

R 1200 CL

- Technical Features in Detail
- Uncrating & Set up
- Pre Delivery Inspection
- Inspection Procedures (600 Mile)
- Special Tools
- Wiring Diagrams

Technical
Training



Motorcycles



BMW Motorcycles
Motorcycle Training

R 1200 CL

Disclaimer

This training reference book is not intended to be a complete and all inclusive source of servicing, repairing or troubleshooting the motorcycle. This is only part of the training information designed to ensure that uniform procedures and information are presented to all participants of Technical Training conducted by BMW Motorcycles.

The technician must always refer to and adhere to the following official BMW Motorrad and BMW North America, Inc service publications.

- Training Materials
- Repair Manuals
- Service Bulletins
- MoDiTeC

Service Bulletins are issued by the BMW Motorcycle Service Department, regarding changes in operation, and repair or maintenance procedures. Service Bulletins are available on MTAS (www.bmwmc.net). From the departments menu button on the home page, select “On-line bulletin search”

Information Status, (date indicated on front cover).

For changes/additions to the technical data, please refer to current information issued by the BMW NA Motorcycle Service Department.

R 1200 CL

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R 1200 CL

Introduction



Pearl Silver Metallic

The new R 1200 CL luxury Cruiser: individual product personality, visual appeal featuring unique specifications in the Cruiser segment.

The distinctive look of the new BMW boxer flat-twin appeals to the taste of the individual motorcyclist.

This introduction brochure describes the technology that lies beneath the skin of the new BMW R 1200 CL in detail as well as

unpacking, set up, PDI and maintenance information. However, always refer to technical data in the relevant publications found in the Service and Technical Training areas of MTAS.

MTAS (Motorcycle Training Administration System), <http://www.bmwmc.net>.

We hope you enjoy reading this brochure.

R 1200 CL

Introduction

Overview. Assembled at the Berlin plant with its sister models, the R 1200 CL is yet another milestone for BMW Motorcycles. It takes its place in the line up of previously introduced R 1200 C models including the Classic introduced in 1997, and the later model variants including the R 1200 C Montana, Euro, Stilleto and Phoenix, all of which have laid the foundation for an extremely successful series.

The name identifies the character of this new R Series addition; R 1200 CL: **C**ruiser and **L**uxury, comfort with everyday suitability and a powerful appearance.

In addition to the Pearl Silver Metallic shown on the previous page, color choices at time of introduction also include:



Mojave Brown Metallic



Capri Blue Metallic

Equipment Levels. There are two versions; the base R 1200 CL and the higher trim level R 1200 CLC (custom).

In addition to the Fully Integral ABS, other upgrades are provided as standard equipment on the base R 1200 CL including:

- cruise control,
- two-stage heated grips,
- chrome package,
- and prewiring for the factory stereo radio/single disc CD player.

The R 1200 CLC is additionally equipped with:

- stereo radio / single disc CD player with handlebar mounted control,
- heated, comfort seat.

Accessories. Accessories are also available for both versions including:

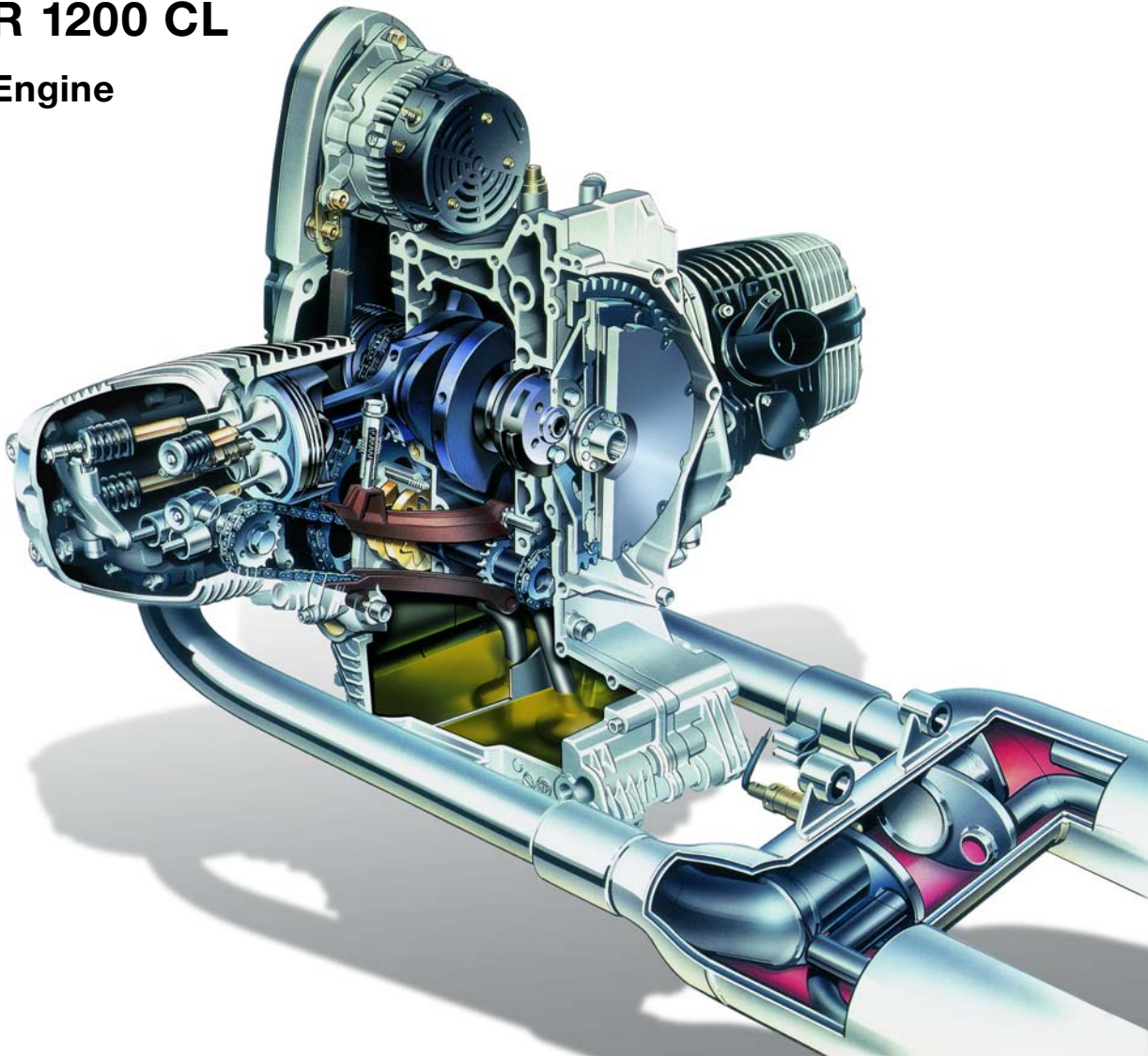
- plug in Factory Alarm System,
- Comfort-Squab (separate backrest)
- Top Case Speakers
- Floorboard footrest for passenger
- Cup holder (like K 1200 LT)
- BC-V.O.I.C.E. Board Communications - *Voice Operated Intercom Communication Equipment.*
- CB Radio and antenna
- Luggage soft bag inserts for side cases
- Cylinder head engine protection bars
- Side case protection bars

Image. The distinctive fairing silhouette with the four headlights and innovative bodywork design integrated standard top and side case storage concept tempt you to get on and ride. The riding position, designed for good handling, provides direct contact with the motorcycle thanks to the wide handlebars and low, comfortable seat.

A standard seat height of 745 mm (29.3") has been designed intentionally low for all riders in order to ensure easy control over the motorcycle when in standing position.

R 1200 CL

Engine



The proven 1200 cc R 259 variant, with high-camshaft-valve control and four valves is fitted in the R 1200 CL unchanged.

The engine cooling system is handled by twin oil-coolers integrated in the front frame. Oil circulation is supplied by its own oil pump, regulated by a thermostat. The oil flows through both oil coolers in succession; lubricating oil and cooling oil are separated.

Engine management is controlled by the Motronic MA 2.4, in conjunction with the performance-determining components, such as camshafts, valve sizes, air intake design, the R 1200 CL engine is also designed in such a

way that a torque range desired for a luxury Cruiser is attained. The engine output of the R 1200 CL is 45 KW (61 bhp) at 5000 RPM, the maximum torque 98 Nm (71 ft/lb) at 3000 RPM.

The engine's displacement and dynamic specifications are:

Displacement = 1170 cc

Bore x Stroke = 101 mm x 73 mm

Pistons = short skirt light alloy box piston

Compression Ratio = 10.0:1,

Camshaft profile = 256°

The exhaust system is designed according to the bikes cruiser characteristic.

R 1200 CL

Engine

The two piece light alloy crankcase is manufactured using a pressure die-casting method. The oil pan, which holds 3.75 litres, is integrated into the engine case halves.

As with all R Series bikes, the engine and gearbox is a combined load bearing element of the chassis. For this reason, both case halves were designed with a specific rigidity with the aid of computer calculations of the Finite Element Method.

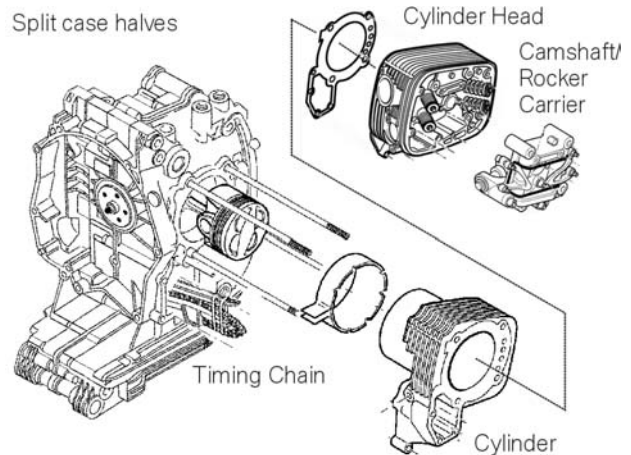
The 1-piece forged crankshaft is accommodated centrally in the crankcase on sliding bearings. It runs on two bearings, the rear bearing being larger and designed as a double collar bearing. The 125 mm long connecting rods are made of sintered steel and are cracked at the big end.

The weight-optimized box pistons are made of light alloy and have machined valve notches on the piston crown. A pressure release channel above the piston ring zone prevents a partial vacuum from building up in the combustion chamber during engine cool down to prevent oil from being pulled in under vacuum when the engine is off.

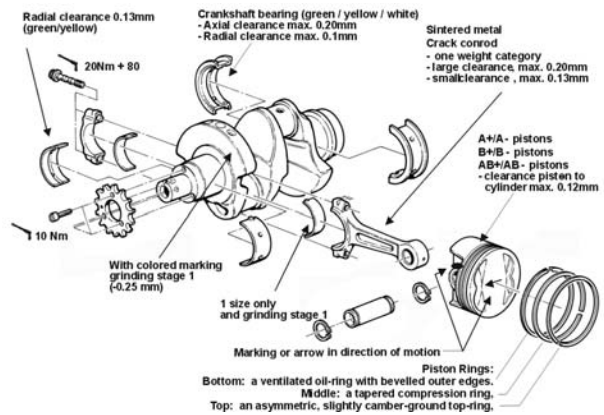
The camshafts are mounted into the cylinder heads by separate camshaft carriers. The cams are made up of a case-hardened shaft with pressed-on individual cams made of sintered material.

The camshafts are roller chain driven at a 2:1 ratio geared down by the auxiliary shaft, which is located below the crankshaft and also drives both duo-centric oil pumps.

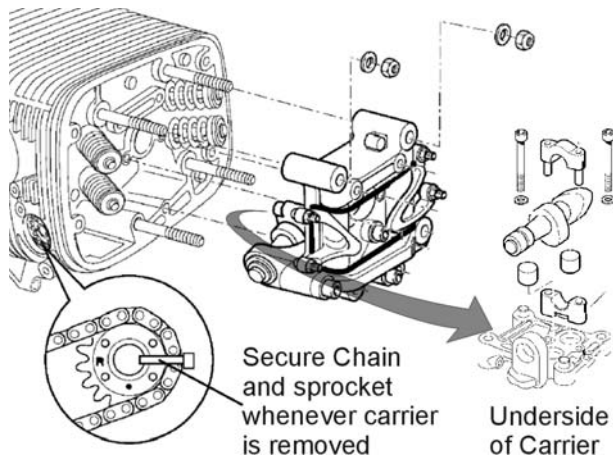
The valves all have 5 mm valve stems. They are actuated in pairs by clear chill cast tappets, short aluminum tappet push rods and forged valve lifters.



Engine Components



Crankshaft / Pistons



Cylinder head / Valve train

R 1200 CL

Engine

The engine is designed to run on premium grade fuel (95 RON/92 AKI). The air fuel mixture is ignited by a centrally placed spark plug.

Directly connected to each spark plug are the new direct connection ignition coils (ie: F 650 CS). These coils eliminate the secondary spark plug wire ensuring consistent spark voltage over the lifetime of the motorcycle. Due to the ignition coils, the cylinder head covers are new. The ignition coils each have a separate ground wire that connects to the engine cylinder head.

The exhaust system with a hard chrome plated surface is produced in three sections: two exhaust manifolds consisting of a 55 mm double walled tube and a flange-mounted, 1-section exhaust silencer with short tail pipes. This has 4 chambers and is based on the reflection and absorption principle.

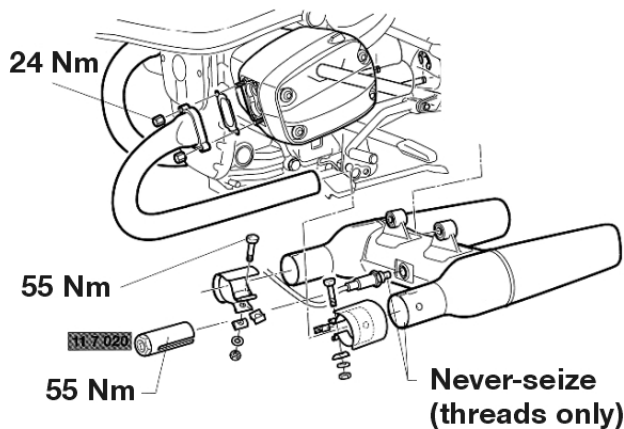
In the exhaust silencer of the R 1200 CL, two catalytic converters are used. The small diameter and a flat design, offers a higher sectional flow. The cylindrical catalytic converter carriers have a diameter of 60 mm and a length of 74 mm.

The heated O₂ sensor is located in the exhaust gas stream of the two exhaust manifolds beyond the catalytic converters. During the warm-up period from 60° C motor oil temperature (just a few minutes after starting), it already ensures that the engine runs in accordance with the stoichiometric mixture ($\lambda=1$).

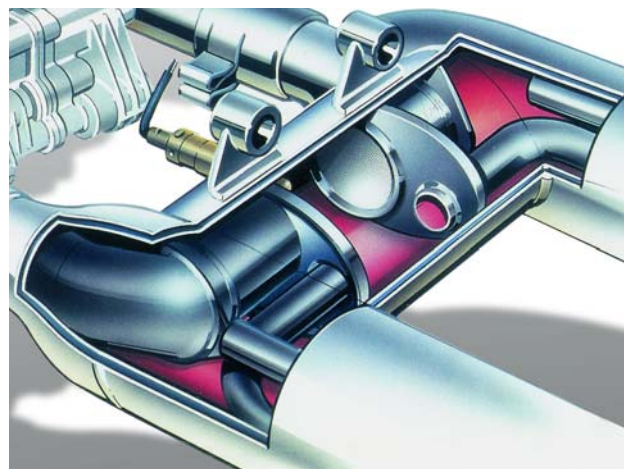
The catalytic converters are made of palladium and rhodium. Palladium accelerates the oxidation of hydrocarbons and carbon monoxide. Rhodium reduces nitric oxide.



New Ignition Coils



Exhaust Components



Twin Catalytic Converters, Single O₂ Sensor

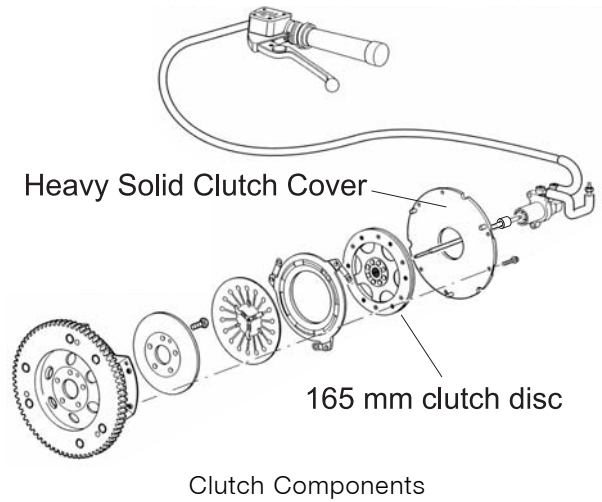
R 1200 CL

Clutch

Centrifugal mass is of advantage for Cruiser engine speeds. This is achieved by a solid clutch case cover with the R 1200 CL.

The weight of the clutch disc on the other hand, with a diameter of only 165 mm, has been reduced in order to attain a fast standstill of the gear drive shaft.

This optimizes the engaging and disengaging of the 6-speed gearbox. The wear resistant friction lining of the clutch disc together with the strong casing cover additionally offers high temperature resistance.



R 1200 CL

Gearbox

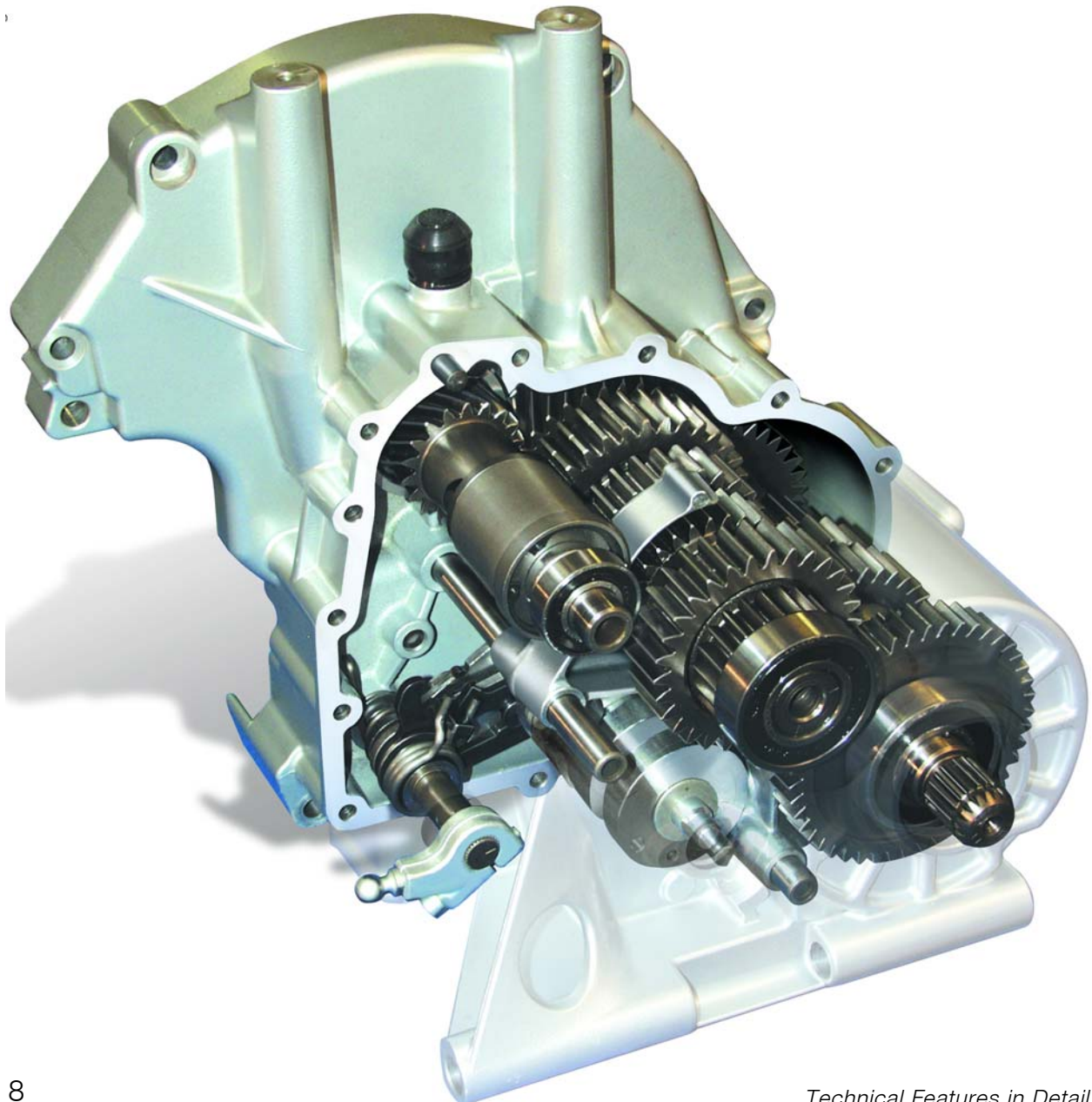
The R 1200 CL is equipped with a new six speed Getrag gearbox exhibiting the gearbox codes:

xxxxx**JAE** (BMW 7 673 702; GETRAG 424.0.0003.04) = 6 speed, silver painted

xxxxx**JAF** (BMW 7 673 703; GETRAG 424.0.0003.05) = 6 speed, black painted

The first five gears are closely graduated enabling typical Cruiser riding. The sixth gear is geared considerably longer and is therefore designed as an overdrive providing pleasant touring with lower fuel consumption on interstate journeys.

In the light alloy casing, three gear shafts are installed in wear-resistant clean-bearing deep groove ball bearings.



R 1200 CL

Gear Box

The engaging and disengaging gears are located on the auxiliary shaft and the driven shaft. All driven gears are installed on low-friction needle bearings.

The new heel/toe shifter transfers the riders shift action to the gearbox through ball and pin pivots to the input shaft. The heel/toe shifter is made of chrome plated forged aluminum.



The aluminum shifter drum is fixed in the exact gear positions by a cam plate. The die-cast aluminum shifter forks are actuated by the shifting gates of the camshaft controllers via anti-friction steel bushes. The shifter forks glide smoothly on hollow bored steel shafts and engage the gears exactly.

