

# REPAIR MANUAL 2014



**KTM**



1	MEANS OF REPRESENTATION .....	6	6.12.4	Disassembling the cartridge .....	44
1.1	Symbols used .....	6	6.12.5	Disassembling the piston rod .....	45
1.2	Formats used.....	6	6.12.6	Disassembling the hydrostop unit .....	46
2	SAFETY ADVICE.....	7	6.12.7	Disassembling the seal ring retainer.....	47
2.1	Repair Manual .....	7	6.12.8	Checking the fork legs.....	47
2.2	Safety advice.....	7	6.12.9	Assembling the seal ring retainer.....	48
2.3	Degrees of risk and symbols .....	7	6.12.10	Assembling the hydrostop unit .....	49
2.4	Work rules.....	7	6.12.11	Assembling the piston rod .....	49
3	IMPORTANT NOTES.....	8	6.12.12	Assembling the cartridge .....	51
3.1	Guarantee, warranty .....	8	6.12.13	Assembling the fork legs.....	52
3.2	Operating and auxiliary substances .....	8	6.13	Greasing the steering head bearing .....	55
3.3	Spare parts, accessories .....	8	6.14	Removing the lower triple clamp.....	56
3.4	Figures .....	8	6.15	Installing the lower triple clamp .....	56
4	SERIAL NUMBERS .....	9	6.16	Checking the play of the steering head bearing .....	58
4.1	Chassis number .....	9	6.17	Adjusting the play of the steering head bearing .....	58
4.2	Type label .....	9	7	HANDLEBAR, CONTROLS.....	60
4.3	Engine number .....	9	7.1	Handlebar position.....	60
4.4	Fork part number .....	9	7.2	Adjusting the handlebar position .....	60
4.5	Shock absorber article number .....	9	7.3	Adjusting the basic position of the clutch lever .....	60
5	MOTORCYCLE .....	10	7.4	Checking the routing of the throttle cable.....	61
5.1	Raising the motorcycle with a lift stand.....	10	7.5	Checking the play in the throttle cable .....	61
5.2	Removing the motorcycle from the lift stand.....	10	7.6	Adjusting the play in the throttle cable.....	62
5.3	Starting.....	11	8	SHOCK ABSORBER, SWINGARM .....	63
5.4	Starting the motorcycle for checking.....	11	8.1	Adjusting the high-speed compression damping of the shock absorber.....	63
6	FORK, TRIPLE CLAMP .....	12	8.2	Adjusting the low-speed compression damping of the shock absorber .....	63
6.1	Adjusting the compression damping of the fork .....	12	8.3	Adjusting the rebound damping of the shock absorber.....	64
6.2	Adjusting the rebound damping of the fork .....	12	8.4	Measuring the sag of the unloaded rear wheel....	65
6.3	Bleeding the fork legs.....	13	8.5	Checking the static sag of the shock absorber ....	65
6.4	Cleaning the dust boots of the fork legs.....	14	8.6	Checking the riding sag of the shock absorber....	65
6.5	Loosening the fork protection .....	14	8.7	Adjusting the spring preload of the shock absorber.....	66
6.6	Positioning the fork protection.....	14	8.8	Adjusting the riding sag.....	66
6.7	Removing the fork legs .....	15	8.9	Removing the shock absorber .....	67
6.8	Installing the fork legs.....	15	8.10	Installing the shock absorber.....	68
6.9	Removing the fork protector .....	16	8.11	Servicing the shock absorber .....	68
6.10	Installing the fork protector .....	16	8.12	Removing the spring.....	69
6.11	250 SX .....	16	8.13	Disassembling the damper .....	69
6.11.1	Conducting major fork service .....	16	8.14	Disassembling the piston rod .....	71
6.11.2	Conducting minor fork service .....	17	8.15	Disassembling the seal ring retainer.....	72
6.11.3	Disassembling the fork legs .....	17	8.16	Changing the pilot bushing .....	72
6.11.4	Disassembling the cartridge .....	20	8.17	Checking the damper .....	73
6.11.5	Disassembling the piston rod .....	22	8.18	Removing the heim joint.....	74
6.11.6	Disassembling the screw cap with the membrane holder.....	23	8.19	Installing the heim joint.....	75
6.11.7	Disassembling the screw sleeve.....	24	8.20	Assembling the seal ring retainer .....	75
6.11.8	Checking the fork legs.....	25	8.21	Assembling the piston rod.....	76
6.11.9	Checking the fork legs - during a minor fork service.....	26	8.22	Assembling the damper .....	77
6.11.10	Changing the pilot bushing .....	27	8.23	Bleeding and filling the damper .....	79
6.11.11	Assembling the screw sleeve .....	28	8.24	Filling the damper with nitrogen .....	82
6.11.12	Assembling the screw cap with the membrane holder.....	28	8.25	Installing the spring (250 SX EU).....	83
6.11.13	Assembling the piston rod .....	29	8.26	Installing the spring (250 SX USA).....	84
6.11.14	Assembling the cartridge .....	31	8.27	Installing the spring (250/300 XC) .....	85
6.11.15	Assembling the fork legs (250 SX EU) .....	32	9	EXHAUST .....	86
6.11.16	Assembling the fork legs (250 SX USA) .....	36	9.1	Removing the main silencer .....	86
6.11.17	Bleeding and filling the cartridge.....	39	9.2	Installing the main silencer.....	86
6.11.18	Filling the cartridge with nitrogen .....	40	9.3	Changing the glass fiber yarn filling in the main silencer.....	86
6.12	250/300 XC .....	41			
6.12.1	Performing a fork service .....	41			
6.12.2	Disassembling the fork legs .....	41			
6.12.3	Removing the spring .....	43			

