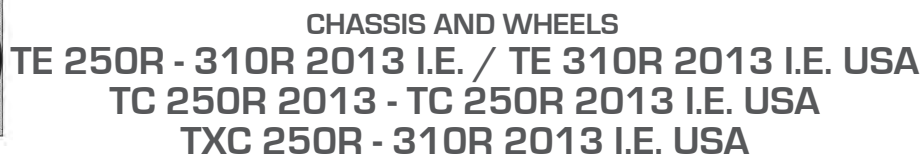


Wheel axle warpage

If warped beyond the maximum limit allowed, the axle must be straightened or replaced. Replace the axle if it cannot be straightened so as to meet the maximum limit allowed.

Axle runout over 100 mm

Wheel axle	Standard	Max limit
Wheel axle	less than 0.1 mm	0.2 mm (0.0078 in.)



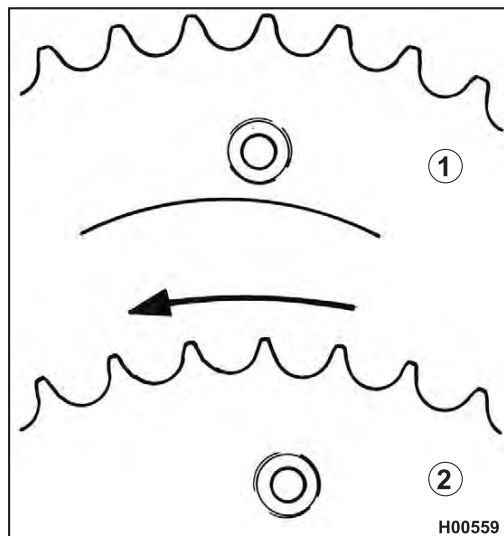
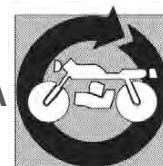
Make sure all nipples are firmly tightened (4.4 Nm, 0.45 Kgm, 3.2 ft/lb). Retighten if needed. Improper tightening will affect motorcycle stability; for a quick check, simply tap the spokes with the tip of a metal tool (such as a screwdriver): a clear, crisp sound indicates proper tightening, a dull sound means that the spokes need to be tightened.



The table below reports the allowed limits for wheel rim warpage. Exceeding runout or out-of-round are generally due to worn bearings. When this is the case, replace the bearings. If this does not solve the problem, change the wheel rim or the wheel.



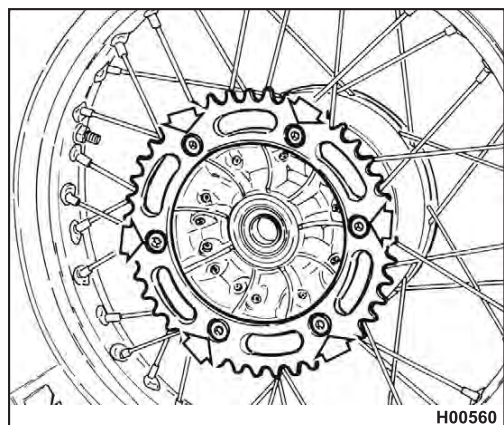
Standard		Max limit
Side runout	less than 0.5 mm	2 mm (0.078 in.)
Out-of-round	less than 0.8 mm	



Rear chain sprocket, secondary drive sprocket and chain

The figure at the side shows the profiles of a normally worn and an exceedingly worn sprocket.

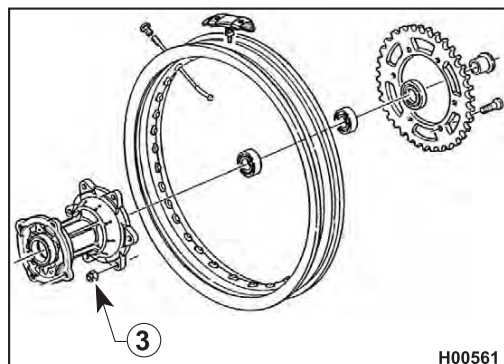
- 1 Normal wear
- 2 Exceeding wear



If the sprocket is exceedingly worn, replace it after loosening the six screws that retain it to the hub.



Chain and sprockets must always be replaced as a set.

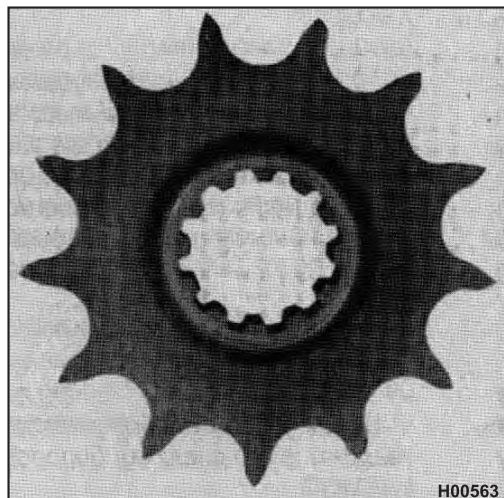


Tightening torque figures

3: 34.3 Nm, 3.5 Kgm, 25.3 ft/lb + LOCTITE 243



CHASSIS AND WHEELS
TE 250R - 310R 2013 I.E. / TE 310R 2013 I.E. USA
TC 250R 2013 - TC 250R 2013 I.E. USA
TXC 250R - 310R 2013 I.E. USA



Checking pinion and sprockets for wear

Check the transmission sprocket for damage or wear. When worn down like the sprocket shown in the figure, it must be replaced.



Wheel misalignment causes abnormal wear, making the motorcycle unsafe to ride.



Dirt caked on sprockets and chain collected while riding on muddy or wet terrain increases chain tension. If you expect to ride on muddy or wet terrain, slacken the chain a bit. Riding on muddy terrain significantly increases chain and sprocket wear.