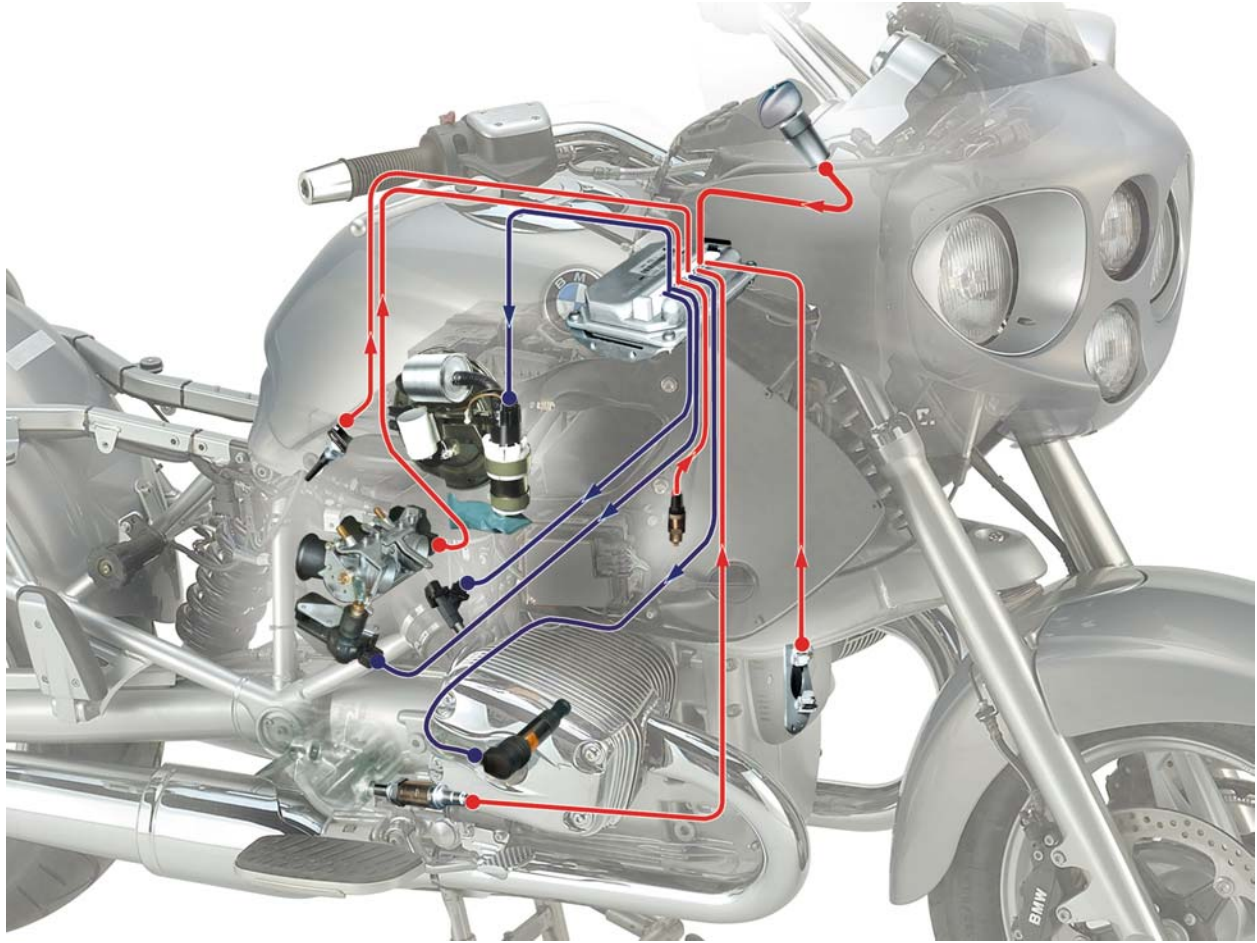
The gear pair of the primary drive has a quietly running, wear-resistant spiral gearing. All other gears are provided with a spur toothing and are constructed tightly interlocked. This provides smoother meshing for particularly quiet running.

The hollow-bored drive shaft bears a compact, two phase starting damper. The rotational oscillations occurring during the idle speed of the engine are absorbed by a pre-stressed washer. A heavy-duty coil spring works in the main damper, which is responsible for reducing the noise occurring during the changing of gear and load.



R 1200 CL

Digital Motor Electronics MA 2.4



The R 1200 CL is equipped with Digital Motor Electronics (Motronic) MA 2.4 engine management system. In contrast to the Motronic MA 2.4 for the R 1150 models, an electronically regulated cold start control with idle speed control is used for the R 1200 CL. as on the R 1200 C Classic.

The MA 2.4 control module monitors engine operating parameters via input signals from sensors and switches.

These input values are evaluated by the control module and used for calculating the injection on time and frequency, optimum ignition timing angle and idle speed control based on programmed operating data maps.

This system provides a consistent idle speed of 900 RPM at normal operating temperature as well as automatic increased speeds for cold engine startup which gradually changes as the engine warms up.

R 1200 CL

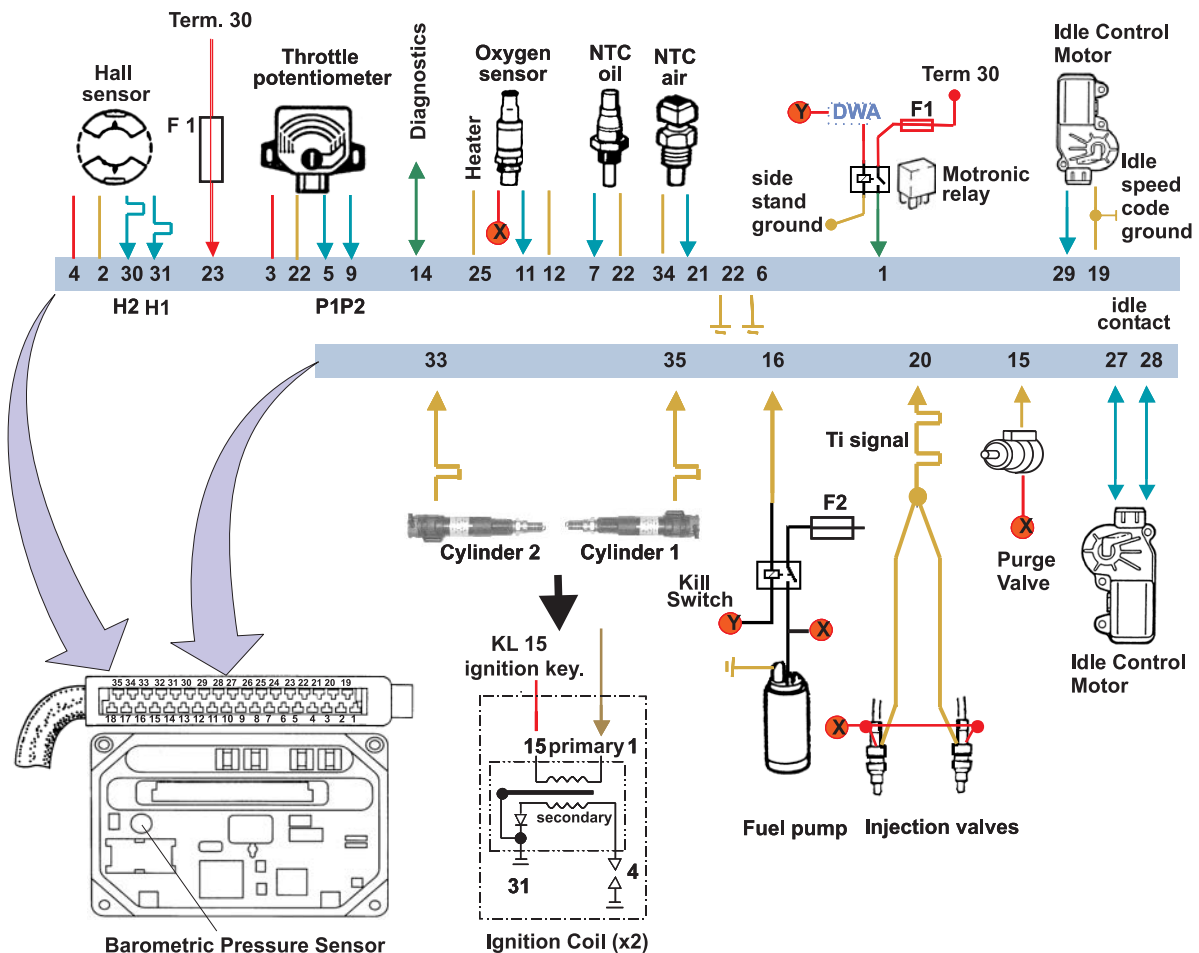
Digital Motor Electronics MA 2.4

The fuel pump – together with a fuel pressure regulator – ensure that adequate fuel volume is available with constant pressure to the fuel injectors. The fuel pump is switched on by the fuel pump relay which is controlled by the MA 2.4 control module. The fuel system pressure in the distributor is constant 3 bar.

The Motronic control module receives the most important input signals from the hall sensors (crankshaft rotational speed and top dead center piston position) and from the throttle position sensor (angular position of the throttle valves).

The air volume drawn in is calculated (Alpha-n-control) via the angle of the throttle valve (Alpha) and the engine speed. The fine-tuning takes place via an engine temperature sensor, and the air temperature sensor and the integrated barometric pressure sensor.

The oxygen sensor monitors the amount of remaining oxygen content in the exhaust gas. This allows the control module to manipulate the fuel injector on time (Ti) to maintain the optimum air fuel mixture. All information is compared with the programmed characteristics in the control unit.



R 1200 CL

Digital Motor Electronics MA 2.4

The output signals for ignition and injection are amplified in the control module by integrated output transistors. The transistors switching on and off activates the fuel injector solenoid valves and the primary ignition coil windings.

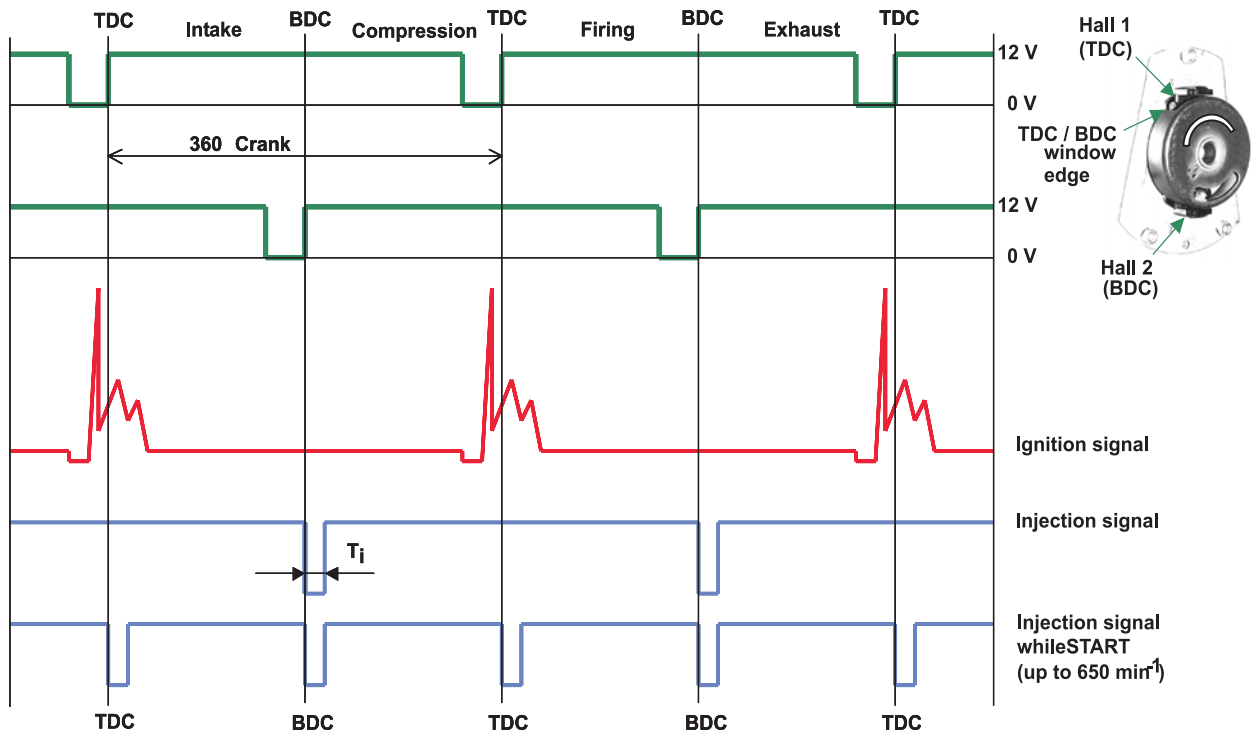
The cold-start control works with an actuator with a worm gear pair that directly actuates the two throttle valves in the intake manifold. The control signal is calculated from the signals of the engine temperature and from the speed of the crankshaft with response.

The ideal positions of the throttle valves are set for all operational states by means of an adaptive control adjustment maintained by the control module.

The fuel injectors are small and light weight. They inject fuel once per crankshaft revolution in parallel.

To achieve optimal running of the engine during the start-up and warming phase, fuel enrichment is provided by activating the injectors twice as often during starting phase, then switching over to the once per crankshaft revolution injection scheme with a longer ontime to proved enrichment. As the engine warms the on time is reduced.

When the maximum engine speed of 7000 rpm has been reached, the injection time is interrupted in order to limit the speed.



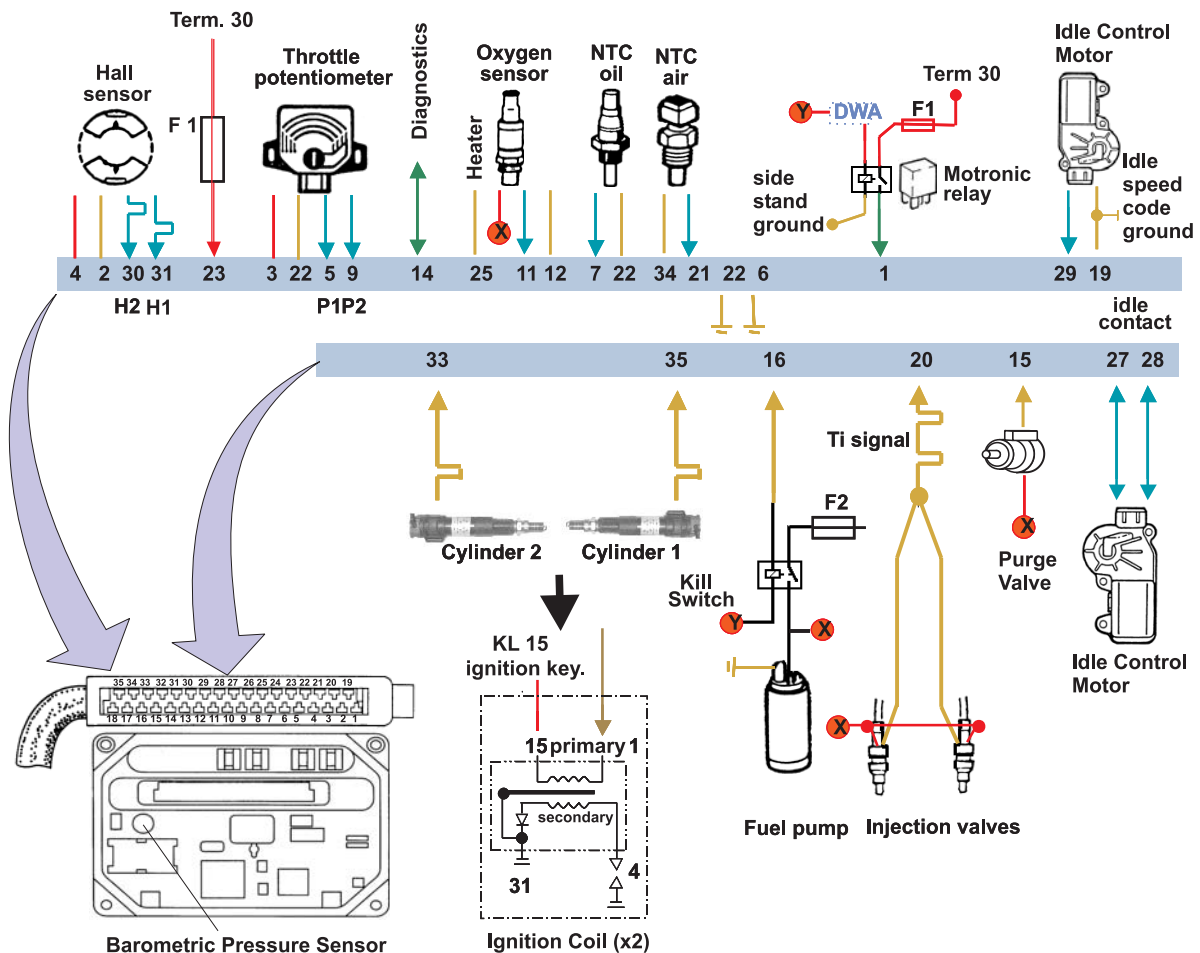
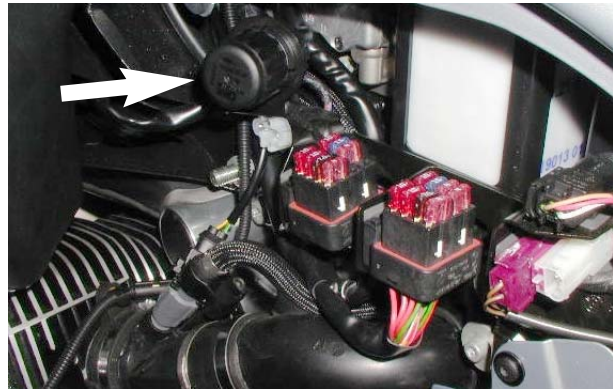
R 1200 CL

Digital Motor Electronics MA 2.4

The Motronic is equipped with a fuel cut-off. If throttle valves are closed, an engine temperature is more than 70° C or an engine speed exceeds 1800 rpm, then the activation of the fuel injectors is interrupted. When the engine speed reduces to 1400 RPM or below, the injectors are reactivated.

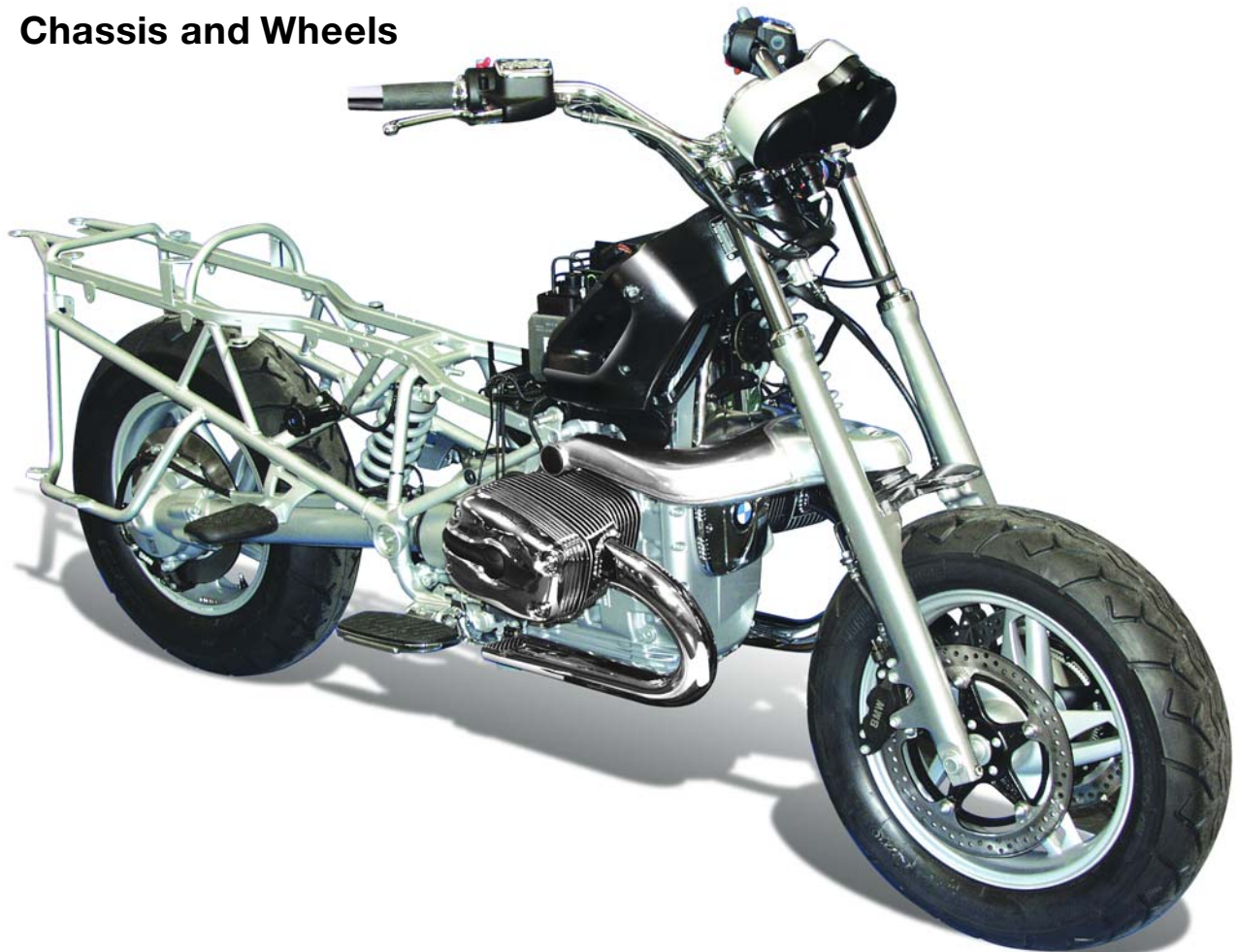
The failure of a sensor signal (with the exception of Hall sensors) is detected by the control module through electrical monitoring and plausibility. When this happens, a fault is set for the failed input signal and alternate default value is used allowing the motorcycle to continue running.

MA 2.4 communicates with BMW diagnostic equipment (MoDiTeC / GT 1) via the 10 pin diagnostic plug located under the left side chrome cover.



R 1200 CL

Chassis and Wheels



The R 1200 CL has a wheelbase of 1641mm, which is actually 9mm shorter than the Classic. The rake angle and trail measurement have also been changed.

The chassis geometry was re-considered for the R 1200 CL due to the wider tires and the different character required for a Luxury Cruiser. The angles were a calculated decision, resulting in both appearance and functionality. These changes necessitated the following new components specifically made for this bike;

- 30 mm longer telelever control arm,
- wider chrome plated upper fork bridge,
- wider lower fork brace with repositioned ball joint mounting socket

Additionally, the attachment points for the brake calipers had to be modified to comply with the EVO caliper dimensions requiring new stanchion tubes for the front forks.

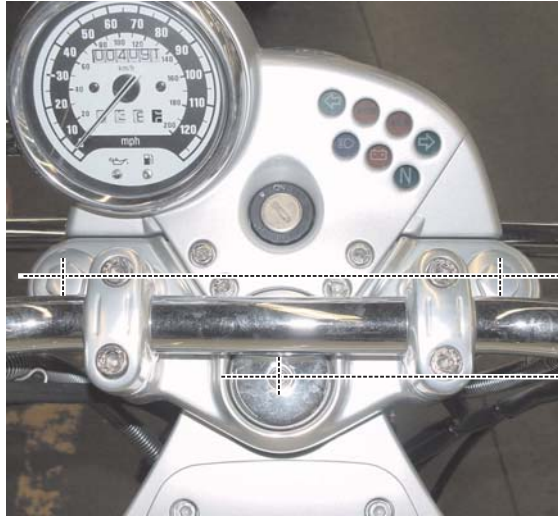
The telelever control arm pivots at the engine mounting location on a continuous hollow shaft, which is held in maintenance-free ball bearings.