10	AIR FILTER .....	88	15.3	Checking the free travel of the hand brake lever .....	113
10.1	Removing the air filter box lid .....	88	15.4	Adjusting the basic position of the hand brake lever .....	113
10.2	Installing the air filter box lid .....	88	15.5	Checking the front brake fluid level .....	113
10.3	Removing the air filter .....	88	15.6	Adding front brake fluid.....	114
10.4	Installing the air filter.....	89	15.7	Changing the front brake fluid.....	115
10.5	Cleaning the air filter and air filter box.....	89	15.8	Checking the rear brake linings .....	116
10.6	Sealing the air filter box .....	90	15.9	Changing the rear brake linings .....	116
10.7	Securing the air filter box lid.....	90	15.10	Checking the free travel of foot brake lever .....	117
11	FUEL TANK, SEAT, TRIM .....	91	15.11	Adjusting the basic position of the foot brake lever .....	118
11.1	Opening the filler cap.....	91	15.12	Checking the rear brake fluid level.....	118
11.2	Closing the filler cap .....	91	15.13	Adding brake fluid for the rear brake.....	119
11.3	Removing the seat .....	92	15.14	Changing the rear brake fluid .....	120
11.4	Mounting the seat .....	92	16	ENGINE .....	122
11.5	Removing the fuel tank.....	92	16.1	Removing the engine.....	122
11.6	Installing the fuel tank .....	93	16.2	Installing the engine.....	130
11.7	Fuel tap (250 SX) .....	94	16.3	Engine disassembly.....	139
11.8	Fuel tap (250/300 XC) .....	94	16.3.1	Clamping the engine into the engine work stand.....	139
12	MASK, FENDER.....	95	16.3.2	Draining the gear oil.....	139
12.1	Removing the front fender .....	95	16.3.3	Removing the clutch push rod.....	139
12.2	Installing the front fender .....	95	16.3.4	Removing the shift lever .....	140
12.3	Removing the start number plate.....	95	16.3.5	Removing the engine sprocket.....	140
12.4	Installing the start number plate.....	96	16.3.6	Removing the spacer .....	140
13	WHEELS .....	97	16.3.7	Removing the alternator cover (250 SX) .....	141
13.1	Checking the tire air pressure.....	97	16.3.8	Removing the starter motor (250/300 XC).....	141
13.2	Checking the tire condition .....	97	16.3.9	Removing the kick starter .....	143
13.3	Checking the brake discs .....	97	16.3.10	Removing the cylinder head.....	143
13.4	Checking the spoke tension.....	98	16.3.11	Removing the cylinder.....	144
13.5	Front wheel .....	98	16.3.12	Removing the piston .....	146
13.5.1	Removing the front wheel .....	98	16.3.13	Removing the water pump cover.....	147
13.5.2	Installing the front wheel.....	99	16.3.14	Removing the clutch cover.....	147
13.5.3	Removing the brake disc of the front brake.....	100	16.3.15	Removing the clutch discs.....	147
13.5.4	Installing the brake disc of the front brake.....	100	16.3.16	Removing the clutch basket.....	148
13.6	Rear wheel .....	100	16.3.17	Removing the kick starter shaft .....	149
13.6.1	Removing the rear wheel .....	100	16.3.18	Removing the intermediate kick starter gear.....	149
13.6.2	Installing the rear wheel .....	101	16.3.19	Removing the shift shaft.....	149
13.6.3	Removing the brake disc of the rear brake.....	102	16.3.20	Removing the shift drum locating unit .....	150
13.6.4	Installing the brake disc of the rear brake....	102	16.3.21	Removing the locking lever .....	150
13.6.5	Checking the chain for dirt .....	102	16.3.22	Removing the rotor.....	150
13.6.6	Cleaning the chain .....	103	16.3.23	Removing the reed valve housing.....	151
13.6.7	Checking the chain tension.....	103	16.3.24	Removing the left engine case section .....	152
13.6.8	Checking the chain, rear sprocket, engine sprocket and chain guide.....	104	16.3.25	Removing the shift rails.....	152
13.6.9	Adjusting the chain tension .....	105	16.3.26	Removing the shift drum .....	153
14	WIRING HARNESS, BATTERY.....	107	16.3.27	Removing the shift forks.....	153
14.1	Plug-in connection, ignition timing map.....	107	16.3.28	Removing the transmission shafts.....	154
14.2	Change the main fuse (250/300 XC).....	107	16.3.29	Removing the crankshaft .....	154
14.3	Disconnecting the negative cable of the battery (250/300 XC).....	108	16.4	Working on individual parts.....	155
14.4	Connecting the negative cable of the battery (250/300 XC).....	108	16.4.1	Work on the right section of the engine case .....	155
14.5	Removing the battery (250/300 XC) .....	108	16.4.2	Work on the left section of the engine case .....	156
14.6	Installing the battery (250/300 XC) .....	109	16.4.3	Removing the crankshaft bearing inner race.....	157
14.7	Checking the charging voltage (250/300 XC) ...	109	16.4.4	Installing the crankshaft bearing inner race.....	158
14.8	Checking the closed current (250/300 XC).....	109	16.4.5	Changing the connecting rod, conrod bearing, and crank pin .....	158
14.9	Checking the starter relay (250/300 XC) .....	110			
15	BRAKE SYSTEM .....	111			
15.1	Checking the front brake linings .....	111			
15.2	Changing the front brake linings.....	111			