The front frame section is made of die cast aluminum, which is the best method for moulding shapes and surfaces. It's firmly attached to the crankcase at four points.

The cast frame provides a mounting point for the new chrome plated, forged aluminum, upper fork bridge. The fork bridge steering bearings are reinforced double-row flute bearings.

R 1200 CL

Chassis and Wheels



R 1200 C



R 1200 CL

Upper Fork Bridge Comparison

To prevent rocking movements in the steering system, the fork tubes are mounted to the newly designed upper fork bridge by tilt decoupled barrel joints.

The fork tubes are mounted 225 mm apart from each other and connected by a new chrome plated, forged aluminum, lower fork brace. It is mounted to the forks by bolts ensuring the rigidity of the front wheel location. The lower fork brace is connected to the 30mm longer longitudinal control arm by the typical Telelever maintenance free ball joint.



R 1200 C



R 1200 CL

Lower Fork Bridge and Telelever Arm Comparison

R 1200 CL

Chassis and Wheels

The travel of the front wheel is damped by a central suspension strut with twin-sleeve damper principle. It provides 144 mm of front suspension travel.

To review the changes in the chassis geometry we will compare the R 1200 C to the CL. But first lets review the basics of chassis geometry.

Rake = The inclined angle that is created by an imaginary line through the steering pivots to the road surface.

Trail = The distance, as measured along the ground, of the point at which the front tire contacts the ground and where the imaginary axis line of the steering pivots would contact the ground.

By itself, the 30mm longer R 1200 CL Telelever changes the rake angle to 56° and increases the wheelbase by the same distance.

However, the new lower fork brace repositions the steering pivot further forward on the fork brace, which moves the forks rearward reducing the overall wheelbase but increases the trail.

Final chassis specifications of R 1200 C vs R 1200 CL:

Rake angle:

C = 60.5°

CL = 56°

Trail measurement:

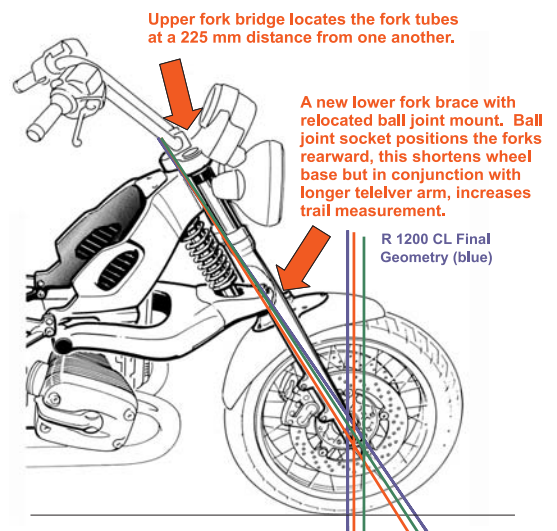
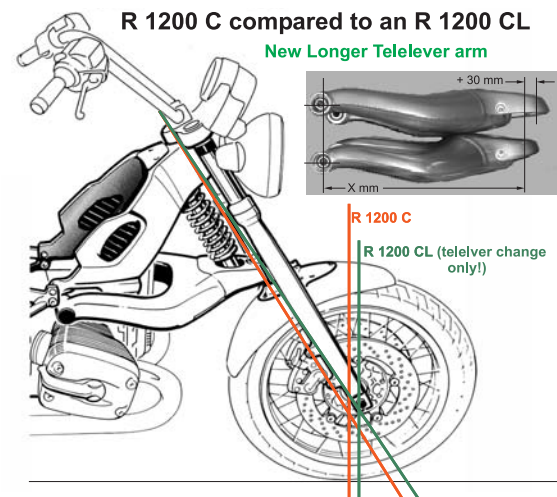
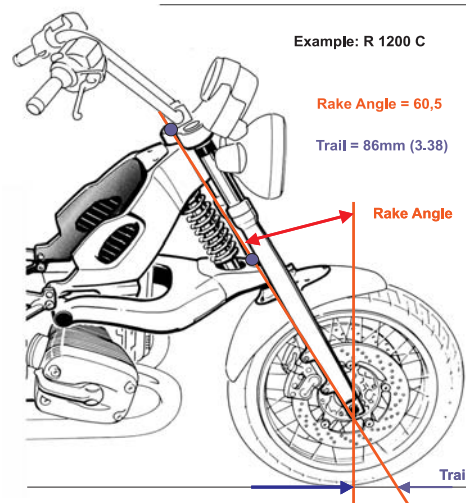
C = 86mm (3.38")

CL = 184mm (7.24")

Wheelbase:

C = 1650 mm (65.0")

CL = 1641 mm (64.61")



R 1200 CL

Chassis and Wheels

The Monolever swing arm is fixed very rigidly – in central cast steel parts – in backlash free taper roller bearings, thereby resulting in a short, rigid connection between the bearing of the rear wheel swing arm and the longitudinal control arm.

The welded monolever consists of extremely strong molded steel parts. The monolever has been structurally reinforced in the area of the spring strut support and the extruded sections.

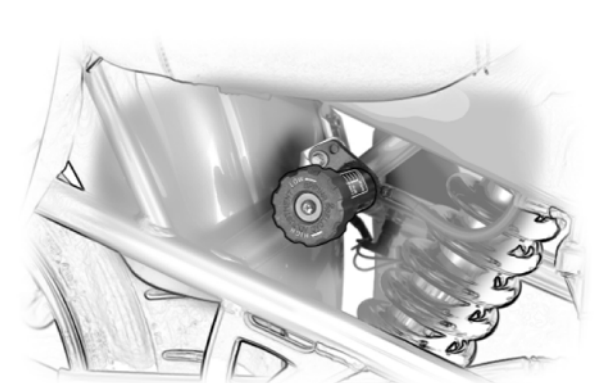
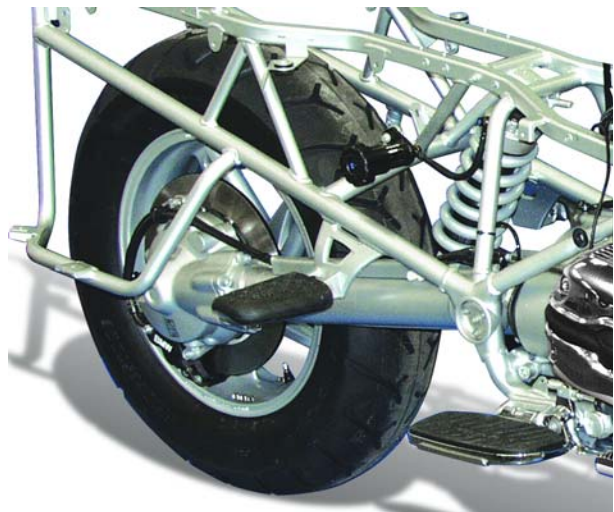
The swing arm is 612 mm long which has remained the same length in order to realize the seat position behind the rear wheel and the classical directional stability of a Cruiser.

The forces of the Monolever spring strut are absorbed above the swinging arm bearing, which are distributed optimally in the tension struts of the frame triangle.

The new spring strut is equipped with a single sleeve damper and the pre-load of the spring can be easily adjusted hydraulically with a hand adjustment knob.

The rear wheel has 120 mm of travel. The damper system is identified as W.A.D., which is a german acronym for travel related dampening.

This principle works in the compression stroke with a needle valve that closes off a fluid dampening section within the strut to increase damping when travel movement comes close to the end limits.



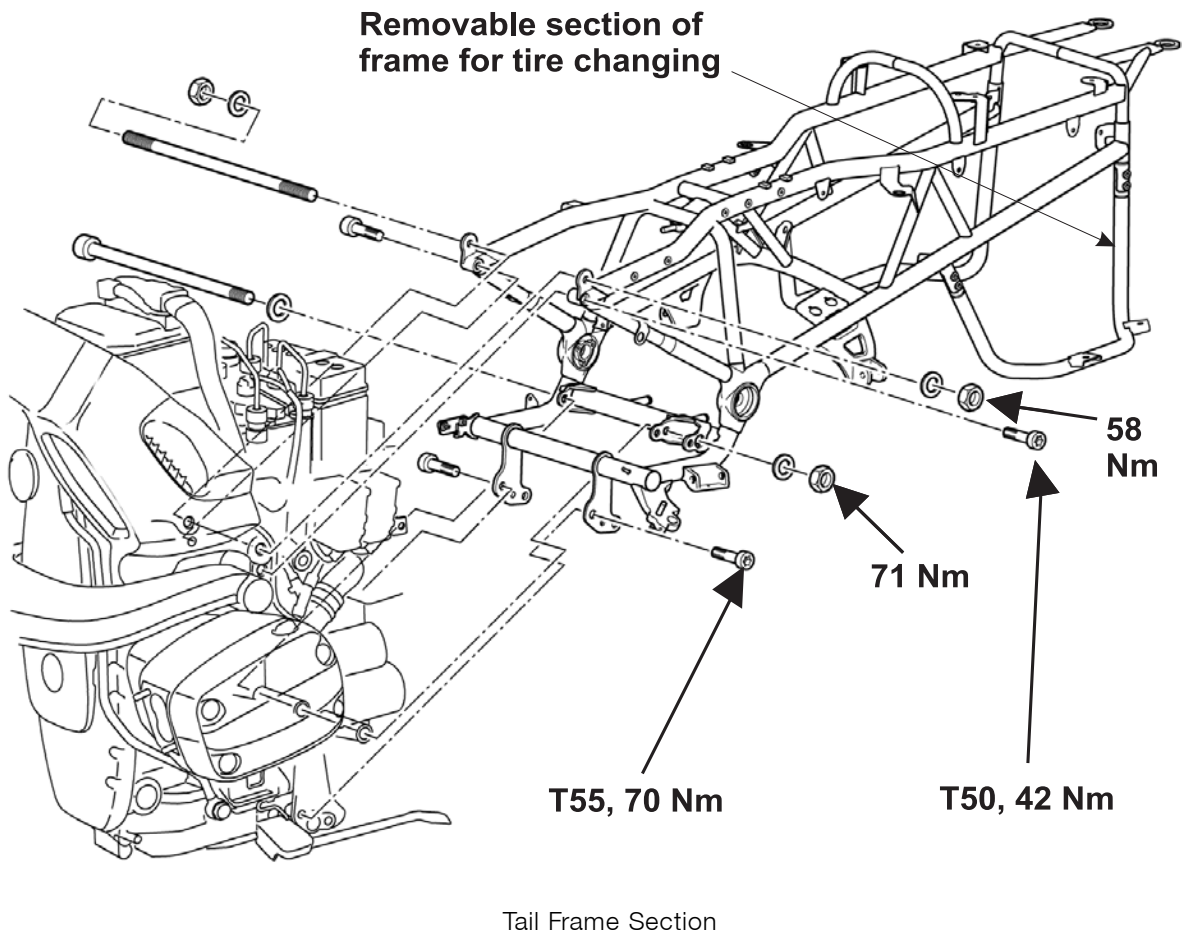
R 1200 CL

Chassis and Wheels

The rear frame section is welded together by a combination of tubular, cast and forged steel components. The frame is then paint finish coated.

Cast steel bearings for supporting the foot pegs of the rider and pillion are welded to the frame. They are attached to the engine in the area of the longitudinal control arm bearing, the oil pan and on the considerably reinforced light metal-gearbox case.

Due to the longer seat system and the addition of the top case, the rear frame is lengthened accordingly. The side cases are mounted to tubular frame extensions providing a screw mounting point. The left side extension is removable for tire service by removing four screws.



Front Wheel

R 1200 CL

Chassis and Wheels

The new die-cast aluminum wheels with their five double spokes radiate dynamic performance and are visually supported by the powerful large tires.

The rear wheel measures 4.0 x 15 with tire measuring 170/80 VR 15 for good traction, high mileage and ride comfort.

The wheel is screwed directly to the rear axle with four wheel-bolts enabling the wheel to be removed easily once the side case is removed or with a service lift with a removable floor.

The front wheel measures 3.5 x 16 with tire measuring 150/80 VR 16 for the best braking efficiency and comfort. The front wheel axle is also new. It's length has been increased due to the wider spacing.

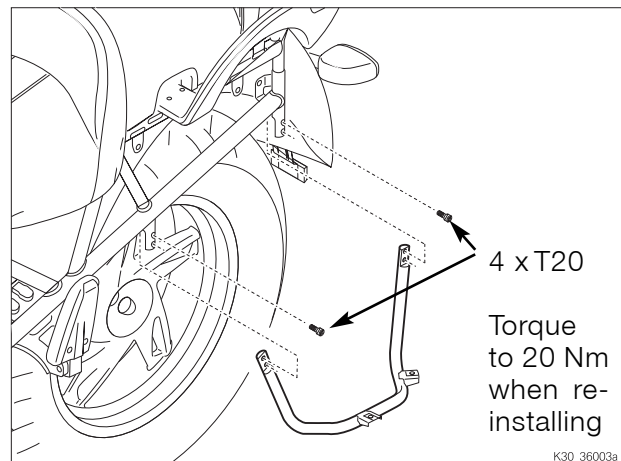
Removal of the rear wheel is simplified by the use of the accessory service stand jack and a detachable rear frame that is accessible from behind the left side saddle bag.

The rear wheel can be removed without removing the side frame if the motorcycle is on a service lift with a removal rear wheel floor.

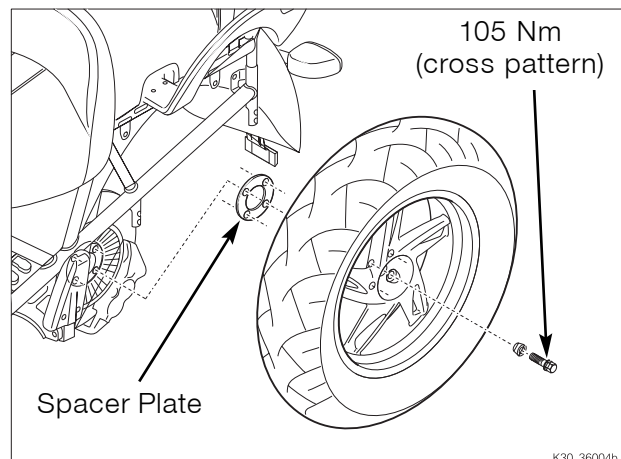
- Detach the case 2 x T25 + 2 x T30
- Case mount (frame section) 4 x T40
- Rear wheel bolt 4 x M12 x 60.
- Note the intermediate spacer.



Front & Rear Wheels



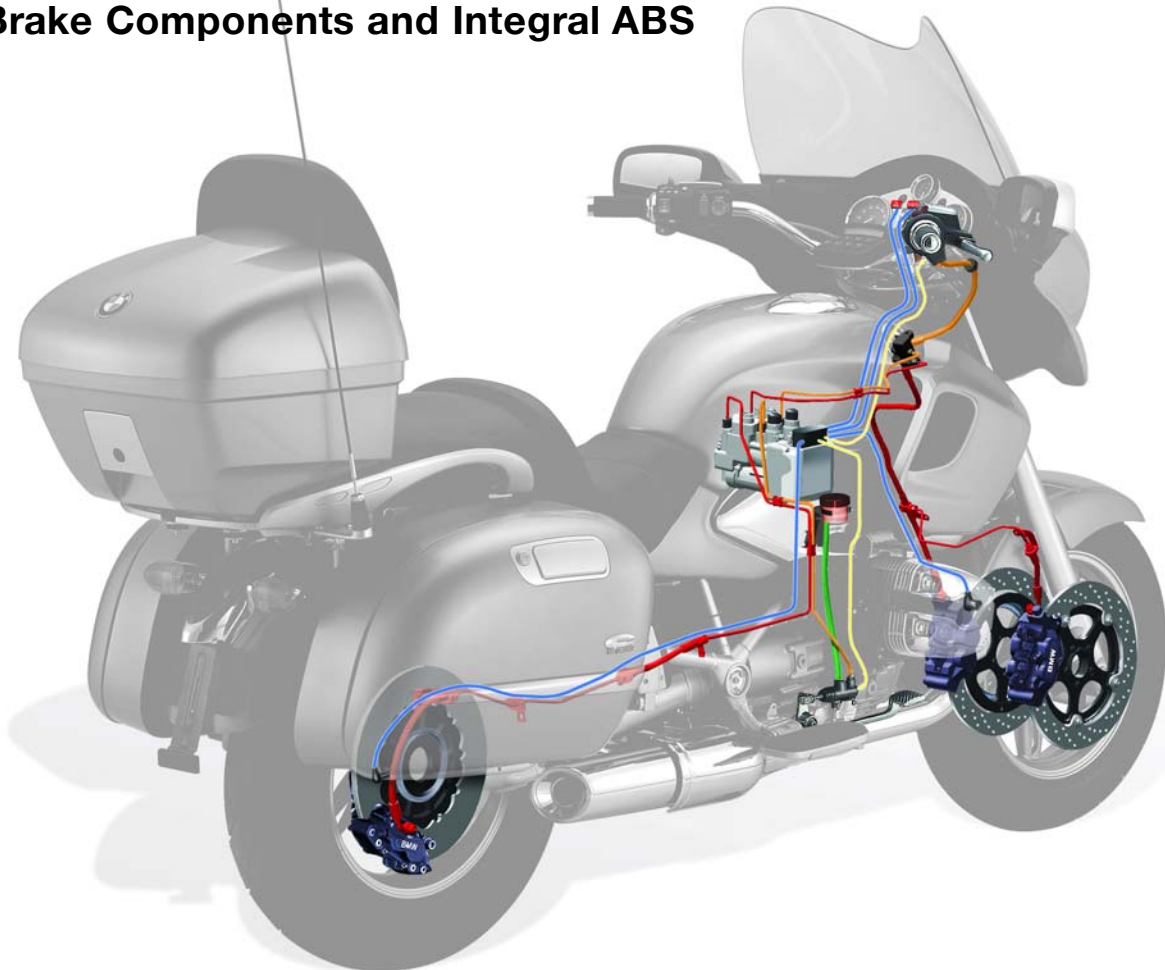
Frame Case Mount Removal/Installation



Rear Wheel Removal/Installation

R 1200 CL

Brake Components and Integral ABS



The brake system has been designed to meet the demands of a touring Cruiser. The EVO brake and fully integral ABS are used for the first time on the R 1200 C model.

The large 305mm floating brake discs made of high-grade steel are used on the front wheel. The bearings are connected directly to the hub of the front wheel by means of a secondary support and five screws. Drilled discs enhance the brake reaction in wet conditions and increase the self-cleaning effect.

The two hydraulically operated 4-piston calipers are designed as fixed calipers providing angular wear compensation due to the offset piston diameters. The piston diameters are 36 or 32 mm.

The sintered metal brake pads have a brake pad surface of 86 cm². The rear wheel brake is a hydraulically operated single disc brake with 4-piston caliper and organic brake pads. It has been taken over essentially from the K 1200 LT model.

The floating high-grade steel brake disc screwed to the ring gear of the rear axle has retained the diameter of 285 mm. The thickness of the disc has been increased to 7 mm.

A visual wear indicator is mounted on the steel support of the outer brake pad to make it easy to check the available pad thickness as the brakes where and as an indicator that they require replacement.

R 1200 CL

Brake Components and Integral ABS

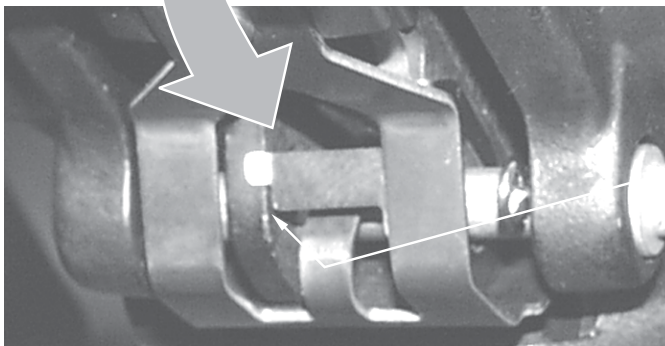


Four-piston fixed disc-brake caliper, diameter 34/32 mm, with organic brake pads,

Floating brake discs: **NEW!** diameter 285 mm, thickness 7 mm, asymmetrical assembled with 7 bolts, new bolt pattern designed to minimise vibration and brake grinding.

Torque brake disc to rear wheel drive: 21 Nm + Loctite 270

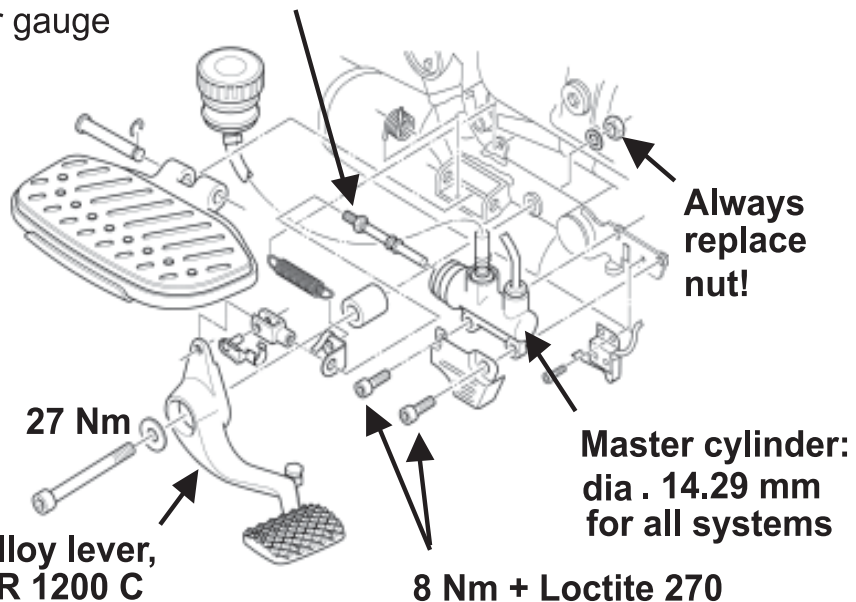
Caliper mount bolts: 40 Nm



New!
Brake Pad Wear Indicator

When the tab of the indicator touches the pad on the other side, replace the pads.

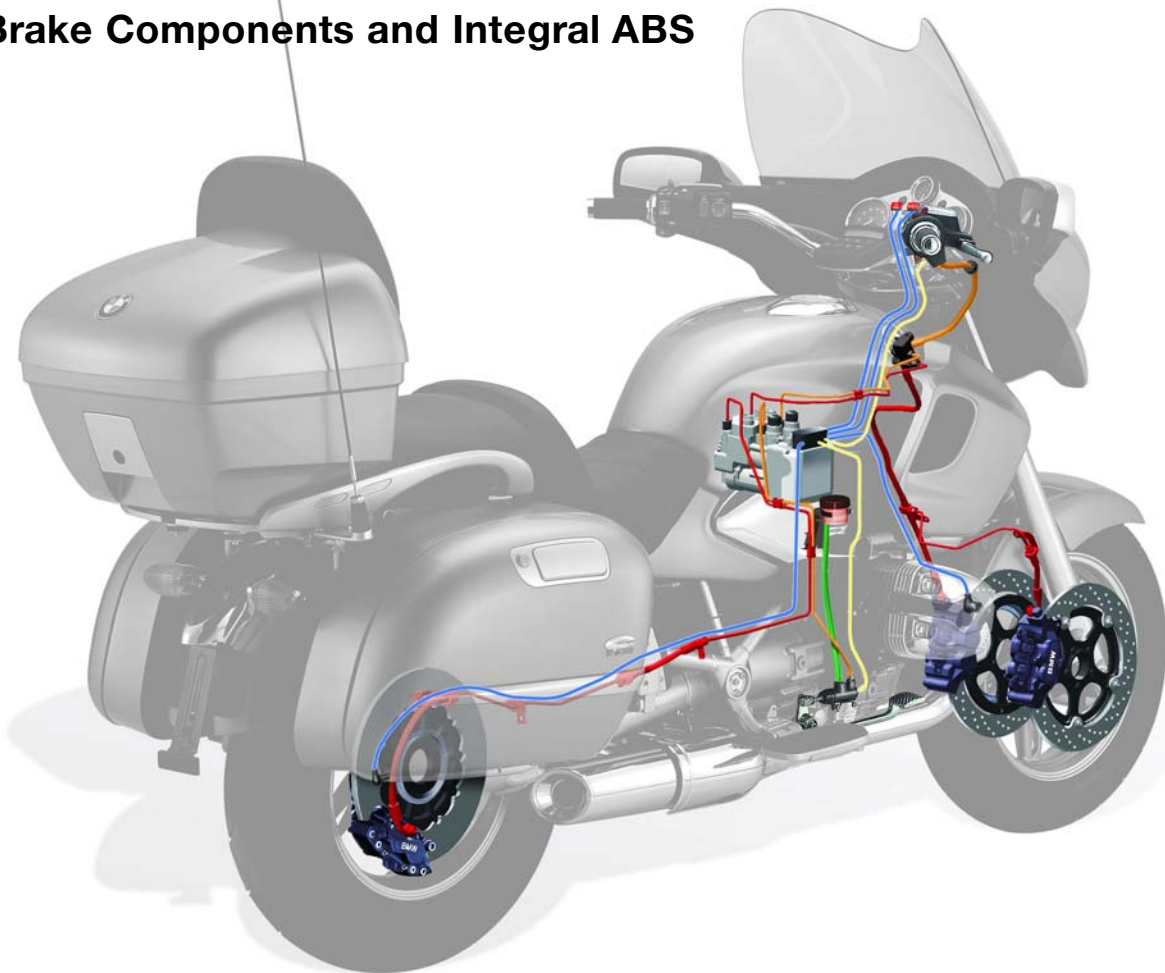
Brake piston tolerance 0.5 to 1.0 mm, Check at brake pedal stop with 0.2 mm feeler gauge



Forged light alloy lever, common part R 1200 C

R 1200 CL

Brake Components and Integral ABS



The **BMW fully integral ABS** enables the braking efficiency to be distributed via electronic control ensuring optimal braking power is always available on each wheel. At the same time, influencing factors such as dynamic wheel load distribution, load and temperature of the brakes are taken into account. In addition, the system includes the antilock function so that a reliable braking function is available on the motorcycle.

The system's integrated brake booster keeps the operating force of the brake lever low for the rider. With the fully integral variant, the front and rear control circuits are connected by integral pistons in the pressure modulator that the front and rear wheel brakes are activated automatically when the hand lever or rear pedal are operated.

The fully integral pressure modulator of the R 1200 CL is installed beneath the tank. The brake fluid reservoirs for the front and rear wheel circuit are located in the pressure modulator as on all R series bikes. The brake fluid reservoir for the front control circuit is located in the hand lever master cylinder. The rear control circuit reservoir is connected to the brake pedal master cylinder via a feed line (green line in illustration).

As with all versions of the Integral ABS, the modulator control valves are designed to provide the residual braking function, which connects the control circuits and wheel circuits via piston movement (hydraulic over hydraulic control). This safety feature ensures adequate brake function if the ignition is turned off or if the Integral ABS is defective.

R 1200 CL

Brake Components and Integral ABS

The other lines run as follows:

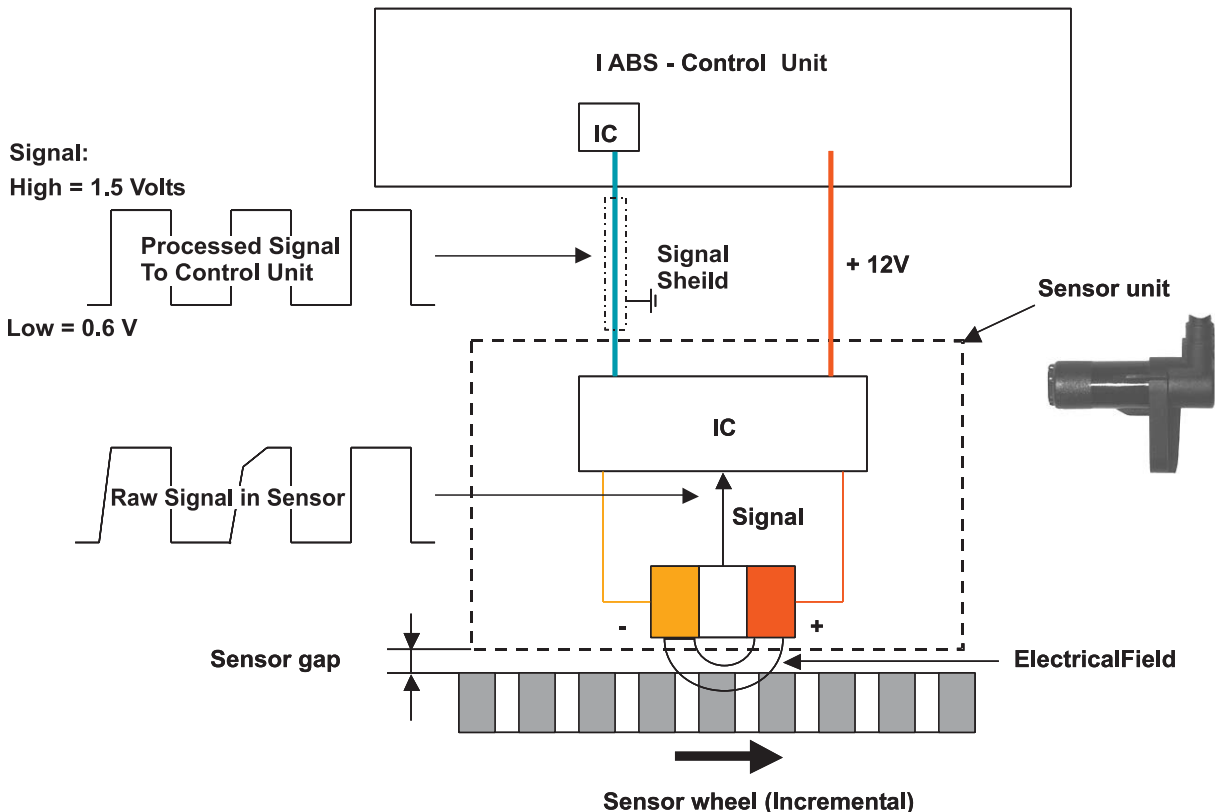
- The orange line (actuating pressure) and the yellow line (brake actuator signal) run from the handbrake lever to the pressure modulator.
- The orange line (actuating pressure) and the yellow line (brake actuator signal) run from the foot brake lever to the pressure modulator. Furthermore, the green line comes from the brake fluid reservoir to the foot brake cylinder.
- The red lines run from the pressure modulator (wheel circuit) to the front wheel and rear wheel brake calipers.
- The sensor signals (blue) come from the front and rear wheel to the controller.
- The warning lights in the cockpit are controlled via the blue lines.

The new light weight speed sensor trigger rings in combination with the active wheel speed sensors recognize wheel locking tendencies much faster than the previous analog inductive sensors.

The speed sensor signals are input to the Integral ABS control module for continual processing and are also output to provide a speedometer signal for systems requiring accurate speed information such as the cruise control and speedometer.

The system also monitors the function of the brake light and rear light and indicates their failure when necessary. If a rear light is defective, the dimmed brake light takes over its function.

The general warning light and an ABS warning light are located in the cockpit for indicating possible defects or faults.



R 1200 CL

Bodywork



The front fairing integrated headlights give this motorcycle a very distinctive visual appeal.

The fairing integrated mirrors (which also house the direction indicator lights), and the permanently fixed windshield, the 3-part fairing harmoniously combines Cruiser and tourer features, providing a new standard for luxury cruising.

The tank and side trim panel parts are distinctive with the ergonomics of the knee angle and the aerodynamically optimized air outlets of the oil coolers which provide additional leg protection.

These combined features result in a casual, pleasant seating position, the anatomy of the knee angle being particularly distinguished in the area of the air filter cover. The painted wide rear fender emphasizes the bike's stretched lines.

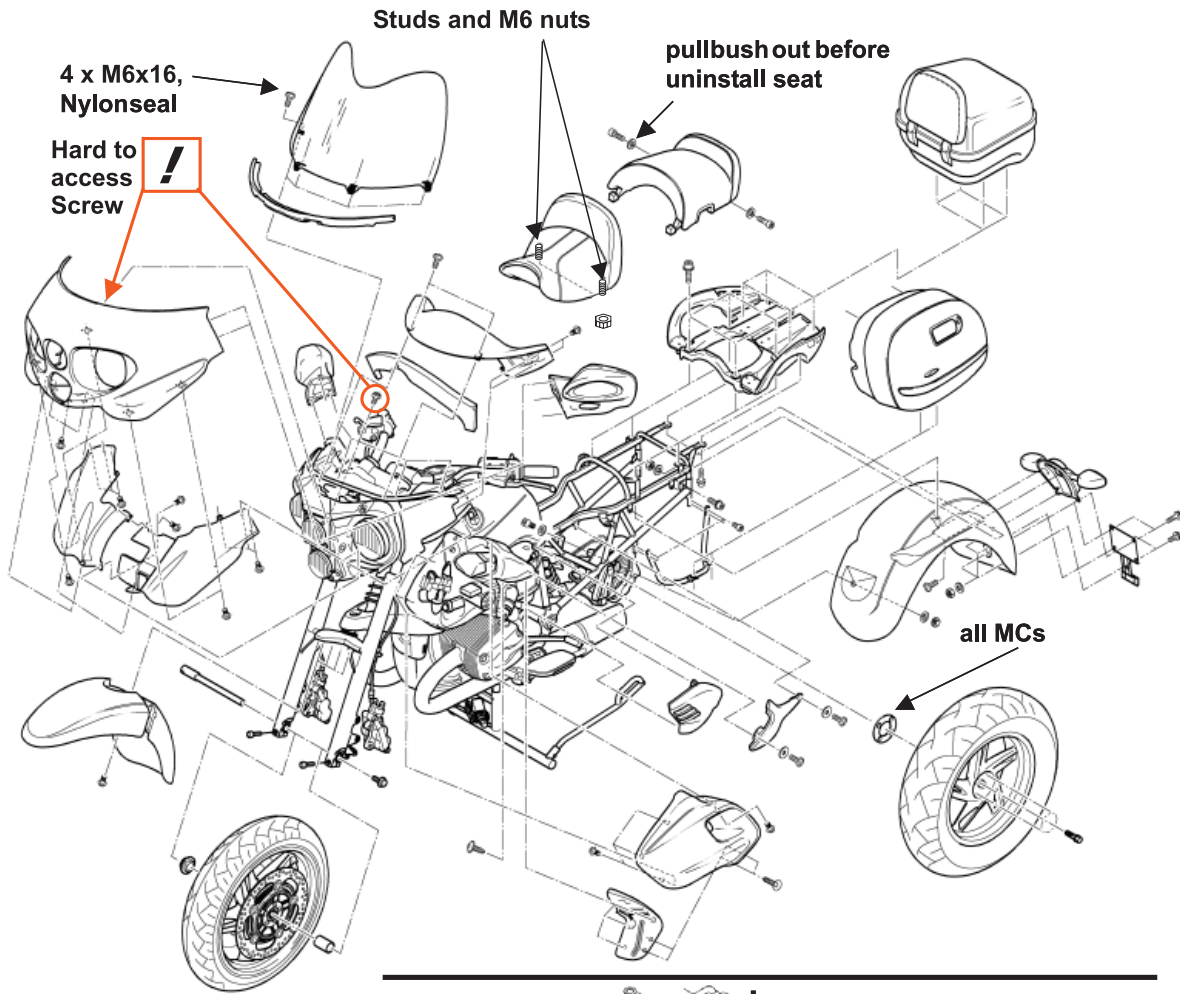
The front fairing attached to the handlebars protects effectively against disturbing wind pressure and turbulence. Transparent wind guide vanes attached to the fairing ensure that additional water and dirt is deflected mainly from the passenger.

R 1200 CL

Bodywork

There are two windshield versions; low and high. The US market will receive the low version as standard equipment. The high version can be purchased as an accessory. Both types are distinctive thanks to their functional design, which is cut lower in a curved arch in the rider's field of vision.

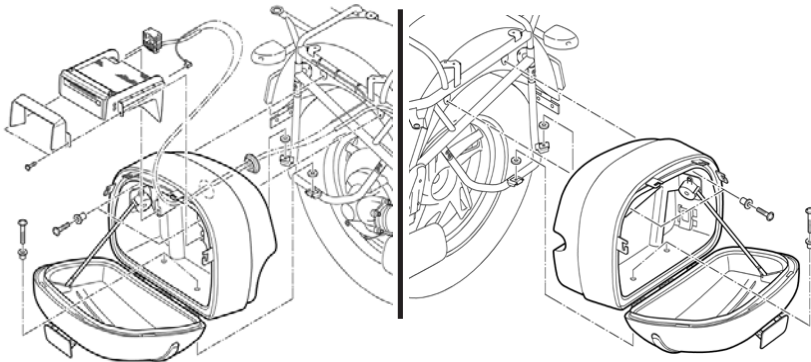
The advantage is not only an enhanced field of vision in wet and dusty conditions. But at high speeds in particular, the ingenious recess improves the protection in the area of the shoulder and provides added wind protection for the passenger.



Mounting location for optional accessory installed BC V.O.I.C.E. when available.



Radio/CD Player Cooling Fan - Do not block intake air grill from fan when loading case!



R 1200 CL

Bodywork

The mirror housings are designed as aerodynamic hand protectors. They are ventilated at the rear in order to prevent turbulence from forming on the handlebar grips. The rear-view mirrors can be quickly removed from the fairing by means ball sockets (ie: K 1200 LT, R 1150 RT).

The fuel tank trim panels protect the rider's legs against the air stream and have integrated rain deflectors built in by design (edges flair outward).

The panels are hollow plastic covers that attach to sheet steel carriers by screws. The space between the colored covers and steel carries houses a portion of the motorcycle's electronic equipment (left side: optional AntiTheft System, right side: cruise control module). The side trim panels do not have to be removed if the fuel tank is removed.

The handlebars are made from a 3.5 mm thick steel tube and have a diameter of 28mm. The surface is coated with hard chrome. Handlebar weights are fitted at the ends of the handlebars for damping vibration.

Perfect seating comfort includes the feet too: Running boards made of forged aluminum and vibration decoupled for the rider by rubber bearings and wide passenger foot rests derived from the K 1200 LT guarantee good foothold, and combined with the pleasant knee angle, ensure relaxed riding.

The seats include optional heating elements (standard on the CLC). The boldly designed border of the upper passenger supporting straps makes the luggage bridge a real eye catcher.

A special feature of the side cases is the one-hand closing concept. After pressing the lock cylinder in, the flush finger lift lever springs up to unlatch the cover. When closed, the case cover latching system evenly compresses the lid into the seal by four integrated tension rods.

A same key lock set is equipped with the motorcycle allowing a single key to operate the ignition lock/steering lock, filler cap and luggage system.

The luggage system is integrated into the overall appearance of the R 1200 CL. The top case with a volume of 45 litres providing plenty of space for luggage. The central handle easily operates the latch and locking system as on the K 1200 LT. The combined side case volume of approximately 63 litres brings the total lockable storage capacity of the R 1200 CL to 108 litres.

Case Capacities:

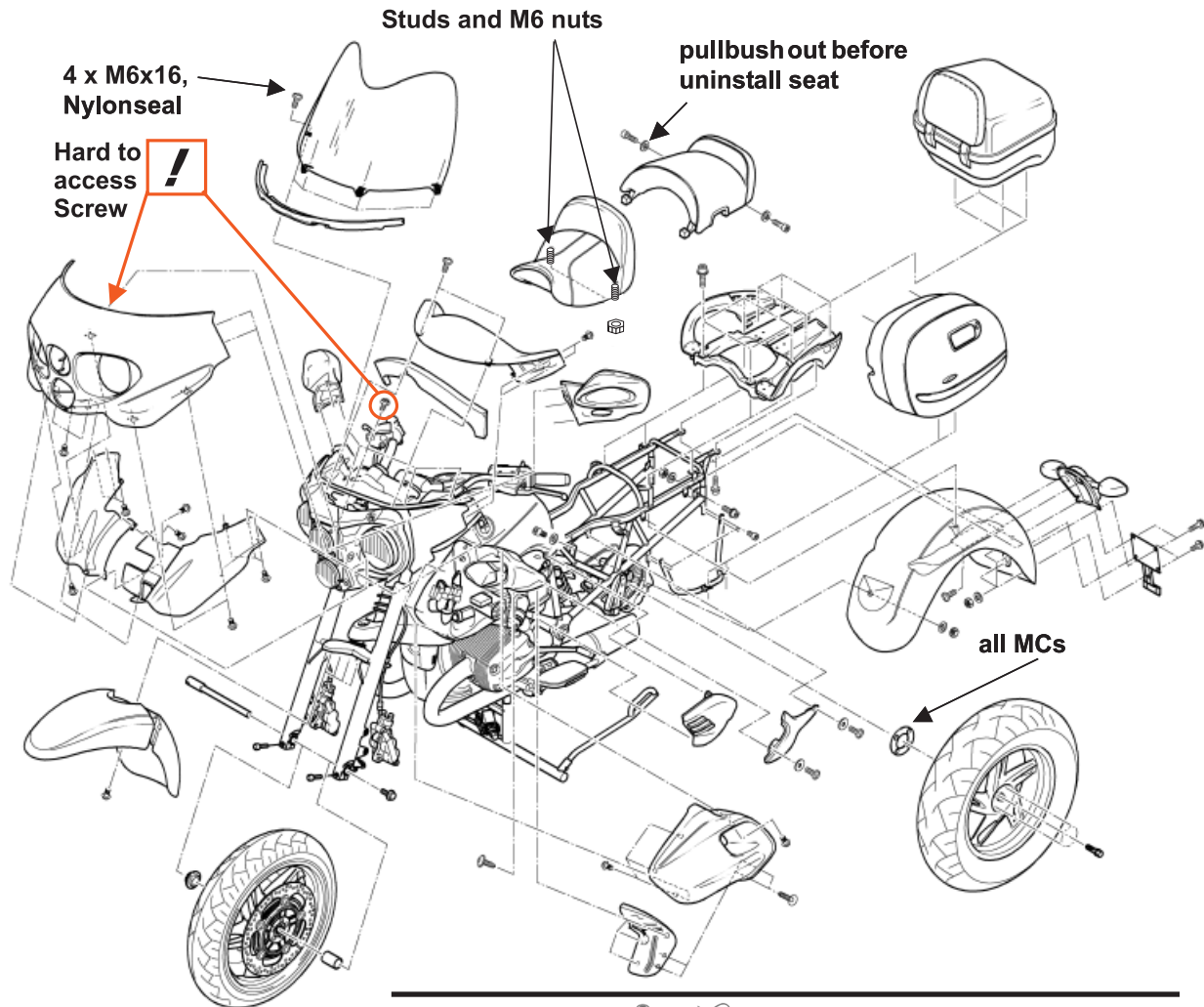
Top Case = 45 liter (1.59 cu ft)

Left Case = 33 liters (1.16 cu ft)

Right Case = 30 liters (1.06 cu ft)

R 1200 CL

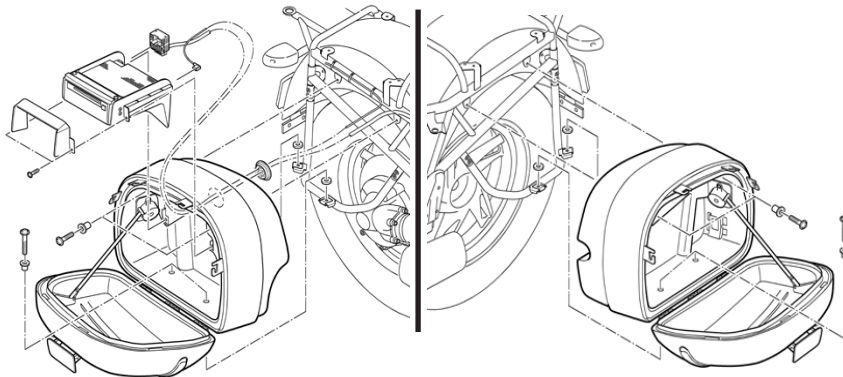
Bodywork



Mounting location for optional accessory installed BC V.O.I.C.E. when available.



Radio/CD Player Cooling Fan - Do not block intake air grill from fan when loading case!



R 1200 CL

Headlights



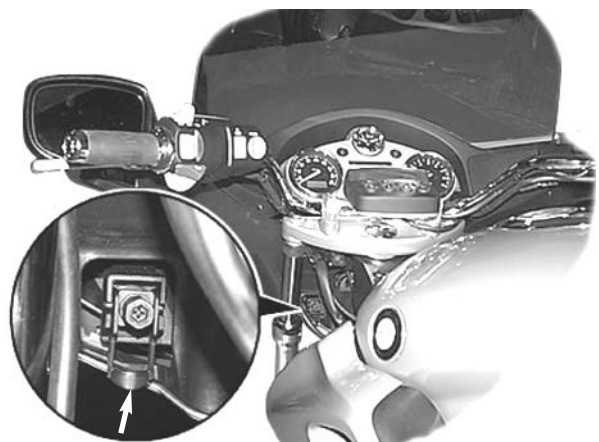
The four round headlights have been integrated in a new arrangement never before used on a BMW Motorcycle. The headlamps are mounted to an adjustable support made of a synthetic material.

They consist of two larger low beam headlights and two smaller high beam headlights positioned one on top of the other.

The low beam headlights work with an H4-light and can be readjusted from the front. The high beam headlights with H1-lights enable wide illumination of the road with their scattered light.

The park lamps with 4-watt conventional bulbs are installed in the low beam headlights. All electric light bulbs can be replaced from the outside after removing each inner trim.