16.4.6	Checking the crankshaft run-out at the bearing pin.....	161	17.2	Carburetor - adjusting the idle speed .....	211
16.4.7	Checking/measuring the cylinder .....	161	17.3	Emptying the carburetor float chamber .....	212
16.4.8	Removing the exhaust control .....	162	17.4	Removing the carburetor.....	212
16.4.9	Checking the exhaust control .....	164	17.5	Installing the carburetor .....	214
16.4.10	Installing the exhaust control .....	164	17.6	Checking/adjusting the carburetor components.....	216
16.4.11	Cylinder - Nikasil® coating .....	166	17.7	Disassembling the carburetor .....	216
16.4.12	Checking/measuring the piston.....	166	17.8	Checking the choke slide .....	217
16.4.13	Checking the piston ring end gap .....	168	17.9	Checking the jet needle .....	218
16.4.14	Piston/cylinder - measuring the mounting clearance .....	168	17.10	Checking the throttle slide .....	218
16.4.15	Checking the reed valve housing, reed valve, and intake flange.....	169	17.11	Checking the float needle valve .....	218
16.4.16	Work on the clutch cover .....	169	17.12	Assembling the carburetor .....	218
16.4.17	Checking the clutch .....	173	17.13	Checking/adjusting the float level .....	220
16.4.18	Preassembling the shift shaft.....	174	18	CLUTCH.....	221
16.4.19	Checking the shift mechanism .....	175	18.1	Checking/correcting the fluid level of the hydraulic clutch.....	221
16.4.20	Disassembling the main shaft .....	176	18.2	Changing the hydraulic clutch fluid .....	221
16.4.21	Disassembling the countershaft.....	178	19	WATER PUMP, COOLING SYSTEM .....	223
16.4.22	Checking the transmission .....	179	19.1	Cooling system .....	223
16.4.23	Assembling the main shaft.....	182	19.2	Checking the antifreeze and coolant level .....	223
16.4.24	Assembling the countershaft.....	183	19.3	Checking the coolant level .....	223
16.4.25	Checking the kick starter .....	186	19.4	Draining the coolant .....	224
16.4.26	Preassembling the kick starter shaft .....	186	19.5	Refilling with coolant .....	224
16.4.27	Checking the electric starter drive (250/300 XC).....	188	20	EXHAUST CONTROL .....	226
16.5	Engine assembly.....	189	20.1	Engine characteristic - set the auxiliary spring .....	226
16.5.1	Installing the crankshaft.....	189	21	LUBRICATION SYSTEM.....	227
16.5.2	Installing the transmission shafts .....	190	21.1	Changing the gear oil.....	227
16.5.3	Installing the shift forks.....	190	21.2	Draining the gear oil.....	227
16.5.4	Installing the shift drum .....	191	21.3	Refilling with gear oil .....	228
16.5.5	Installing the shift rails .....	191	21.4	Checking the gear oil level .....	228
16.5.6	Installing the left engine case section .....	192	21.5	Adding gear oil .....	228
16.5.7	Installing the reed valve housing .....	193	22	IGNITION SYSTEM.....	230
16.5.8	Installing the rotor .....	194	22.1	Checking the ignition system.....	230
16.5.9	Installing the locking lever .....	195	22.2	Ignition coil - checking the primary winding.....	230
16.5.10	Installing the shift drum locating unit .....	195	22.3	Ignition coil - checking the secondary winding.....	231
16.5.11	Installing the shift shaft .....	195	22.4	Checking the spark plug connector .....	231
16.5.12	Installing the intermediate kick starter gear.....	195	22.5	Alternator - checking the charging coil of the ignition .....	232
16.5.13	Installing the kick starter shaft.....	195	22.6	Alternator - checking the light and battery winding (250/300 XC).....	232
16.5.14	Installing the clutch basket.....	196	22.7	Checking the ignition pulse generator .....	233
16.5.15	Installing the clutch discs.....	197	22.8	Removing the stator and crankshaft position sensor (250/300 XC).....	234
16.5.16	Installing the clutch cover .....	198	22.9	Installing the stator and crankshaft position sensor (250/300 XC).....	234
16.5.17	Installing the water pump cover.....	199	23	ELECTRIC STARTER .....	235
16.5.18	Installing the piston .....	199	23.1	Checking the starter motor (250/300 XC).....	235
16.5.19	Installing the cylinder.....	200	24	TECHNICAL DATA.....	236
16.5.20	Checking the X-distance .....	202	24.1	Engine .....	236
16.5.21	Adjusting the X-distance.....	203	24.1.1	250 SX.....	236
16.5.22	Adjusting the Z-distance.....	204	24.1.2	250 XC EU/USA .....	236
16.5.23	Installing the cylinder head.....	206	24.1.3	300 XC EU/USA .....	237
16.5.24	Installing the kick starter .....	207	24.2	Engine tolerance, wear limits .....	238
16.5.25	Installing the alternator cover (250 SX).....	207	24.3	Engine tightening torques .....	238
16.5.26	Installing the starter motor (250/300 XC)....	207	24.4	Capacities .....	239
16.5.27	Installing the spacer.....	208	24.4.1	Gear oil.....	239
16.5.28	Installing the engine sprocket .....	209	24.4.2	Coolant.....	239
16.5.29	Installing the shift lever.....	209	24.4.3	Fuel .....	239
16.5.30	Installing the clutch push rod .....	210	24.5	Chassis .....	239
16.5.31	Installing the gear oil drain plug.....	210	24.6	Electrical system.....	240
16.5.32	Removing the engine from the work stand ...	210			
17	CARBURETOR .....	211			
17.1	Choke .....	211			