The beam distance can be adjusted to compensate for two up riding with the spring-loaded lever located on left side of fairing rear surface. For normal position, lever is up, to adjust flip down (as shown).



Load compensation light beam adjustment lever

R 1200 CL

Headlights

Lever Positions:

Horizontal: normal position (shown); Always adjust base setting of headlights with lever in this position.

Flipped down: position for 2 up with luggage (shown on previous page).

The adjustment screw found in the center of the load adjustment lever is used to establish the base headlight position of the total headlamp assembly. This screw simultaneously adjusts the vertical position of all four headlights.



Base setting adjustment screw

R 1200 CL

Cockpit and Instruments



The central component in the cockpit is the instrument cluster with its three round gauges and the centrally located ignition lock.

The instruments are housed in an aluminum cockpit-support that is mounted on the fork brace. The cover glass and functionally designed analog instruments feature chrome rings. The electronic tachometer is large and easily read. The analog clock, is mounted high and centered always in the rider's field of vision. The time can be adjusted easily by using the large rubber pushbutton located on the right hand side of the clock.

The speedometer's integrated digital LCD display includes a mileage meter that can be reset with the left reset button. The mileage indicator retains the setting selected prior to switching off the ignition, i.e. odometer or trip meter.

The warning lamps and signal indicators in the three centrally located rows are LEDs.

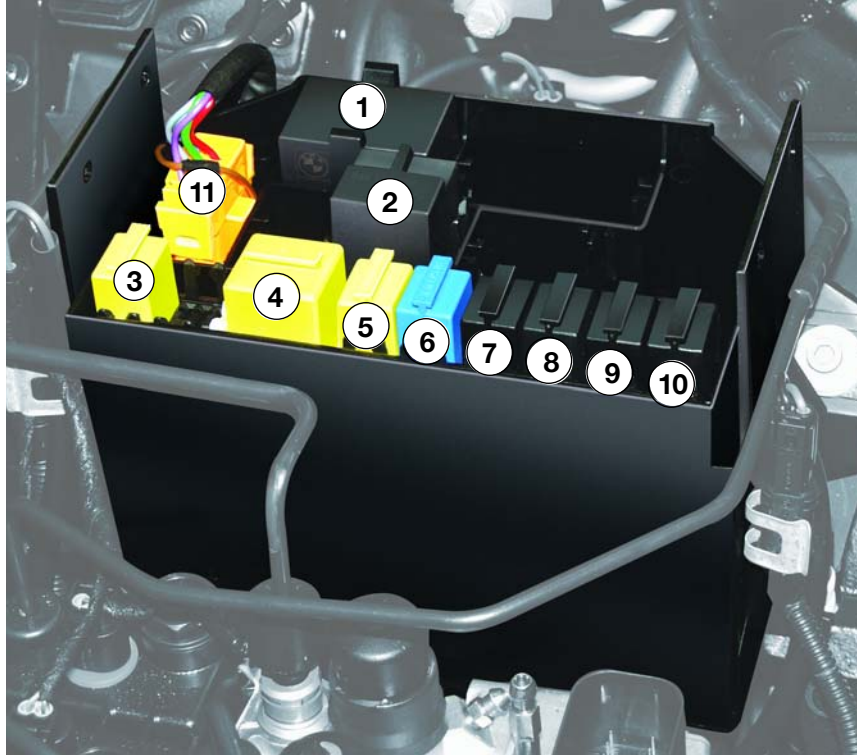
- Top: green turn signals, red engine oil pressure and battery charge indicators.
- Middle: Two red ABS, green neutral and round red Anti Theft
- Bottom: Yellow reserve fuel indicator that flashes when the level reaches 4 liters, a blue high beam and the yellow cruise control indicators

The clutch and brake levers are adjustable in order to ensure better ergonomics. There is a two stage heated-grip flip switch (50 and 100%) on the right side combination switch.



R 1200 CL

Electrical Components



Electrical components:

- 1 Blinker/Flasher module
- 2 Fuel level indicator dampening module
- 3 High beam relay (yellow)
- 4 Starter relay
- 5 Low beam relay (yellow)
- 6 ABS warning relay
- 7 Motronic relay
- 8 Fuel pump relay
- 9 Horn relay
- 10 Load Shed Relay
- 11 Terminal connection for Ignition and light switch

Not pictured - located under starter relay is starting system diode

The neatly arranged electrical system is located under the fuel tank and is the basis for operating the electrical components. In addition to the distribution system technology and high quality connectors, the new wiring harness provides the possibility of options such as the Anti Theft System to simply plug into wiring provisions.

The Motronic control module is located above the central electrical control box. Different electrical accessories can be connected to the wiring harness via the pre-installed special accessory-terminal.

The electronic speedometer is supplied with a processed speed signal from the Integral ABS control module. The turn signal indicator relay is also fed with the speed signal, which ensures that the direction indicator is reset after approx. 210 m and/or 11 seconds.

The light-emitting diode for the reserve fuel is controlled via an electronic module, which has a time delay of 17 seconds.

The alternator's maximum output is 840 Watt, of which 300 watts is available at engine idle speed. The compact battery has a capacity of 19 Ah.

Cranking the engine is accomplished with an 1.1-kW planetary gear starter. Cranking is only possible when the gear box is in neutral or in gear with the clutch lever pulled in. Only then is there voltage on the coil of the ignition relay via the clutch lever and gear lever. Starting is only possible after the prop stand has been folded in. This is a typical safety feature of BMW. If a gear change is made when the side prop is folded out, then the Motronic relay is switched off.

Two easily accessible fuse boxes with new mini fuses are arranged behind the left air filter cover.

R 1200 CL

Cruise Control



With the introduction of the R 1200 CL, cruise control is equipped for the first time on a BMW boxer. It is ideally suited for a luxury Cruiser, because it allows particularly relaxed riding both on inter-states as well as secondary roads.

The system electronics is carry over from the K 1200 LT. It is operated from the left combination switch. The system is turned on with the slide switch which also unlocks Set/ Resume pushbutton.

A function light in the left combination switch also indicates that the system is ready. The SET LED in the central indicator display signals to the rider that the cruise control is activated.

By pressing the pushbutton key in the forward direction, the current speed is stored in the control unit and kept adjusted to the accelerator cable by the cruise control. This is approx. 45 to 145 Km/h, which corresponds to 2/3 of the throttle valve opening.

This is reset in the control unit by a stepper motor via an electromagnetic clutch and roll band. Thus, a fine adjustment of the speed is also possible.



This is done in intervals of approx. 1.6 km/h by tipping the pushbutton.

- In the direction of SET: accelerate
- In the direction of RES: decelerate

If the SET function is deactivated, the last speed saved in the controller can be retrieved and set by pressing the pushbutton key in the direction of RES.

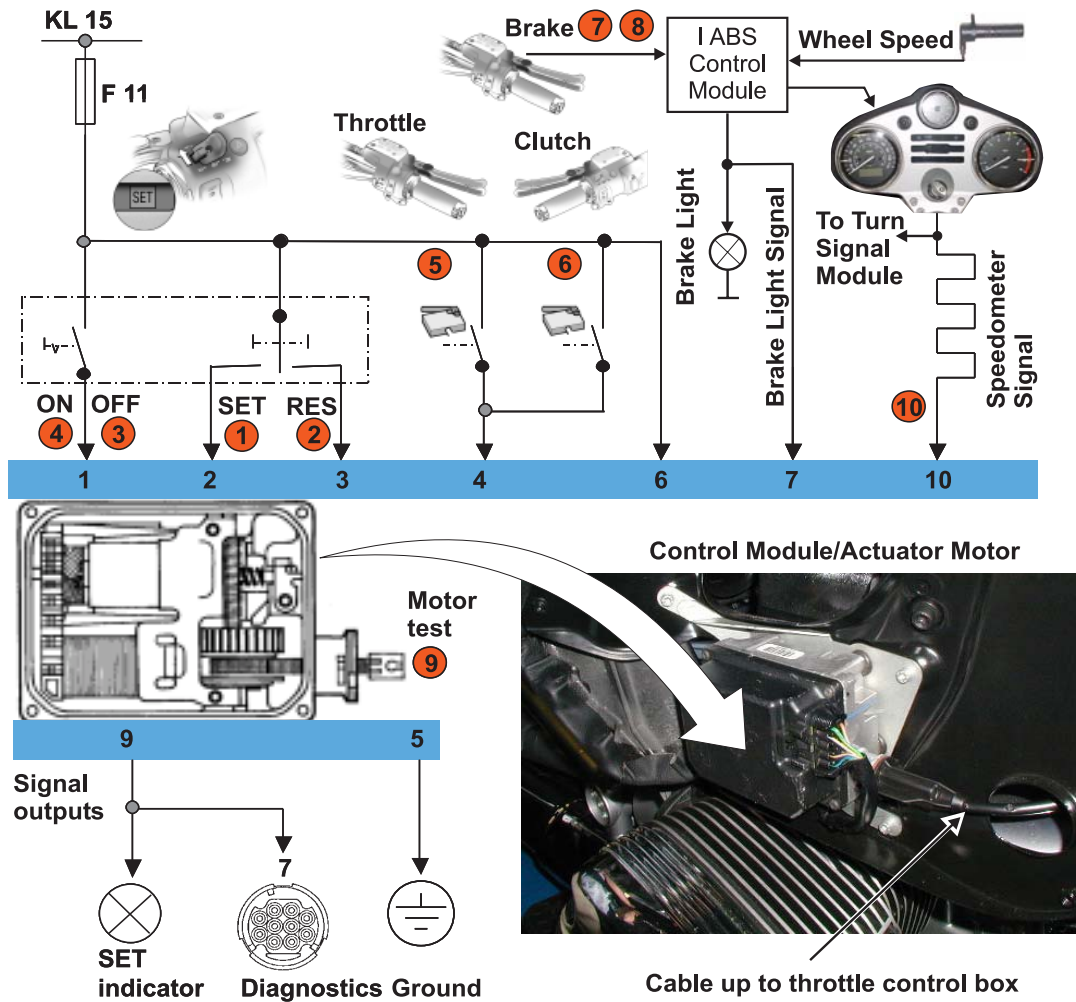
The following operations cause the electromagnetic clutch to be switched off immediately thereby deactivating the cruise control:

- Operating the brake or clutch
- Turning back the throttle twist grip
- Accelerating to more than 160 km/h
- Setting the slide switch to OFF

Cruise Control System Test: The cruise control system does not have a fault code memory. It does however convey functional confirmation through control of the SET indicator in the instrument cluster. This is known as the Cruise Control SelfTest which can be done via MoDiTeC or by following the stand alone test on next page.

When the SET indicator fails to change status in a phase of the test, it indicates a circuit problem in that area of the system. Refer to wiring diagram and check circuit(s) and components of circuit.

R 1200 CL



1. With the ignition in the OFF position switch the cruise control switch to ON. Press and hold the cruise control button in the SET position and turn the ignition switch to ON. SET indicator goes ON. When you release the button the SET Indicator in the cluster goes OFF.
2. Press and hold the cruise control button in the RESET position. SET indicator ON. Release button, SET indicator goes OFF.
3. Switch the cruise control switch to OFF position. SET indicator goes ON.
4. Switch the cruise control switch back to ON. SET indicator in the cluster goes OFF.
5. Twist throttle grip back against detent until you feel click of microswitch. SET indicator goes ON. Release throttle grip. SET indicator in the cluster goes OFF.
6. Pull clutch lever in fully. SET Indicator in cluster goes ON. Release, goes OFF.
7. Pull front brake lever. SET indicator in cluster goes ON. Release, goes OFF.
8. Repeat Step 7, but hold for 5 seconds until the SET indicator automatically goes OFF. Then release brake lever and remove hand from throttle.
9. Once brake is released, the cruise control module activates the motor. Listen for a click.
10. Rotate the rear wheel to generate a speed signal; SET indicator in cluster blinks Flashes ON and OFF. (Roll motor-cycle on shop floor)

Switch Ignition OFF, end of Test.

R 1200 CL

Cruise Control

The R 1200 CL uses a new cable control box to converge the operation of the throttle from either the opener/closer cables of the throttle grip or the control cable from the cruise control actuator.

The box is located behind the fairing and headlight assembly both of which require removal to access. The box interconnects four cables with two pulleys. It also contains a microswitch that signals the cruise control module when the throttle is turned in the close direction to cancel cruise function.

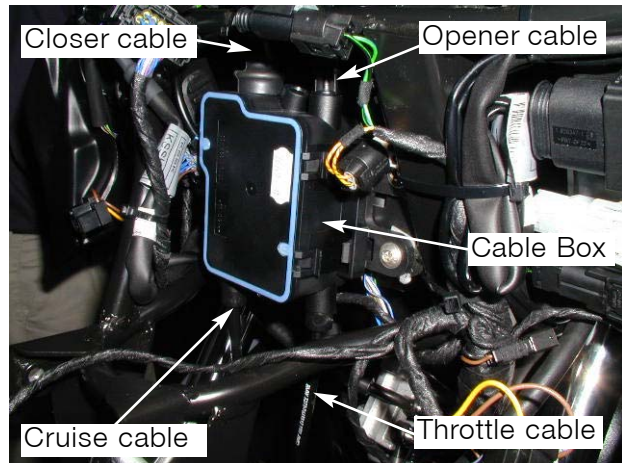
The spring tensioned pulleys rotate on a shared axis. The lower pulley is attached to the opener cable, the closer cable and the throttle cable. The upper pulley is connected to the cruise control cable.

The pulleys rotate freely from one another when the throttle is operated from the grip. In this function, the twist grip pulls the opener cable which simultaneously pulls the throttle cable at the lower pulley.

When the cruise control actuator pulls the cruise cable, the upper pulley rotates. A pin on the upper pulley engages the lower pulley and simultaneously operates the throttle.

The pin on the upper pulley and the slot on the lower pulley are keyed to allow full grip control to override the cruise control function. When the twist grip is turned in the opposite direction the closer cable is tensioned which activates the closer switch, signalling the cruise control to deactivate if currently active.

There are four adjustment points on the cables to adjust cable play. They are at the twist grip and at the cable unions under the fairing just forward of the spring damper.



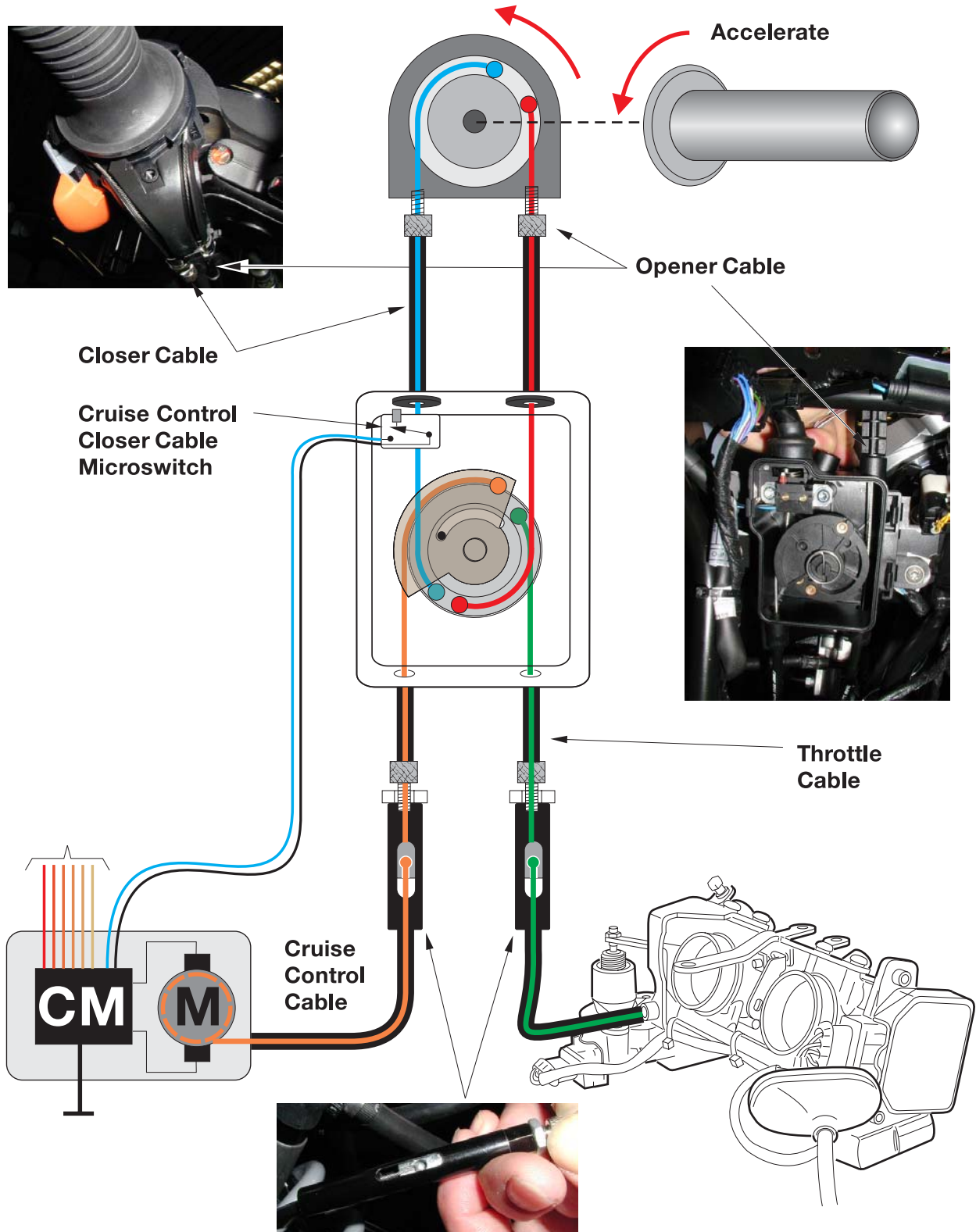
Cable box location



Cable Box internal view

R 1200 CL

Cruise Control



R 1200 CL

Sound and Communication System



The R 1200 CLC is equipped with the Stereo Radio with Single Player CD as standard equipment. The Base R 1200 CL is prewired to accept the equipment as an accessory.

The system consists of the combined radio electronics/single CD player located in the right side case, the radio controller on the left hand handlebar, and the centrally mounted display/control panel. The radio unit with RDS and a scan-function.

The output stages for the loudspeakers can be controlled separately, enabling the sound to be distributed individually via the balance and fader.

The two standard 20-watt loudspeaker units each consist of a broad-band loudspeaker. With regard to the best sound quality, these are contained in enclosed boxes with the same volume.

The sound system mounted on the handlebar clamp in the rider's field of vision can be switched on and off in the central control panel with a digital display.

All functions are selected via illuminated buttons. The rider can easily select the volume, radio stations, station finding, mute-function and radio traffic service by operating the standard remote control on the left grip control.

The station finding can be operated manually or automatically with two levels of sensitivity. The scan-function searches for the next station or title and plays it for ten seconds. The volume can be reduced by 20 dB with the mute-function. The CD-drive is operated electronically and can be used for normal audio CDs.

R 1200 CL

Sound and Communication System

The right side case also includes a cooling fan system for the electronics. The fan runs continuously whenever the Radio/CD is switched on. Make sure nothing obstructs the intake air grill around the fan when loading the right side case.

A practical extension to the sound system is the newly developed BC-Voice (onboard communication system) available as a special accessory. The VOICE system module mounts beneath the radio, but is controlled by the radio control panel due to interconnection of the two systems.

The connection terminals for the mobile telephone and radio are also inserted into the front panel of the BC-VOICE.

Telephone calls can be received if the device has an automatic call receiver and if a small mobile radio telephone antenna is used. The radio connection is intended for Family Radio Band (Free Talk) two way radios.

Look for accessory installation instructions for the BC VOICE system on MTAS.

A new easily detachable dielectric rod antenna and base union are being introduced on the R 1200 CL. This new style union offers simplified removal and reinstallation when necessary for cover use.

The antenna is decoupled from the base using a special tool found in the tool kit and unscrewing the union. The contact is more robust than previous antennas ensuring proper connection everytime.