24.7	Tires .....	240
24.8	Fork.....	240
24.8.1	250 SX EU .....	240
24.8.2	250 SX USA .....	241
24.8.3	250/300 XC .....	241
24.9	Shock absorber .....	242
24.9.1	250 SX EU .....	242
24.9.2	250 SX USA .....	242
24.9.3	250/300 XC .....	243
24.10	Chassis tightening torques .....	243
24.11	Carburetor .....	244
24.11.1	250 SX.....	244
24.11.2	Carburetor - basic setting for sandy surfaces (250 SX).....	244
24.11.3	250 XC EU/USA .....	244
24.11.4	300 XC EU/USA .....	245
24.12	Carburetor tuning.....	246
24.12.1	Carburetor tuning (250 SX).....	246
24.12.2	Carburetor tuning (250 XC EU/USA).....	247
24.12.3	Carburetor tuning (300 XC EU/USA).....	248
24.12.4	General carburetor tuning .....	249
25	CLEANING, CARE .....	250
25.1	Cleaning the motorcycle .....	250
26	STORAGE.....	251
26.1	Storage .....	251
26.2	Preparing for use after storage.....	251
27	SERVICE SCHEDULE (SX) .....	252
27.1	Service schedule.....	252
27.2	Service work (as additional order) .....	253
28	SERVICE SCHEDULE (XC) .....	254
28.1	Service schedule.....	254
28.2	Service work (as additional order) .....	255
29	WIRING DIAGRAM .....	256
29.1	Page 1 of 1 (250 SX) .....	256
29.2	page 1 of 3 (250/300 XC) .....	258
29.3	Page 2 of 3 (250/300 XC) .....	260
29.4	page 3 of 3 (250/300 XC) .....	262
30	SUBSTANCES .....	264
31	AUXILIARY SUBSTANCES .....	266
32	SPECIAL TOOLS .....	268
33	STANDARDS .....	279
	INDEX.....	280

## 1.1 Symbols used

The meaning of specific symbols is described below.



Indicates an expected reaction (e.g. of a work step or a function).



Indicates an unexpected reaction (e.g. of a work step or a function).



Indicates a page reference (more information is provided on the specified page).



Indicates information with more details or tips.



Indicates the result of a testing step.



Denotes a voltage measurement.



Denotes a current measurement.



Denotes a resistance measurement.

## 1.2 Formats used

The typographical formats used in this document are explained below.

<b>Proprietary name</b>	Identifies a proprietary name.
<b>Name<sup>®</sup></b>	Identifies a protected name.
<b>Brand<sup>™</sup></b>	Identifies a trademark.
<b><u>Underlined terms</u></b>	Refer to technical details of the vehicle or indicate technical terms, which are explained in the glossary.

## 2.1 Repair Manual

Read this Repair Manual carefully and thoroughly before beginning work. It contains useful information and tips that will help you repair and maintain your vehicle.

This manual assumes that the necessary special KTM tools and KTM workplace and workshop equipment are available.

## 2.2 Safety advice

A number of safety instructions need to be followed to operate the vehicle safely. Therefore, read this manual carefully. The safety instructions are highlighted in the text and are referred to at the relevant passages.



### Info

The vehicle has various information and warning labels at prominent locations. Do not remove information/warning labels. If they are missing, you or others may not recognize dangers and may therefore be injured.

## 2.3 Degrees of risk and symbols



### Danger

Indicates a danger that will immediately and invariably lead to fatal or serious permanent injury if the appropriate measures are not taken.



### Warning

Indicates a danger that is likely to lead to fatal or serious injury if the appropriate measures are not taken.



### Caution

Indicates a danger that may lead to minor injuries if the appropriate measures are not taken.

### Note

Indicates a danger that will lead to considerable machine and material damage if the appropriate measures are not taken.



### Warning

Indicates a danger that will lead to environmental damage if the appropriate measures are not taken.

## 2.4 Work rules

Special tools are necessary for certain tasks. The tools are not contained in the vehicle but can be ordered under the number in parentheses. E.g.: bearing puller (15112017000)

During assembly, non-reusable parts (e.g. self-locking screws and nuts, seals and seal rings, O-rings, pins, lock washers) must be replaced by new parts.

In some instances, a thread locker (e.g. **Loctite**<sup>®</sup>) is required. The manufacturer instructions for use must be followed.

After disassembly, clean the parts that are to be reused and check them for damage and wear. Change damaged or worn parts.