BC VOICE installed position / Cooling Fan



Dielectric Antenna

R 1200 CL

Technical Data

Engine:	Air/oil-cooled 2-cylinder 4-stroke boxer engine with four rocker arm operated valves, each with overhead camshaft and wet lubrication with two oil coolers
Performance	45 kW (61 hp) @ 5000 rpm
Max. torque	98 Nm (71 ft/lb) @ 3000 rpm
Bore	101 mm (3.98")
Stroke	73 mm (2.87")
Effective capacity	1170 cm ³ (71.4 cubic inches)
Stroke/bore ratio	0.72
Compression ratio	10.0 : 1
Fuel	Unleaded regular grade fuel, 95 RON
Angle of valve in relation to the cylinder axis	Intake: 19° Exhaust: 22°
Valve diameter	Intake: 34 mm (1.34") Exhaust: 29 mm (1.14")
Camshaft	256°
Valve timing at 3 mm valve play	Intake opens 17° ATDC Intake closes 15° ATDC Exhaust opens 15° BTDC Exhaust closes 17° BTDC
Valve stroke (without valve play)	8.23 mm (0.32")
Engine oil volume	3.75 liter (4 quarts)
Oil filter	External filter cartridge
Oil pumps	2 Troichoid pumps from auxiliary shaft driven by a chain
Lubricating Circuit Oil Pressure	3.5–6.0 bar (50-87 psi) at 80° C (176° F) oil temperature
Engine cooling:	Combined air/oil cooling with twin coolers integrated in the frame. Circulation by means of separate oil pumps with thermostat control
Flow rate of the pump	35 liters (37 qts) per minute
Start of opening of the thermostat valve	95 °C (203° F)

R 1200 CL

Technical Data

Clutch:

Clutch disc diameter
Master cylinder piston diameter
Slave cylinder piston diameter

Hydraulically operated single-disc dry clutch with transmission disc spring and asbestos-free friction lining
165 mm (6.5")
13 mm (0.5")
24 mm (0.94")

Gearbox:

Primary input shaft gear reduction
Gear Ratios

Constant mesh 6-speed transmission integrated in flange-mounted case
1:1.889
1st gear: 1 : 2.038
2nd gear: 1 : 1.600
3rd gear: 1 : 1.267
4th gear: 1 : 1.034
5th gear: 1 : 0.903
6th gear: 1 : 0.698

Rear wheel drive:

Transmission
Ring/Pinion teeth

Angular gear with Palloid tooth system
1 : 2.62
34/13

Mixture control/ignition system:

Maximum engine speed
Idle speed

Digital motor electronics: Motronic MA 2.4
7000 rpm (disabling of the injection signal)
900 rpm

Lambda control
Fuel cut-off

Engine temperature above 60° C (140°F)
Speed above 1800 rpm
Engine temperature above 70 °C (158°F)

Fuel pressure
Capacity of the fuel tank

3.0 bar (43.5 psi)
17.5 liters (4.62 gallons), including approximate 4 liter (1 gallon) reserve (light on)
+43° to 0° OT (characteristic zone)
Bosch FR6 DDC

Ignition angle range (motronic controlled)
Spark plug

Generator:

Maximum power
Voltage
Transmission

Alternator with voltage control
840 W
14 V
1 : 1.5

Starter:

Power
Transmission of planetary gear

With magneto-electrically excited electro-motor, drives the clutch plate by means of intermediate gearbox and pre-engaged drive
1.1 kW (1.5 hp)
1: 5.5

R 1200 CL

Technical Data

Front wheel suspension:

Full spring travel on the wheel
Stanchion diameter
Steering lock angle
Spring/Dampening

Telelever with central strut and tilt decoupling of the upper fork brace
144 mm (5.67")
35 mm (1.38")
35 ° right / left
Strut with coil spring and twin-sleeve damper (non adjustable)

Rear wheel suspension:

Effective length of swing-arm
Spring deflection on the wheel
Damping system

Monolever with central strut, Steel swing arm and single-sleeve damper Spring preload adjustable hydraulically
612 mm (24")
120 mm (4.72)
WAD (Travel related damping on the compression stroke)

Wheels:

Dimensions

Die-cast aluminum wheel, 5 double spokes
Front: 3.50"x16" MTH2
Rear: 4.00"x15" MTH2

Tires:

Dimensions

Light low-section Cruiser tire
Front: 150/80 VR 16
Rear: 170/80 VR 15

Brake system:

Front:

Brake disc diameter
Brake disc thickness
Caliper piston diameters
Master cylinder piston diameter
Brake pad friction material

Hydraulically operated, Standard I-ABS

Double-disc brake with 4-piston fixed caliper, de-skew, floating high-grade steel brake discs
305 mm (12.0")
5 mm (0.2")
32/36 mm
16 mm (0.63")
Sintered metal

Rear:

Brake disc diameter
Brake disc thickness
Caliper piston diameters
Master cylinder piston diameter
Brake pad friction material

4-piston fixed caliper, floating high-grade steel brake disc with asymmetrical bearings
285 mm (11.2")
7 mm (0.27")
32/34 mm
14.29 mm (0.56")
Semi-metal (organic)

R 1200 CL

Technical Data

Dimensions:

Overall length	2,415 mm (95.0" - or - 7.92')
Width at the rear view mirrors	1,075 mm (42.3")
Height at the top edge of the windshield	1,435 mm (56.4")
Wheelbase in normal position	1,641 mm (64.6")
Trail in normal position	184 mm (7.24")
Steering head angle in normal position	56.5°
Seat height, unladen weight	755 mm (29.7")
laden weight (187 lb rider)	745 mm (29.3")
Ground clearance in normal position	159 mm (6.25")

Weights:

Unladen, road ready and fully fueled	308 kg (679.0 lbs) standard equipment
Permitted total weight (GAVR)	530 kg (1,168.5 lbs) allows max rider, passenger and luggage weight of 222 kg (489.5 lbs)

Performance:

Maximum speed	165 km/h (102.5 mph)
Acceleration 0–100 km/h (0-62 MPH)	6.3 s
Average fuel consumption for one hour of riding at a constant:	
• 90 km/h (55.9 mph)	5.1 liters (1.34 gallons)
• 120 km/h (75.0 mph)	6.2 liters (1.64 gallons)

R 1200 CL

PDI Procedures - Uncrating

Delivery and Crate Inspection

While the motorcycle is being unloaded by the shipper, **thoroughly** inspect the crate for damage. Department of Transportation law requires the driver to allow you, the representative of your dealership ample time to perform a thoroughly crate inspection for each delivered unit.

Maintain your familiarity of motorcycle delivery receipt, inspection and claims processing by reviewing the following official BMW Motorcycle documents:

- Motorcycle Transportation Damage Policies and Procedures. This document is available on MTAS (Service>Warranty Information).
- Motorcycle Service Information Bulletins, Group 4 (Warranty).

If any crate damaged is present:

- Thoroughly examine the motorcycle and all contents for consequential damage or missing parts.
- **Clearly** note damage and or missing parts on the truckers bill of lading (delivery slip).
- Inform the trucking company in writing without delay.
- Damage under \$750.00 must be claimed via warranty.
- Damage over \$750.00 requires your field representative to be contacted. The field representative must authorize your claim prior to submittal.

Crate Contents/Locations

- Front Wheel
- Key set (D)
- Windshield (A)
- Antenna (C)
- Fender (B)
- Mirrors (E)
- Rider Manuals, Dealer Directory (I)
- Pertinent attaching hardware (F)
- Tool Kit (F)
- Top Case (G)

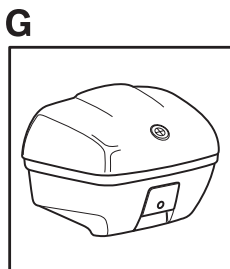
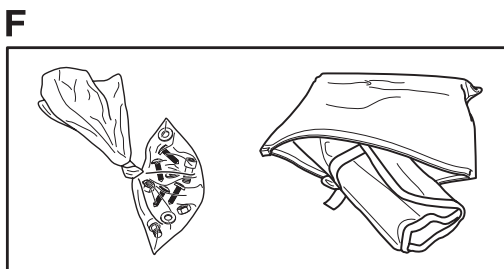
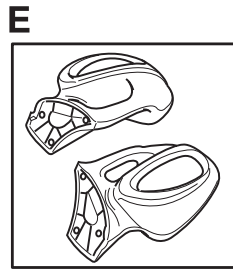
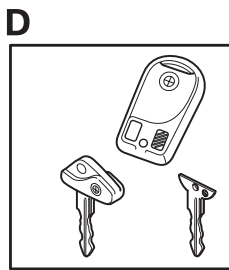
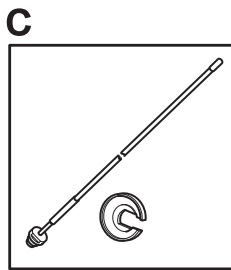
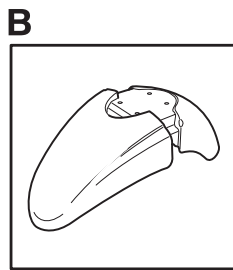
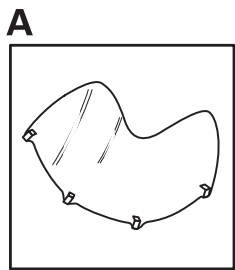
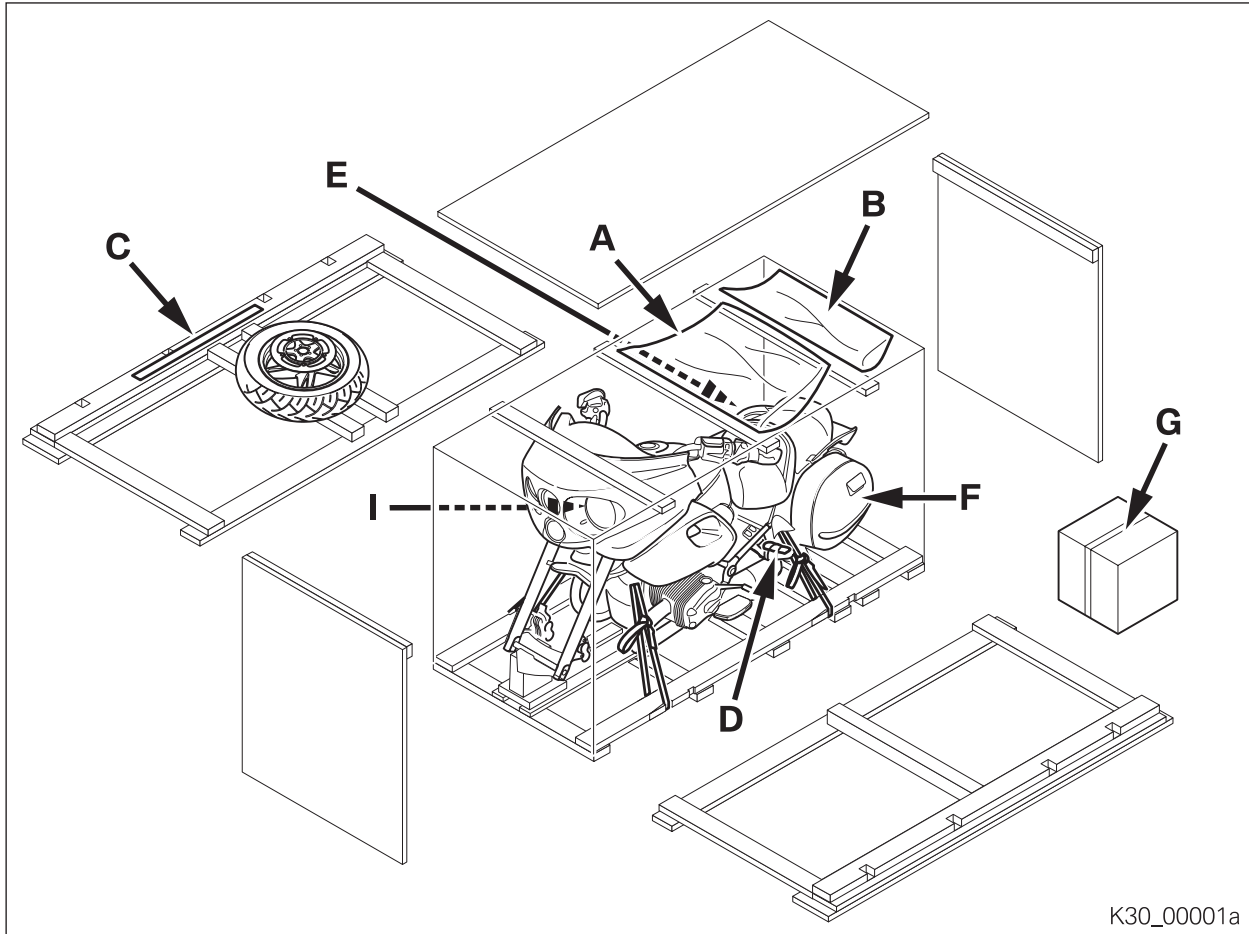
Start a Vehicle History File

- Establish a Vehicle History File.
- Remove the documentation on the side of the crate and place it into the file.



R 1200 CL

PDI Procedures - Uncrating



R 1200 CL

PDI Procedures - Uncrating



Lever off top cover and minimize for easy handling



Remove top plastic bag



Carefully lever out top supports

Uncrating the motorcycle

- With the crate on a level surface, remove the top cover by levering it off with a pry bar.

Hint: Place the crate top on the edge of the crate frame and snap it in half. This will make handling the cover more manageable.

- Remove the plastic bag suspended between the crate lateral supports. Set the bag aside in a safe place.
- Remove the antenna from right side crate support.
- Pry or cut the lateral supports out from the top of the crate as shown.
- Using a suitable saw such as a reciprocating saw (Sawzall™), carefully cut the sides of the crate where they attached to the end panels.
- Do this on both sides of the crate (total of 8 cuts).



Cut crate in 8 locations as shown (both sides)

R 1200 CL

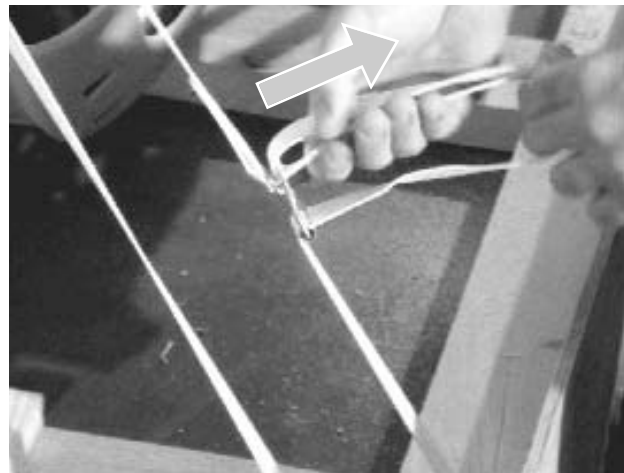
PDI Procedures - Uncrating

Note: During next three steps, ensure crate panels do not damage motorcycle.

- Remove the front tire from the right side area of the crate and set it aside.
- Remove both side panels from the crate base by carefully pivoting forward and backward until vertical brace detaches from base. You may also choose to cut the vertical braces at the bottom with someone assisting you.
- Remove both crate end panels by forcibly pulling the panels from the crate base. Give a good yank, they will separate from the crate base quite easily.

- **Critical Step!** Wipe down the brake rotors on both wheels with brake cleaner and a lintless rag. Make sure you also clean the disc surfaces beneath the pads on the rear wheel as soon as you can prior to operating brakes.

- Remove the front straps first. The rear straps will hold the motorcycle upright on the crate base. **Hint:** Configure strap loop end as shown. Grasp the loop tightly and pull it away from the buckle.

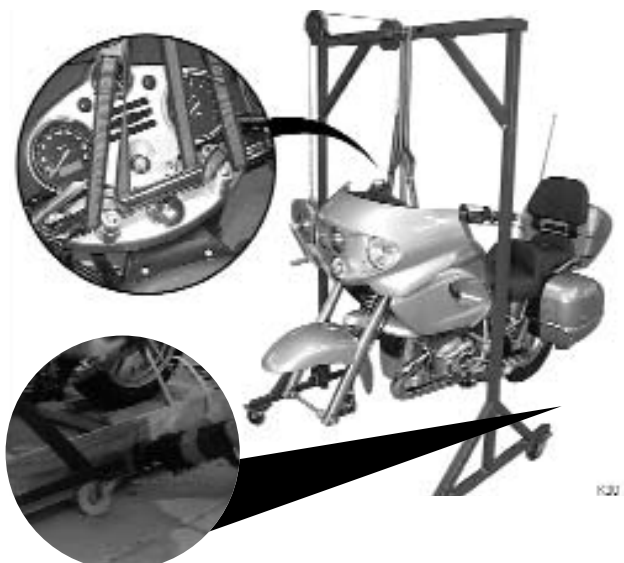


Release Tie Down Straps Holding Bike to Base

- Attach tie strap to handlebar/triple clamp fittings as shown. If equipped with radio, strap on outside of fork bridge clamps only. Do not damage radio control/display panel with strap.

- Use special tool 90 88 6 465 640 (crane) to lift the front end off the crate base. As you raise motorcycle, loosen rear shipping straps.

- Cut crate base just forward of rear wheel on both sides as shown. Slide crate forward and out from under bike.

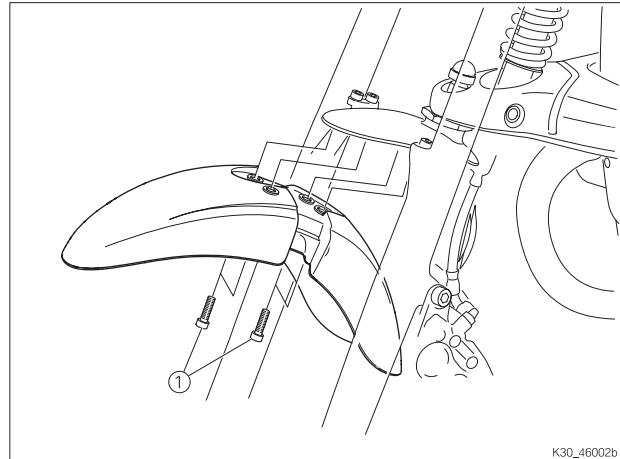


Lifting Front Axle, removing pallet and supporting

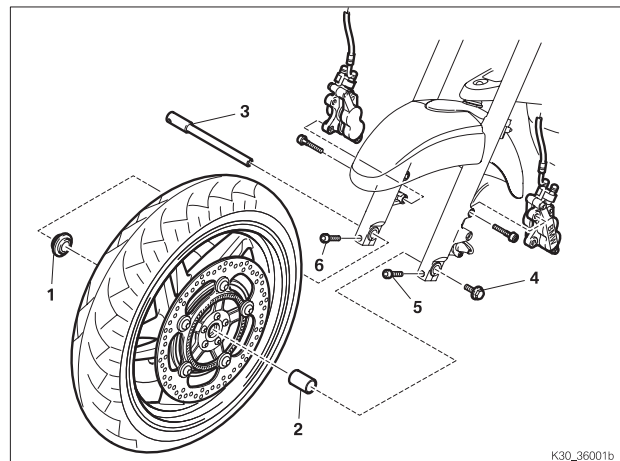
R 1200 CL

PDI Procedures - Set Up

- Clean area under motorcycle completely ensuring any sharp objects or nails are removed.
- Install fender. Unbolt the calipers from the front forks.
- Loosen fork leg pinch bolts (5 & 6). Remove axle bolt (4), axle (3), and spacer (2) from forks.
- Ensure spacer seal (1) is positioned onto hub (opposite side as shown).
- Coat axle lightly with Optimoly TA (Never seize). Position wheel into forks with spacer (2) in place and slide axle through the front wheel.
- Align hole in axle so its parallel with the ground. Tighten axle bolt to specification.
- Install the calipers. Take care not to scratch the rims when installing by rotating taped section of rim to area of calipers.
- Torque all fasteners with exception of right fork pinch bolt (6).
- With assistance, lower and remove crane. Remove rear straps and roll bike off crate. Put side stand down.
- Sit on bike, apply front brake to hold front wheel and repetitively bounce the front end to compress the front forks. As a final step, torque the remaining right side pinch bolt to spec.



Install Fender



Install wheel and calipers

Torque Specifications:

- Fender Bolts = 8 Nm (5.8 ft/lbs)
- Axle/Nut = 30 Nm (22 ft/lbs)
- Pinch Bolts = 20 Nm (15 ft/lbs)
- Caliper Bolts = 30 Nm (22 ft/lbs)

R 1200 CL

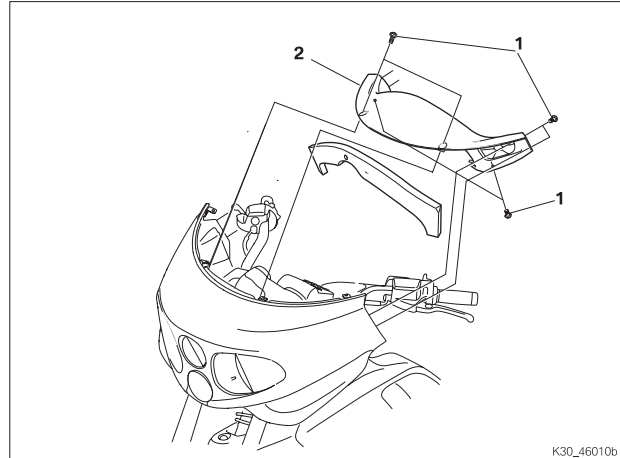
PDI Procedures - Set Up

Caution: The R 1200 CL is equipped with Integral ABS and is in residual braking mode until the battery has been installed and the ignition switched on.

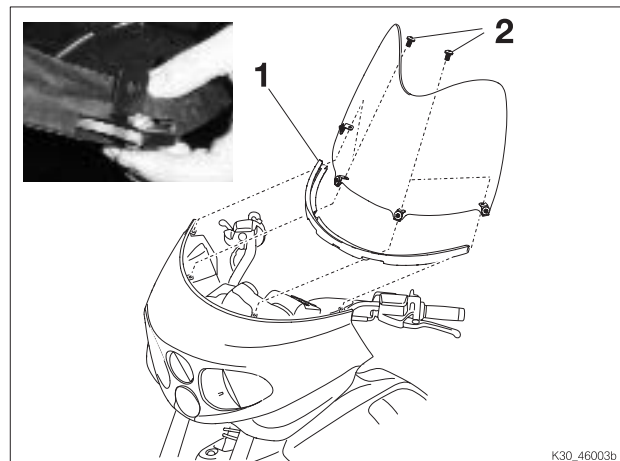
Extra braking effort at the lever or pedal is required to stop the motorcycle when in residual braking mode.

If the motorcycle is to be moved prior to battery installation, have someone assist you moving it through the shop and be extremely cautious.

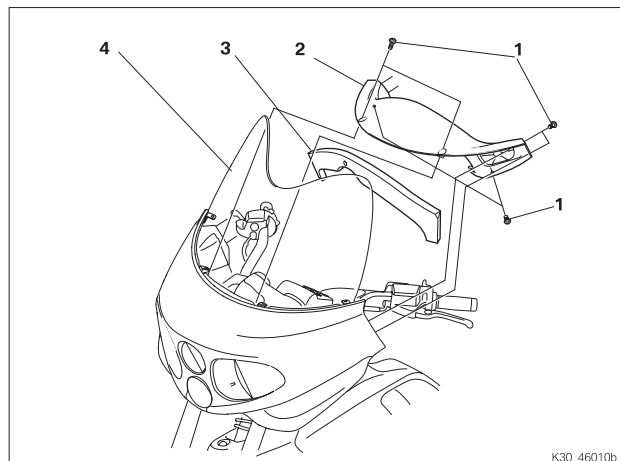
- Top Illustration. Remove the Instrument panel center trim (2) by removing securing screws (1).
- Remove foam rubber barrier piece and place aside.
- Middle Illustration. Assemble the windshield rubber trim seal (1) at base of windshield as shown. Use a soapy water solution to piece the two parts together ensuring an even installation.
- Mount windshield/seal assembly onto fairing area mounting using for screws (2).
- Make sure seal is evenly spaced on fairing surface.
- Bottom Illustration. Reinstall rubber barrier piece (3) and place instrument panel trim (2) into position.
- Inspect all the mating surfaces for smooth fit. Secure with six screws (1).



Remove Instrument Panel Trim



Assemble windshield/seal and install



Install Instrument Panel Trim

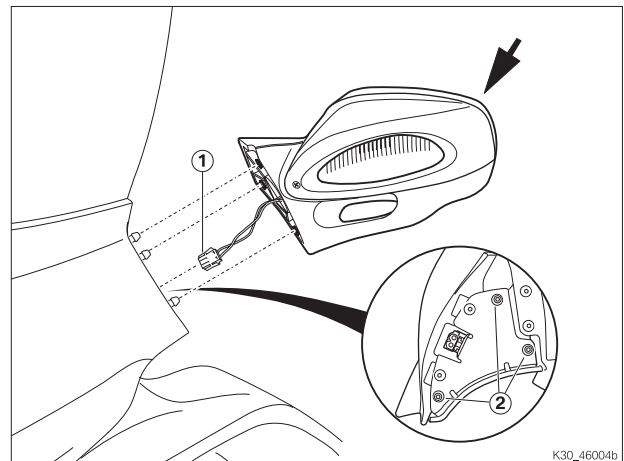
R 1200 CL

PDI Procedures - Set Up

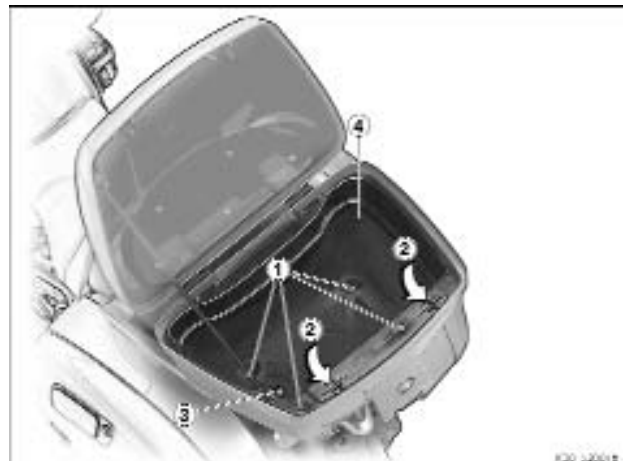
- The handlebars are lowered to allow the motorcycle to fit into the crate for shipping. **HANDLEBARS MUST BE ADJUSTED OR DAMAGE TO THE FUEL CAP MAY RESULT.**
- Loosen bar clamps on upper fork bridge. Raise bars until dimpled spot on bar is equal to mating surface of bar clamp and fork bridge.
- Properly adjusted, bars should not be closer than 3 - 5mm to fuel filler door when open and bars full right. Torque bolts to 19 Nm (14 ft/lbs).
- Hold mirror up to fairing mount location. Connect directional light connector (1) into wiring plug in fairing.
- Align ball socket unions and press (snap) mirrors into place.
- Locate case in shipping carton and prepare for installation. To remove interior covering, unscrew case top stop strap knurled screw anchor (3). Use a small screwdriver and press tabs (2) clear of stops and remove covering (ie: K 1200 LT).
- Use shipping screws to install case to four mounting base threaded bores (1). The case mounts identically to K 1200 LT model.
- Reinstall covering and reattach top case stop strap and knurled screw anchor.