After you complete the repair or service work, check the operating safety of the vehicle.



## 3.1 Guarantee, warranty

The work prescribed in the service schedule must be carried out by an authorized KTM workshop only and confirmed in the customer's Service & Warranty Booklet and in the **KTM Dealer.net**; otherwise, all warranty claims will be void. No warranty claims can be considered for damage resulting from manipulations and/or alterations to the vehicle.

Additional information on the guarantee or warranty and the procedures involved can be found in the Service & Warranty Booklet.

## 3.2 Operating and auxiliary substances



### Warning

**Environmental hazard** Improper handling of fuel is a danger to the environment.

- Do not allow fuel to get into the ground water, the ground, or the sewage system.

Use operating and auxiliary substances (such as fuel and lubricants) as specified in the Owner's Manual.

## 3.3 Spare parts, accessories

Only use spare parts and accessories approved and/or recommended by KTM. KTM accepts no liability for other products and any resulting damage or loss.

The current **KTM PowerParts** for your vehicle can be found on the KTM website.

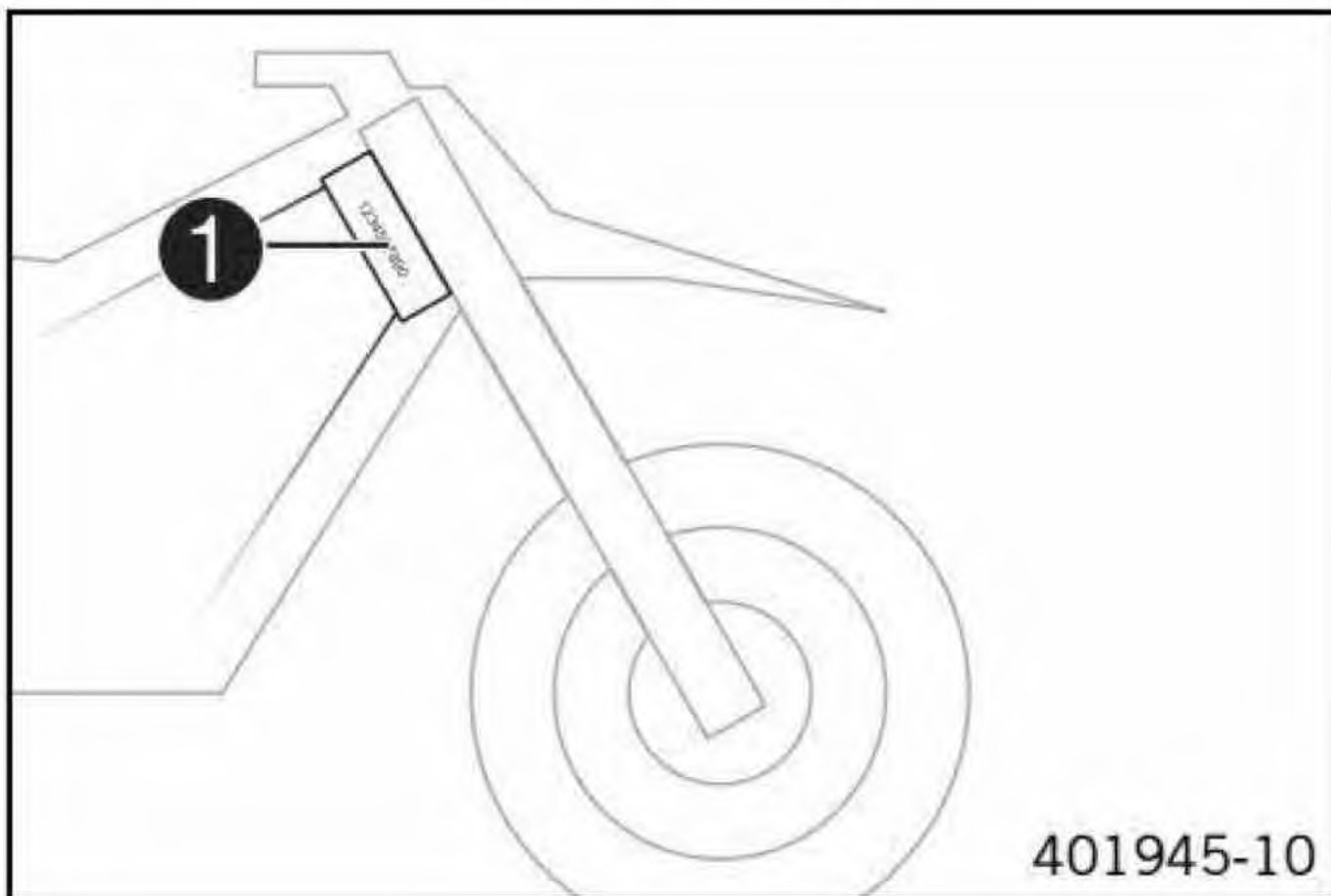
International KTM Website: <http://www.ktm.com>

## 3.4 Figures

The figures contained in the manual may depict special equipment.