Adjust Handlebars



Install Mirrors



Install Top Case

R 1200 CL

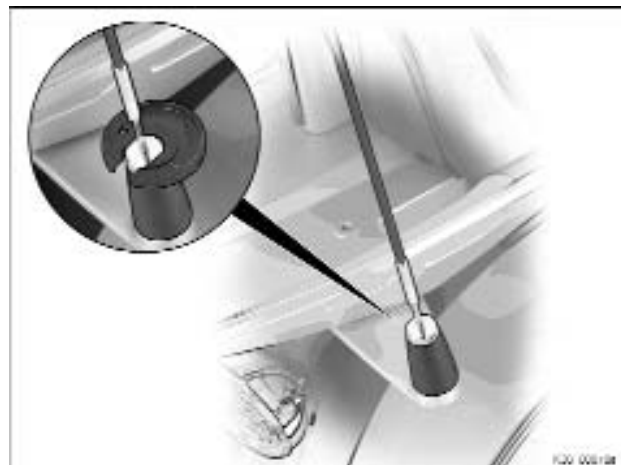
PDI Procedures - Set Up

- Make sure the tool kit is complete. Note the new unique R 1200 CL tools included in the kit.



Make sure tool kit is complete

- Tire inflation schrader valve tool
 - Ignition Coil removal tool
 - 90° bend phillips head screw driver socket for removing rear directional light lens covers.
 - Radio Antenna wrench
- Install Antenna using special tool as shown (from tool kit).
 - Thoroughly wash motorcycle to remove all transportation preservatives.
 - Inspect the motorcycle thoroughly for damage and or missing parts. If necessary, submit a QEW (MTAS).
 - If parts are needed, order them. Part costs are reimbursed via a warranty claim using defect codes:
Parts missing - 10 01 00 00 00
Parts damaged- 10 02 00 00 00
Parts Incorrect - 10 03 00 00 00



Install Antenna

- At this point you have completed the set up portion of the Pre Delivery Inspection. Make sure an RO has been assigned to the PDI for the motorcycle and convey any information about missing or damaged parts to the parts department and warranty administrator.
- Perform balance of Pre-delivery inspection checks as outlined on the Pre-delivery check sheet sample on the next page. PDI checklists are accessed online from the **MTAS** (Aftersales> Service> Technical Information). As a time saving tip, print out multiple copies and store them for future R 1200 C models.

R 1200 CL

PDI Checklist Sample

BMW Motorcycles Pre-delivery check



R 1150 R R 1100 S R 1150 RT R 1150 GS R 1200 C R 1200 CL

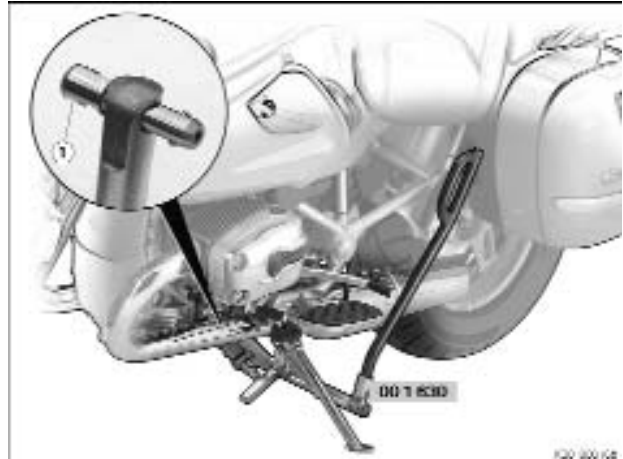
	BMW Pre-delivery Inspection
Customer Name _____ Serial Number / Mileage _____	
Repair Order Number / Date _____ Technician Signature _____	
Inspect crate on receipt for signs of damage, start vehicle history file	<input type="checkbox"/>
Uncrating the motorcycle - Remove document package from crate wrap - Unpack and check for missing items; complete QEW if needed for missing parts - Clean brake rotors prior to moving from crate - Complete assembly using BMW uncrating and assembly instructions (Have assistance moving an Integral ABS equipped motorcycle prior to battery connection) - Adjust Handlebars to prevent damage of fuel filler door (R 1200 CL) - Equalize pressure in front forks (R1100S) - Clean entire motorcycle of transport preservatives	<input type="checkbox"/>
Check complete specification delivery: - Keys, Tools, Handbooks and documents (including warranty information) - Retailer directory/retailer business cards - Documentation for installed options	<input type="checkbox"/>
Battery: - Remove battery - Add battery acid - Allow battery to cool prior to charging - Charge battery at 10% AH rating until fully charged - Grease the terminal posts - mark in service date	<input type="checkbox"/>
Check and adjust front and rear brake fluid levels.	<input type="checkbox"/>
Integral ABS equipped - check brake fluid level at the modulator.	<input type="checkbox"/>
Integral ABS equipped - Perform bleed test with BMWModiTeC <small>(Print test results, attach to RO and file in Vehicle History File)</small>	<input type="checkbox"/>
Check function of side stand safety function	<input type="checkbox"/>
Check and adjust rear shock preload basic setting	<input type="checkbox"/>
Check torque setting of the rear wheel retaining bolts _____lb/ft	<input type="checkbox"/>
Adjust tire pressures to specification - Front _____PSI, Rear _____PSI	<input type="checkbox"/>
Check engine oil level, correct if necessary	<input type="checkbox"/>
Check clutch fluid, correct if necessary	<input type="checkbox"/>
Check headlamp (basic setting), correct if necessary	<input type="checkbox"/>
Fuel the motorcycle (full tank of fuel prior to customer delivery)	<input type="checkbox"/>
Safety / operating check as final inspection: - Cold start / idle speed - Clutch, gear shifting, - Steering - Front / rear brakes and ABS - Indicator and warning lights, instruments, lighting, horn and signalling equipment - Check function of Cruise Control (R 1200 CL) - Function of optional equipment (radio, alarm, etc.) - Test ride 15 miles, check for fluid leaks - Visual quality check	<input type="checkbox"/>

R 1200 CL

PDI Procedures - Accessing Battery

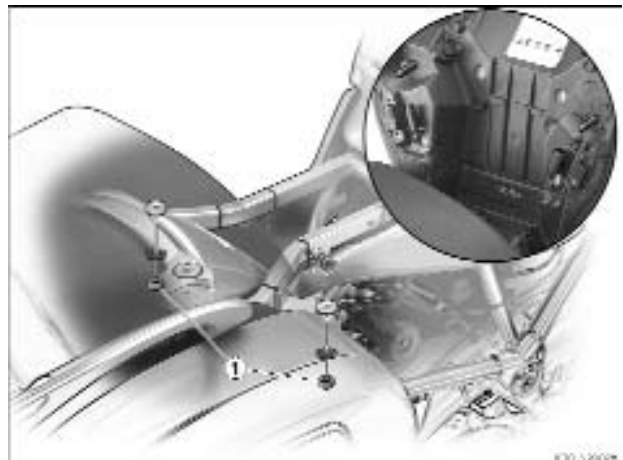
- With an assistant, place motorcycle onto the auxiliary center stand. Make sure pins fit securely into bracket holes under engine.

The fit tolerance is close on pins. If resistance is encountered, gently tap pins into holes with a plastic mallet. Press button (1) to retract check balls and push pins in fully.



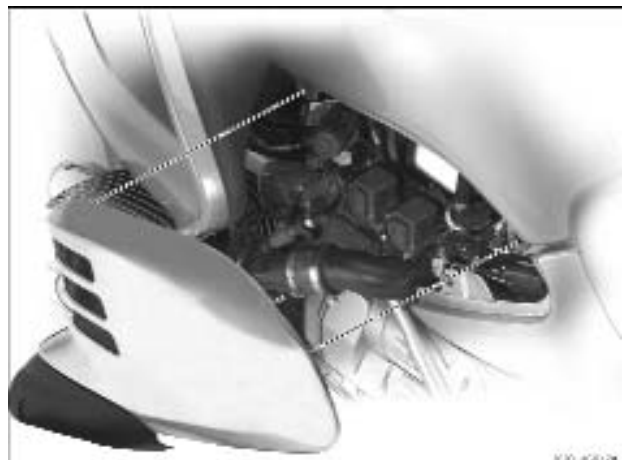
Lift bike with auxiliary stand

- Remove the riders seat (two nuts and washers under seat on left and right side).



Remove Front Seat

- Remove Left and Right Side chrome intake pipe covers.



Remove Left and Right Intake Covers

R 1200 CL

PDI Procedures - Accessing Battery

- Remove both Left and Right side painted trim covers (2) by removing two screws (1).
- Remove fuel tank mounting bolts and washers (1).
- Gently lift rear of tank and unplug fuel pump connector (4)
- Disconnect two breather lines (3). *Note orientation and routing for reinstallation.*
- Release the quick disconnect fuel lines (2) by pressing the release catch (5) on each fitting.
- Handle the fuel tank gently to prevent paint damage. Lift the fuel tank at the rear and pull backward to remove from forward mounts.

Note: The fuel system quick disconnect fittings are sealed by an O’ring which can be damaged if the fitting is not reinstalled correctly.

Always inspect the seal for damage prior to reconnecting this fitting. Always reset the latch plates on the female half of each union so the two halves can reconnect.

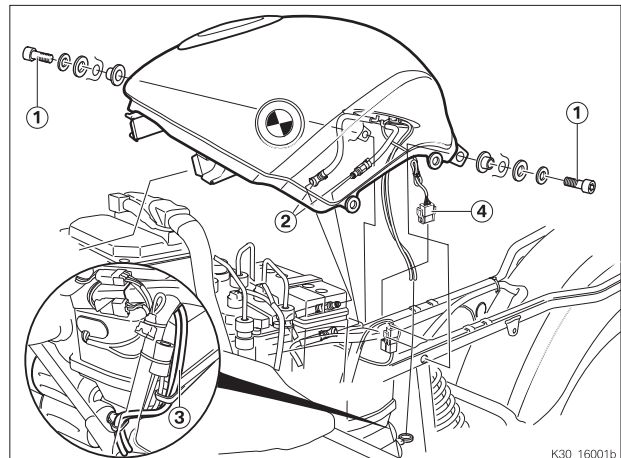
When reconnecting, gently slide the two halves together squarely until an audible click is heard. Always visually check the fitting as well to ensure the union is sealed.

If the O’ring needs replacement order only the O’ring which is available separately.

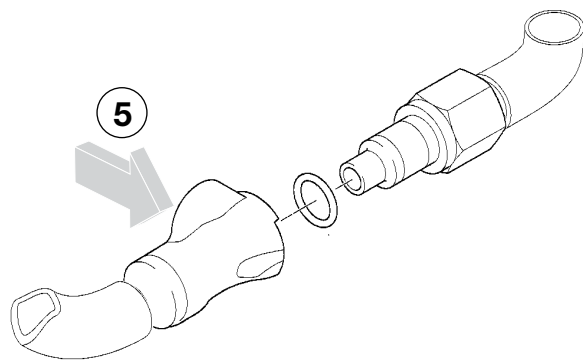
O’ring P/N = 13 31 7 659 110



Remove Left and Right side covers



Remove Front Seat



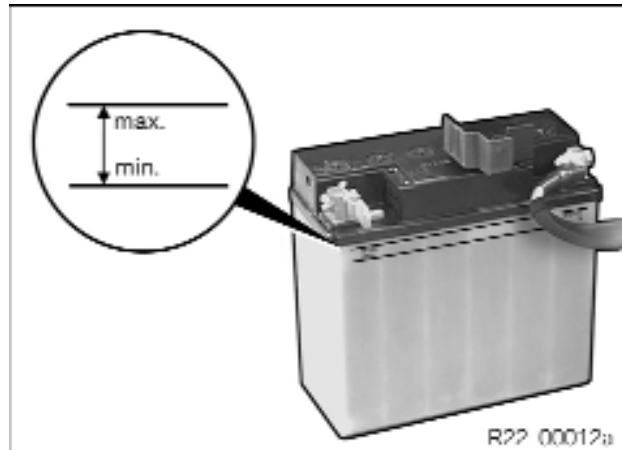
Remove Left and Right Intake Covers

R 1200 CL

PDI Procedures - Removing, Filling and Charging Battery

Note: Various models will eventually be factory equipped with a GEL CELL type battery. When this change over occurs, this PDI procedure will be revised. Please refer to appropriate Service Bulletin and or Battery Information Sheet located in Technical Training Section of MTAS.

- Remove battery breather tube and hold down bracket.
- Lift battery out of tray.

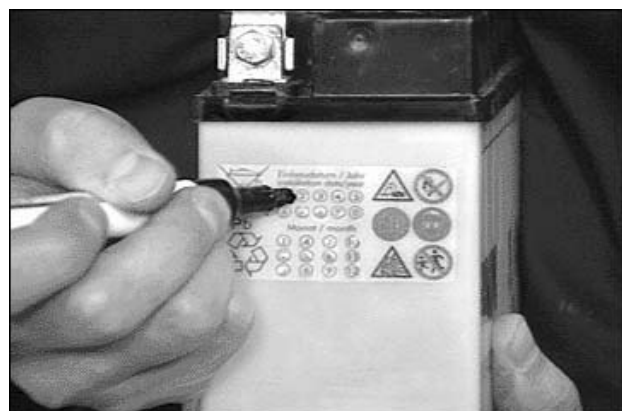


Remove battery and fill with electrolyte

Warning: Battery electrolyte is acid and is extremely caustic. Protect your eyes, face, hands, clothing and protect the motorcycle paint work.

- Fill the battery with electrolyte, replace the caps, and let stand for one hour.
- Remove air bubbles and top off with more electrolyte if necessary.
- Charge the battery for 10 hours at a 2 amp rating. Use the appropriate charging system, do not use a maintenance trickle charger.
- Let battery stand for 24 hours before testing the battery.
- Specific gravity of the electrolyte in a fully charged battery should measure 1.26 or above in each cell. This measurement is taken with a high quality battery hydrometer.
- Mark the date on the battery.
- Make sure the ignition is turned off.
- Connect the red positive lead first, then the black negative lead last.
- Remember to reconnect the vent. Replace the retaining tray.
- Apply acid-proof grease to the battery terminal posts.

Electrolyte =
• 35% Sulfuric Acid,
• 65% Water
Specific gravity = 1.28



Mark the Service Date on the Battery Label

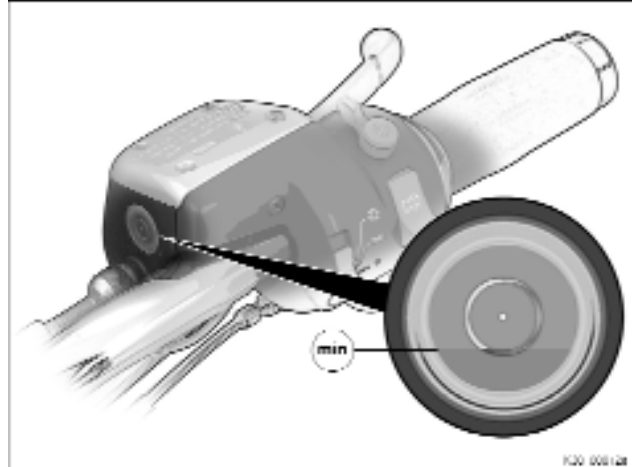
R 1200 CL

PDI Procedures - Checking Brake Fluid Levels

Integral ABS has four separate brake circuits. Fluid levels are checked at all four of the following locations,

1. Handlebar mounted **front** brake control circuit reservoir.

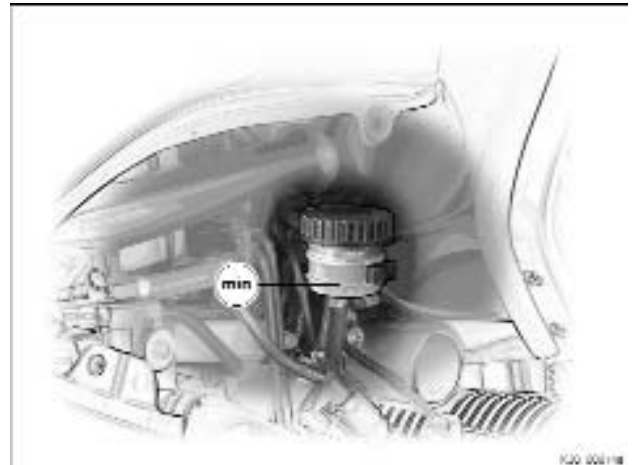
- Turn handlebars fully to the left.
- Check fluid level in sight glass.
- MIN level is as indicated.
- Top off with DOT 4 brake fluid as necessary.



Checking Front Brake Control Circuit Fluid Level

2. Right side frame mounted **rear** brake control circuit reservoir.

- With the motorcycle on its center stand, check the level through the window in the right side trim panel
- Desired level is at the MAX line. If necessary, add DOT 4 brake fluid. The fluid level must not fall below the MIN line.



Checking Rear Brake Control Circuit Fluid Level

Note: Fluid level remains constant in control circuit reservoirs as pads wear.

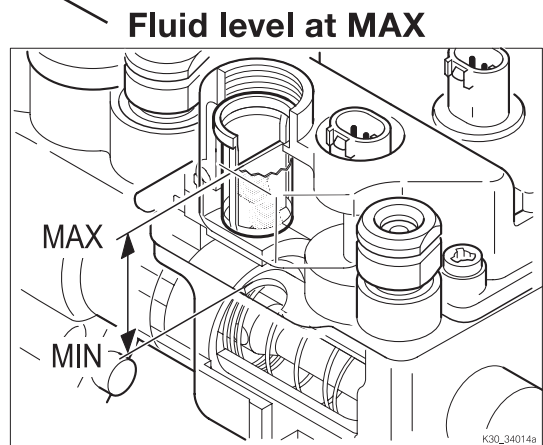
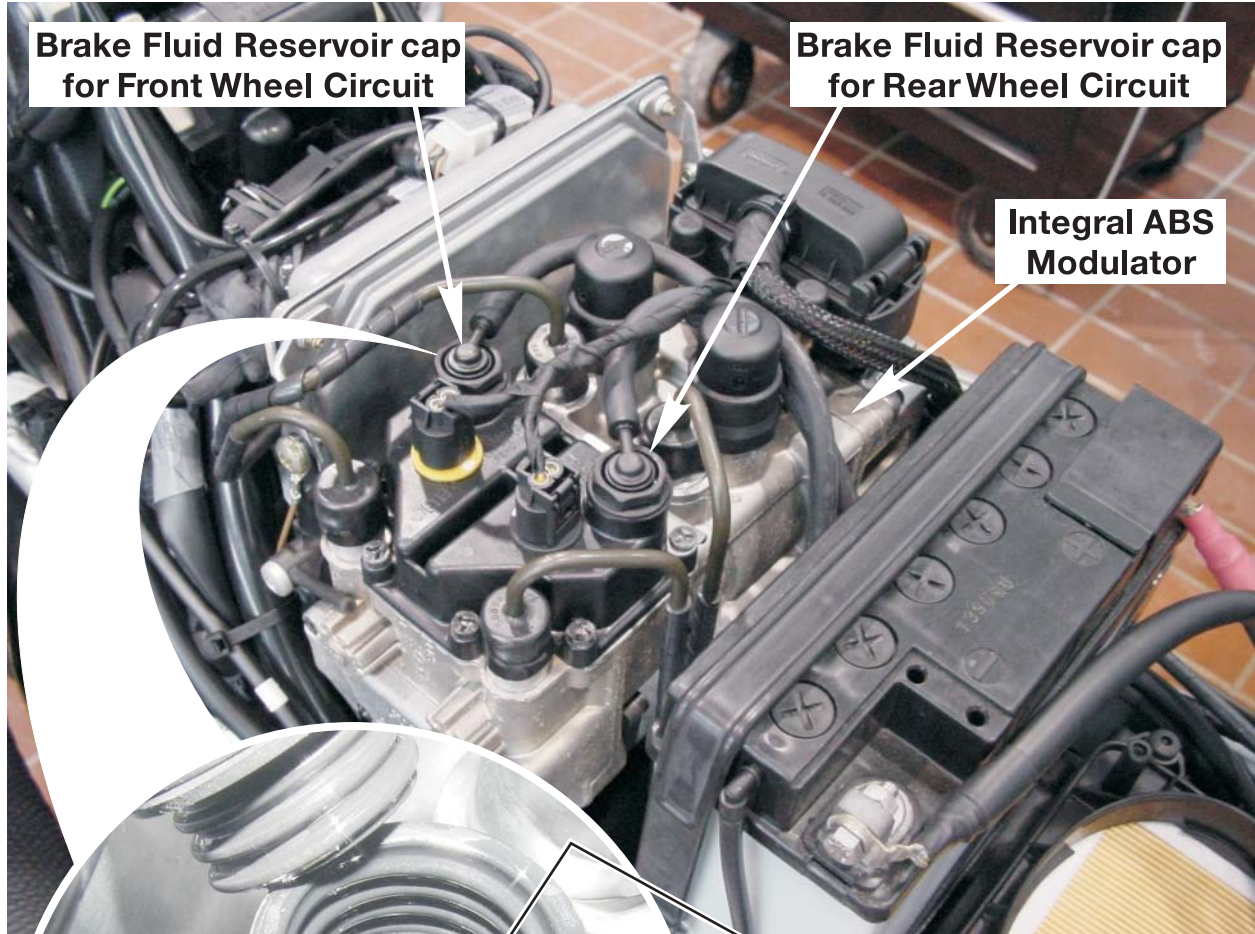
3. Integral ABS modulator **front** brake wheel circuit reservoir

4. Integral ABS modulator **rear** brake wheel circuit reservoir

- Checking the fluid level at these two locations is identical in process.
- Unscrew and remove the wheel circuit reservoir caps one at a time.
- Use a shoplight to clearly see the fluid level.
- Make sure no contaminants enter the brake fluid reservoir.
- Top off with DOT 4 brake fluid as necessary.
- Carefully reinstall caps. Do not overtighten.