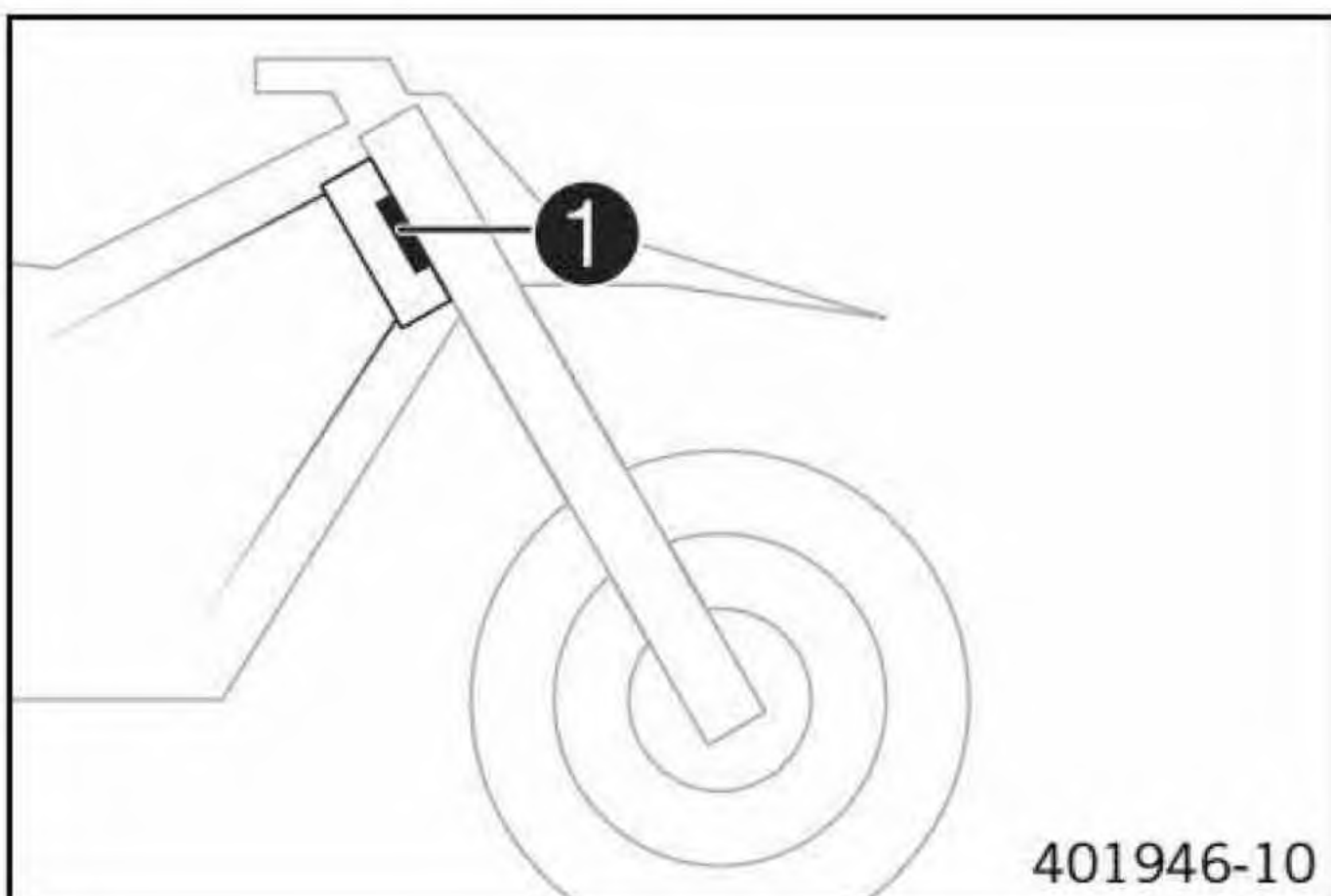
In the interest of clarity, some components may be shown disassembled or may not be shown at all. It is not always necessary to disassemble the component to perform the activity in question. Please follow the instructions in the text.

## 4.1 Chassis number



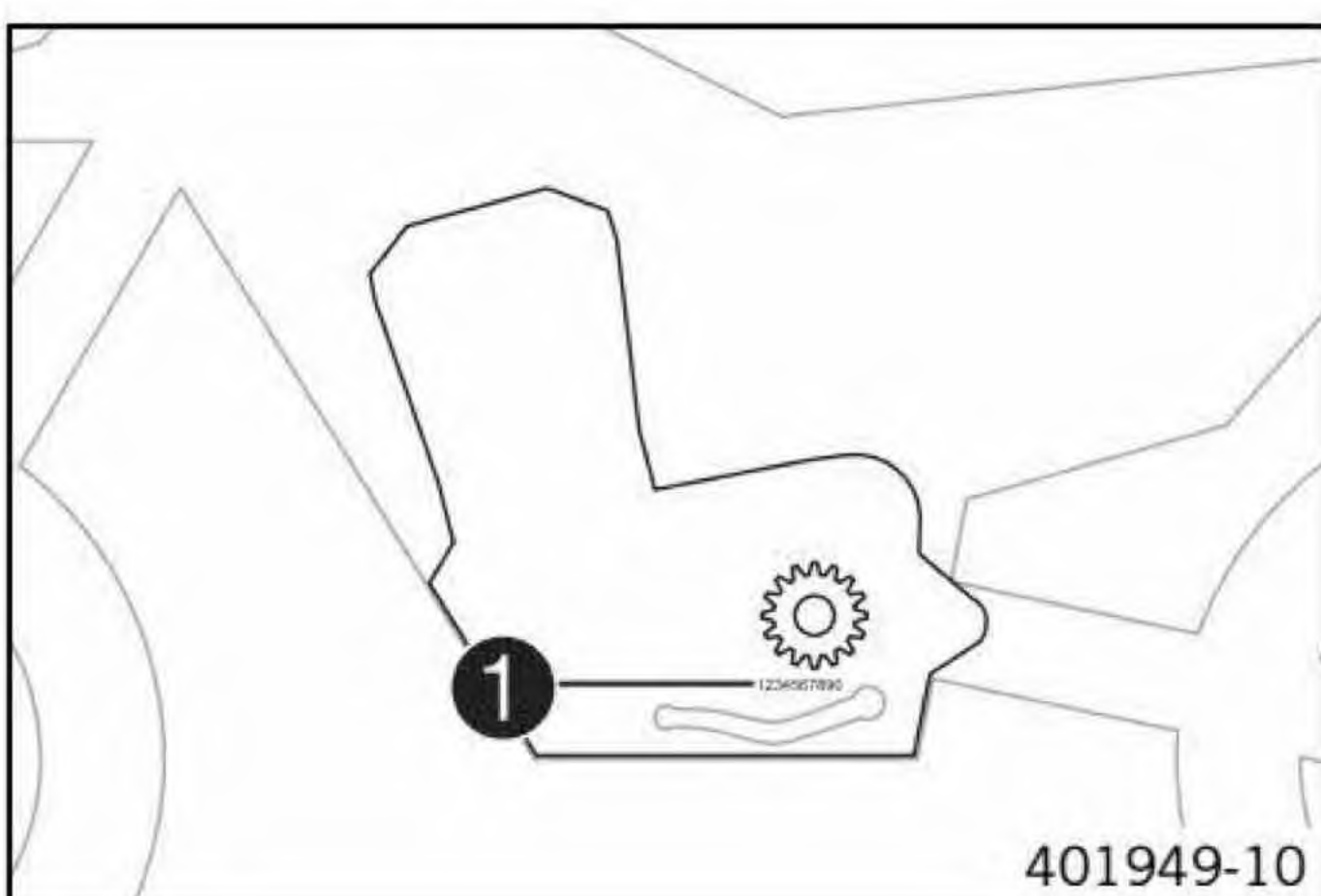
The chassis number **1** is stamped on the right side of the steering head.

## 4.2 Type label



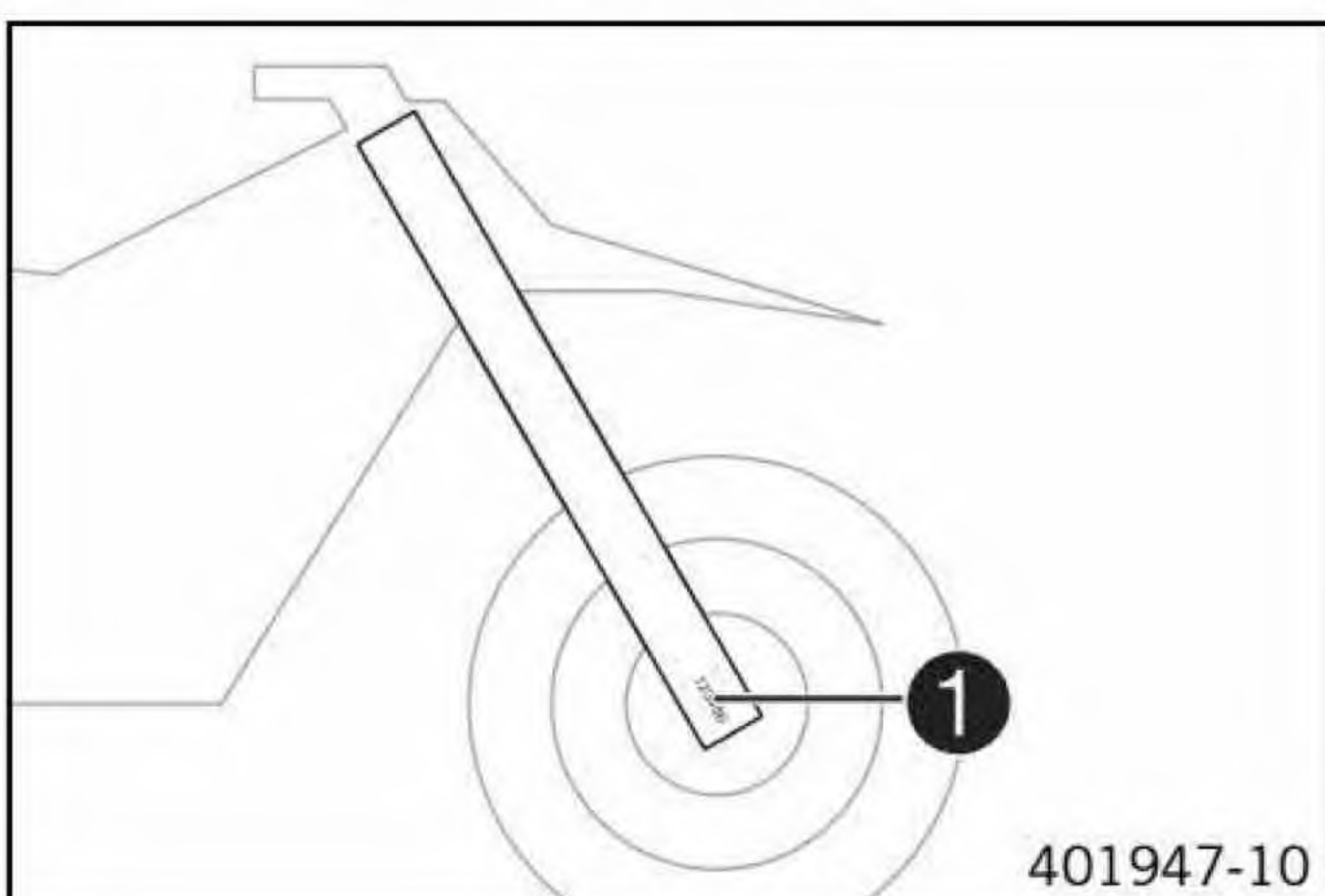
The type label **1** is fixed to the front of the steering head.

## 4.3 Engine number



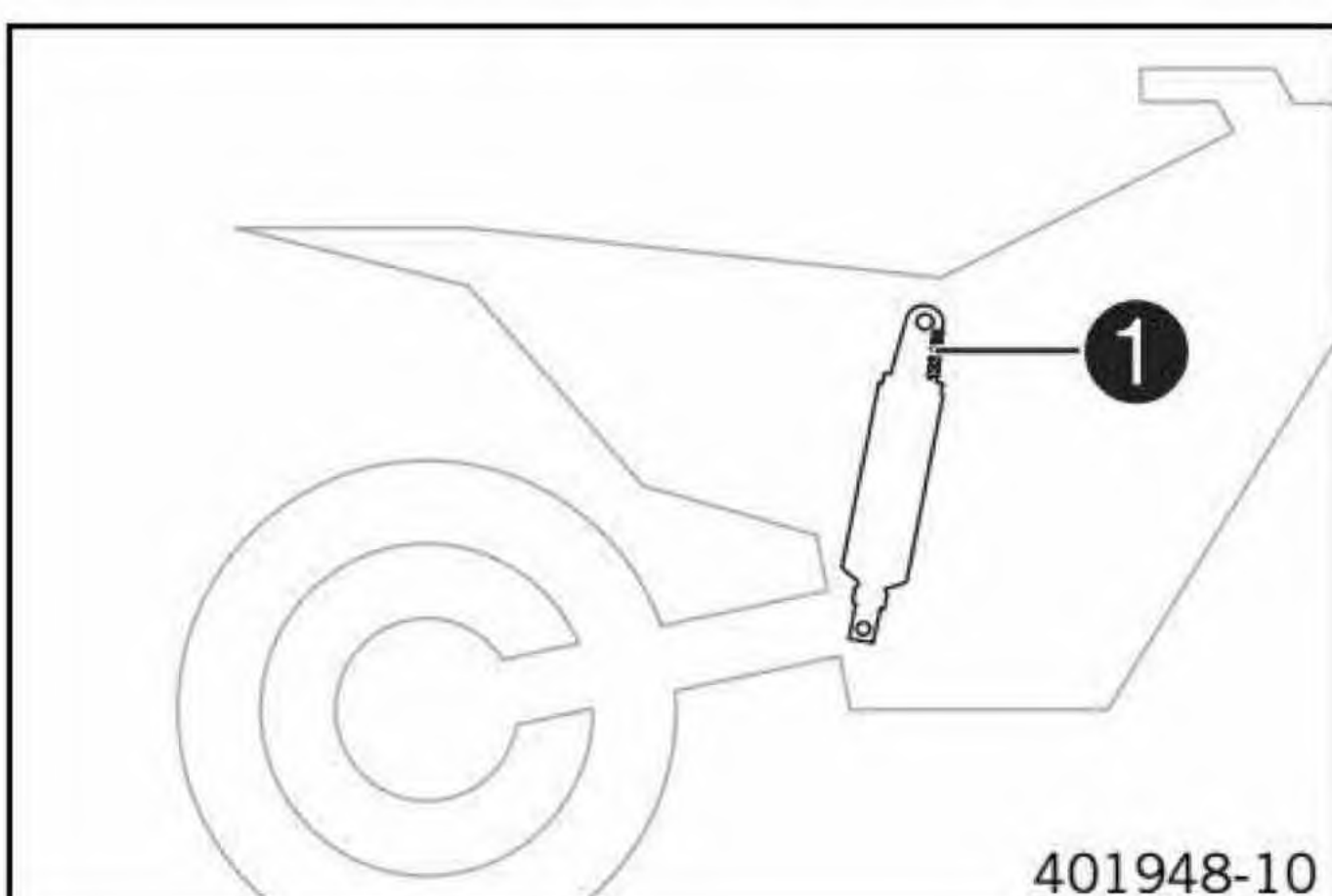
The engine number **1** is stamped on the left side of the engine under the engine sprocket.

## 4.4 Fork part number



The fork part number **1** is stamped on the inner side of the fork stub.

## 4.5 Shock absorber article number



The shock absorber part number **1** is stamped on the top of the shock absorber above the adjusting ring towards the engine side.