R 1200 CL

PDI Procedures - Checking Brake Fluid Levels



Detail of Front Brake Wheel Circuit Reservoir

MIN is at bottom of reservoir (difficult to see) Top off to MAX when caps are removed.

R 1200 CL

PDI Procedures - Integral ABS Bleed Test

BMW is the inventor of ABS for motorcycles and therefore places the greatest emphasis on safety and customer satisfaction. For that reason, this comprehensive ABS bleed test using the MoDiTeC is required as part of the PDI process prior to any operation of the vehicle.

During the test, the MoDiTeC prompts you to individually apply the brakes at the front lever and rear pedal. The Integral ABS control module monitors the pressures generated in the control and wheel circuits. The MoDiTeC program compares the generated pressures to a specific value. If the generated pressures are within specification, the system passes. If not, the system fails.

During the test a large amount of data is read out from the control module. As a record of the test being carried out, the documentation generated by the completion of this test must be printed out and kept in the vehicle history file.

Important !

If the motorcycle fails this bleed test during the PDI, the reported failed circuit will require bleeding. Refer to the appropriate repair manual and training manuals for for system bleeding instructions.

This motorcycle shall not be test ridden, retailed, traded, or in any way demonstrated, or handed over to, the retail customer until a successful bleed test printout for the motorcycle is placed into the vehicle history file.

Bleed Test Requirements

Prior to performing Bleed Test, make sure the following preconditions are met:

- Up to date MoDiTeC software must always be loaded.
- Motorcycle battery must be fully charged.
- Battery charger must be connected to motorcycle.
- From the Integral ABS Toolbox, launch the bleed test program. Follow all onscreen instructions.
- Printout and sign your name and date to the successful bleed test results and insert into vehicle history file.

If you encounter problems that can not be rectified either with bleed test or bleed procedure please contact the Integral ABS Hotline.

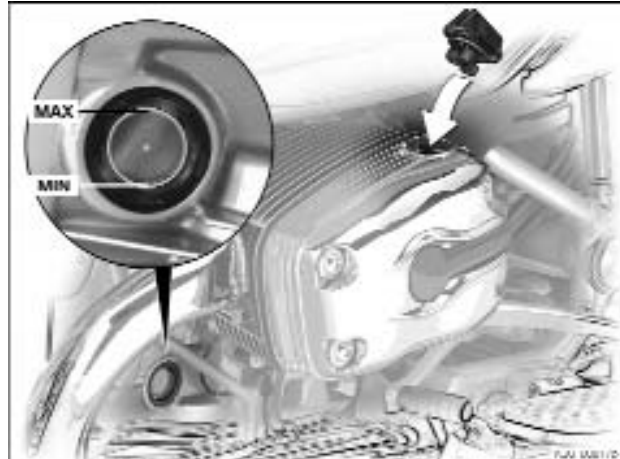
Integral ABS Hotline: 1 888-217-9725 (Monday-Friday, 8:30am - 4:30pm EST).

R 1200 CL

PDI Procedures - Check Engine Oil Level

The engine is factory filled with oil and only requires a visual check at the sight glass. As long as oil level is visible, it is ok for PDI test ride. However oil level must be checked prior to customer delivery as follows:

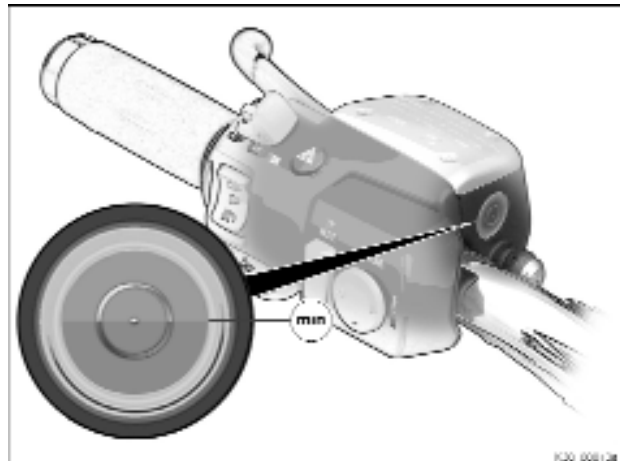
- Engine must be run to operating temperatures and then allowed to sit with engine off for 5 minutes allowing oil to drain back to sump.
- With motorcycle in upright position, level should be between Max/Min. The difference between the marks MAX and MIN is approx. 0.53 qt. If necessary top off through filler.



Checking Engine Oil Level

Check Clutch Operating Fluid

- With motorcycle on center stand, turn the handlebar fully to the right.
- Desired fluid level when clutch lining is new is center of sight glass.
- If necessary, add DOT 4 brake fluid.



Checking Clutch Operating Fluid Level

Note: Fluid level will *increase* as the clutch plate wears. Fluid level must not fall below minimum (center dot).

Check tire pressures

Tire pressures are same for all conditions (solo, 2-up, & 2-up with luggage).

Front: 2.5 bar (36.25 psi)

Rear: 2.9 bar (42.05 psi)

Record your measured value on the PDI sheet.

Battery:

- Remove battery
- Add battery acid
- Allow battery to cool prior to charging
- Charge battery at 10% AH rating until fully charged
- Grease the terminal posts
- mark in service date

Integral ABS equipped - Perform bleed test with Mo

- Check function of side stand safety function
- Check headlamp (basic setting), adjust if necessary
- Check torque setting of the rear wheel retaining bolts
- Check tire pressures - set at 36 PSI front, 42 PSI rear
- Check and adjust front and rear brake fluid levels
- Check engine oil level, top up if necessary

Record measured Tire Pressures

R 1200 CL

PDI Procedures - Check Side Stand Function

Check Side Stand Operation

- Check for smooth side stand movement. Add BMW Lube if necessary (arrow).
- Check side stand safety function. *With transmission in gear and ignition key on, raise side stand to up position and listen for audible fuel pump operation cycle. This signifies proper safety operation.*



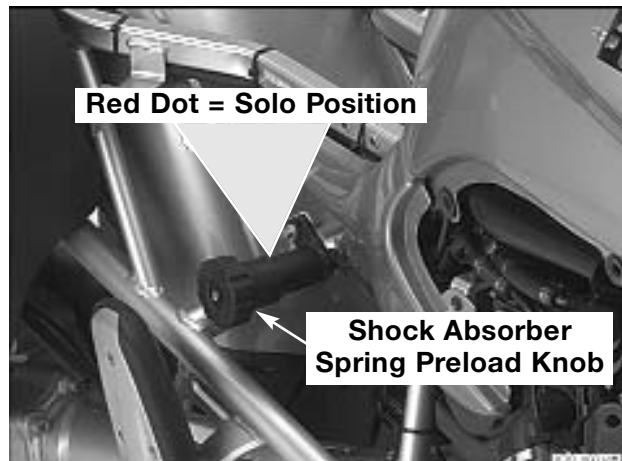
Check Side Stand Operation

Rear Spring Preload

- Turn knob fully out counter clockwise (to low position).

Basic Setting (solo): Turn knob in to first increment line (red dot).

Setting for two up/luggage: Turn knob in to High setting increment line.



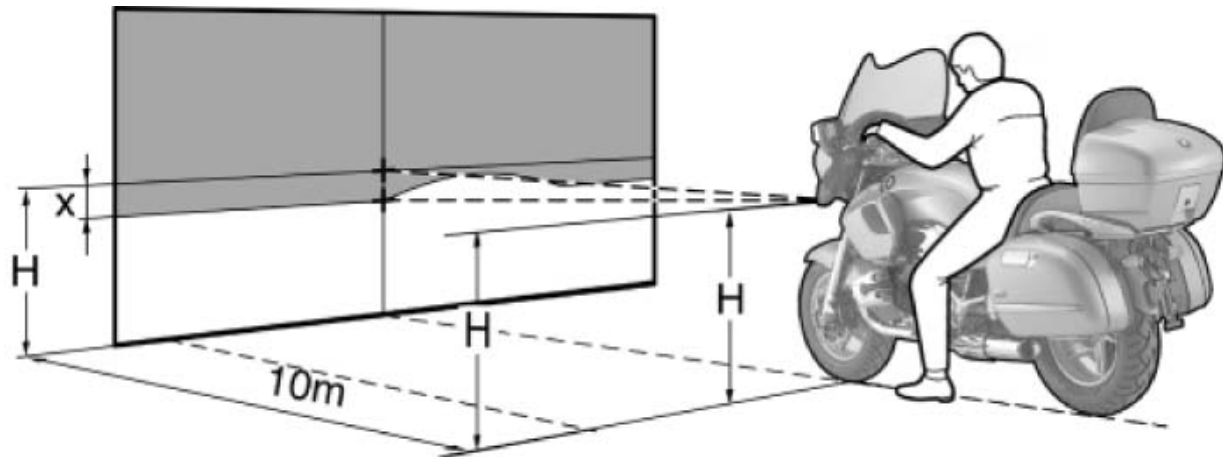
Rear Shock Spring Preload Adjustment

Check rear wheel stud torque

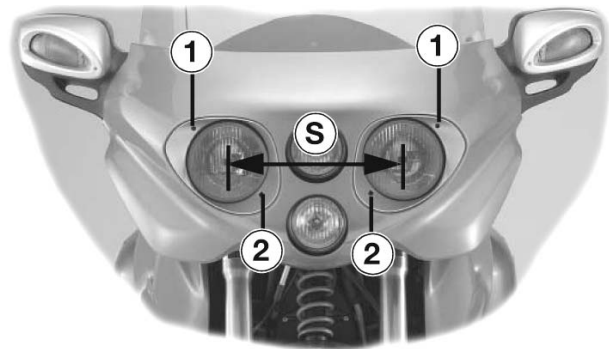
- 105 Nm (76 Ft lb.)
- Record your verified torque value on the PDI Check List.

R 1200 CL

PDI Procedures - Check Headlight Alignment



- Set the shock preload to solo mode.
- Place adjustment lever to the horizontal normal position (on back of fairing).
- Check / set the tire inflation pressure.
- Place the motorcycle on a flat surface.



1=Left/Right, 2=Up/Down for each low beam

- A rider weighing 85 kg (187lbs) must sit on the motorcycle.
- Measure the distance H from the floor to the low beam headlights center.
- Mark the measured distance H on the wall.
- Then place two crosses on H line that are spaced the same distance that the two low beams are (S in Diagram) which is approximately 30 cm (11 3/4").
- Measure 15mm beneath the H line and mark another cross as well on this line.
- With bike upright and low beam lights on only, check that transition of beams divide between light and dark as shown in diagram on the two crosses between the two lines.
- If necessary, use the single screw on the back of the fairing to move total light assembly up or down to meet this line.
- If necessary, use the adjusting screws (1) and (2) to align the individual low beams to the target areas on the horizontal lines and crosses on the wall.

R 1200 CL

PDI Procedures - Final Inspections and Function Checks

Fill Fuel Tank

- Fill the fuel tank with premium unleaded gasoline
- Thoroughly check for leaks.

Check the operation of the following:

- Clutch & gearshift operation.
- Steering (smooth, not binding).
- Front & rear brakes.
- Cruise Control Operation
- Alarm System (if equipped)
- Tail light, stop light, and turn signals.
- Horn operation.
- Test ride (14 - 16 miles).
- ABS brake operation.
- Idle speed (after the test ride).
- Rubber stamp, sign, and date the PDI block in the Service & Technical Booklet.
- Make sure the PDI Check List is completed with your signature.
- Insert PDI Check List along with the Integral ABS Bleed Test Trace Documentation (if applicable) into the vehicle history file.

Final Cleaning:

- Thoroughly wash motorcycle
- Thoroughly wash tires of tire mold release agent to ensure maximum safety.



Final Cleaning


R 1200 CL

Retail Delivery Handover Process

- The customer delivery process or “handover” is a critical step in establishing a successful relationship between you and your new customer. A positive delivery experience reinforces the image of your Dealership and the people who run it. Be prepared for the delivery by reviewing the sample Retail Delivery Check List on the following pages.
- Retail Delivery Check Lists are accessed online from the **MTAS** (Aftersales> Service> Technical Information). As a time saving tip, print out multiple copies and store them for readiness when you are delivering your next motorcycle.
- Familiarize yourself with the Rider Manual and Technical Book. These contain information the customer reads to become familiar with his or her new bike. Review these books at time of delivery, showing run in requirements, important basic safety information, as well as explaining maintenance requirements and scheduling for their 600 mile Inspection.
- Convey product information about BMW Rider Apparel and Accessories to further the excitement of experiencing and enjoying the complete BMW product line.


R 1200 CL

Retail Delivery Check List Sample, Page 1

BMW Motorcycles		
Retail Delivery Check List		
Customer Name _____	Model / Serial Number _____	BMW Delivery Checks
Salesperson Signature _____	Delivery Date _____	
Examine the motorcycle for the following <u>PRIOR TO</u> the customer's delivery appointment:		<input type="checkbox"/>
<ul style="list-style-type: none">• All options / equipment match sales contract specification (all sales agreement commitments are completed)• Motorcycle starts and idles properly• Fuel tank is full• Motorcycle is completely washed and cleaned for delivery• All lights, signals, horn, controls, and options work properly• Tire pressures are set correctly for the rider and load		
With the customer present, review the following documents:		<input type="checkbox"/>
<ul style="list-style-type: none">• Rider's Manual – demonstrate the operation of all controls and review riding instructions• Service & Technical booklet and proof of ownership – show service check lists, customer assistance and roadside assistance information• Consumer Warranty Information booklet – discuss all warranties, responsibilities of ownership, and change of ownership notification• Current Dealer Directory & retailer business cards (sales, service, parts)• Documentation for installed options – manuals for radios, alarms, etc.• BMW Motorcycle Roadside Assistance Plan benefits (1-800-225-1575)• Motorcycle Safety Foundation rider training classes• Accessory Catalog – discuss future accessory options		
With the customer present, explain and demonstrate the following techniques and/or options:		<input type="checkbox"/>
<ul style="list-style-type: none">• BMW tool kit and the repair kit• Keys and locks, spare key, and keep key code in a safe place• Use of BMW luggage systems – remove and install bags & top box• Side and center stand operation – procedure for parking on hills and soft surfaces• Starting and running limitations: with the side stand deployed• How to remove and adjust the seat height• Adjusting the handlebars and windshield (on models equipped with these features)• ABS II models: self test noise upon drive away• Integral ABS: Self test pump noise when key is initially switched on.• Integral ABS: Pump operation whenever brakes are applied (normal operation)• Integral ABS: Residual braking function (when key is off or if system is faulted)• ABS N (F 650 GS/CS): When system is in ABS regulation, a pulsation will be felt at lever and/or pedal. This is normal operation.• Adjusting the headlight beam to suit motorcycle load• Radio operation (radio powered with ignition off), neck racks, etc.		
This form is available on MIAS (www.bmwmc.net) - Duplicate as needed		Page 1 of 2
BMW MOTORCYCLE FINANCIAL SERVICES (BMW Financial Services) Check List 01/09		(11/09)

R 1200 CL

Retail Delivery Check List Sample, Page 2

BMW Motorcycles		
Retail Delivery Check List		
Customer Name: _____	Model / Serial Number: _____	BMW Delivery Checks
Salesperson Signature: _____	Delivery Date: _____	
With the customer present, demonstrate the importance of checking the following items before beginning each ride:		
<ul style="list-style-type: none">• How to adjust the suspension to the rider size and load• Checking tire pressure and tire condition (objects in tread, etc)• Consequences of incorrect tire pressure• Checking engine oil level – allow oil to drain back before adding more• Checking that all lights and signal function, including brake lights & horn• Check front and rear brake fluid levels and brake performance <p>Integral ABS Note: The fluid levels in the brake fluid reservoirs (control circuits) do not change as the brake pads wear.</p>		
With the customer present, emphasize the importance of the following points:		
<ul style="list-style-type: none">• Using Original BMW replacement parts• Observing the maintenance intervals (provide copy of check list)• Only trust your motorcycle to certified BMW technicians <p>Note: Integral ABS is a sophisticated high performance braking system, which should only be serviced by qualified technicians with the proper tools and computer diagnostic equipment. <i>Do not attempt to bleed the Integral ABS hydraulic circuits.</i></p> <ul style="list-style-type: none">• Clean your motorcycle – do not use pressure washers• Use BMW cleaners and waxes to preserve finish• Special care for windshield – don't use chemicals, only soap and water• Touch-up stone chips and scratches with Original BMW touch-up paint		
Schedule appointment for 600 mile inspection.		<input type="checkbox"/>
Date: _____		
Customer and salesperson examine the motorcycle and agree that no cosmetic faults exist. All cosmetic faults must be rectified prior to delivery.		
Customer Initials: _____		
Salesperson Initials: _____		
Call customer in three days to follow-up on satisfaction.		<input type="checkbox"/>
Date: _____		
This form is available on MTAS (www.bmwmc.net) - Duplicate as needed		Page 2 of 2
J40MOTO/BUL TINSSTW/GT/CHK IST/Retail Check List.doc		(01/02)

R 1200 CL

600 Mile Inspection Procedures

Note: This manual only includes the 600 Mile Service Procedures solely as an introduction convenience. For complete service maintenance procedures, always refer to the official factory service manual. Repair Manuals for all current models are located in **MTAS**, <http://www.bmwmc.net> (Aftersales> Service>Technical Information).

Key to maintenance intervals

Maintenance tasks consist of the first Inspection (after the first 1,000 km/600 miles), the BMW Service, BMW Inspection and BMW Annual Service.

Inspection 1,000 km (600 miles)

BMW Running-in Check after the first 1,000 km (600 miles).

BMW Service

After the first 10,000 km (6,000 miles) and each additional 20,000 km (12,000 miles)
(at 30,000 km ... 50,000 km ... 70,000 km)
(at 18,000 miles ... 30,000 miles ... 42,000 miles).

BMW Inspection

After the first 20,000 km (12,000 miles) and each additional 20,000 km (12,000 miles)
(at 40,000 km ... 60,000 km ... 80,000 km)
(at 24,000 miles ... 36,000 miles ... 48,000 miles).

BMW Annual Service

Certain maintenance tasks depend on elapsed time as well as the distance the motorcycle has covered. They should therefore be carried out at least once a year (e. g. changing brake fluid). If these tasks cannot be carried out during a Service or an Inspection, a BMW Annual Service must be performed.

In this Repair Manual, the individual maintenance intervals

are shown by the following codes:

- Inspection at 1,000 km (600 miles).....**I**
- BMW Service at 10,000 km (6,000 miles).....**II**
- BMW Inspection at 20,000 km (12,000 miles) .. **III**
- BMW Annual Service..... **IV**

Maintenance Schedule Checklist

- The Maintenance Schedule Checklist is used to make sure all the maintenance is carried out at the proper time. The checklists are displayed on pages 66 and 67 to alert you of new procedures necessary on the R 1200 CL.
- All current model Maintenance Schedule Checklists are accessed online from the **MTAS** (Aftersales> Service> Technical Information). As a time saving tip, print out multiple copies and store them for readiness.

R 1200 CL

US Market Service Lubricants, Sealants and Thread Lockers

Oils/Fluids/Antifreeze		Notes	Part Number
Engine Oil	10W40 (petroleum)	Box of 12 one quart bottles	07 51 1 467 607
	20W50 (petroleum)	Box of 12 one quart bottles	07 51 1 467 608
	10W50 (petroleum)	Box of 12 one quart bottles	07 51 1 467 613
	15W50 (Super Synthetic)	Not for F 650, 1 quart bottle	07 51 1 469 908
Gear Oil	80W90 GL-5 (petroleum)	1 quart bottle	07 51 1 467 611
	75W140 (Super Synthetic)	1 quart bottle	07 51 1 469 906
Fork Oil	10W Grade	1 quart bottle	31 42 9 062 158
	7.5W Grade	1 quart bottle	07 53 1 467 609
Brake Fluid	DOT 4	12 oz.	81 22 0 142 156
	DOT 4	1 Gallon	81 22 0 142 155
Antifreeze	Specially formulated for BMW	1 Gallon	81 14 1 467 704

Lubricants	Application	Old P/N	Use this	Source	Part Number
Optimoly MP 3	High performance lubricating paste	07 55 9 062 476	BMW Lube	BMW	99 99 0 000 601
Optimoly TA	High temperature assembly paste	18 21 9 062 599	Never-seize	Loctite	80078/(PX 133K)
Silicone grease 300, heavy	Damping grease (ie, use for K 75 steering damper)	N/A	N/A	BMW	07 58 9 058 193
Retinax A	Taper roller bearing grease	81 22 9 407 710	BMW Grease	BMW	99 99 0 000 601
Contact spray	Contact spray	81 22 9 400 208	Contact cleaner	Loctite	80068/(PX 109D)
Sealants					
3-Bond 1209	Surface sealant	07 58 9 062 376	Sealing compound	Loctite	80036/(PX 66BR)
Loctite 574	Surface sealant	81 22 9 407 301	Loctite 574	Loctite	51813
Curil K	Heat-conductive sealant	81 22 9 400 243	Permatex 3D	Loctite	Permatex 3D
2 Hylomar SO 32 M	Permanently elastic sealant	81 22 9 400 339	Hylomar SQ 32 M	BMW	81 22 9 400 339
Adhesives and retaining agents					
Loctite 648	Structural adhesive, ultra high speed	07 58 9 067 732	Loctite 648	Loctite	21443
Loctite 638	Joint connector	07 58 9 056 030	Loctite 638 (green)	Loctite	64000
Loctite 243	Thread retainer, medium strength	07 58 9 056 031	Loctite 243 (blue)	Loctite	24200 or 24300
Loctite 270	Thread retainer, strong	81 22 9 400 086	Loctite 270	Loctite	21438
Loctite 2701	Thread retainer	33 17 2 331 095	Loctite 270	Loctite	21438
Loctite 454	Cyanacrylate adhesive	07 58 9 062 157	Loctite 454	Loctite	69400
Loctite 480	Prism Cyanacrylate adhesive		Loctite 480	Loctite	48040
3 Bond 1110 B	Joint adhesive	07 58 9 056 998	Adhesive 1110B	Loctite	49450
Cleaner					
Brake Cleaner	Brake Cleaning	81 22 9 407 704	Brake Cleaner	Loctite	82585
Testing Agent					
Penetrant MR 68	Crack testing agen for aluminum housings	81 22 9 407 494	Penetrator	Loctite	80052/80068
1-800-LOCTITE (562-8483), in Canada = 1-800-263-5043 or www.loctite.com					

R 1200 CL

Maintenance Schedule Checklist, Page 1

BMW Motorcycles

Maintenance Schedule

R 1100 S R 1150 GS R 1150 R R 1150 RS

R 1150 RT R 1200 C/CL



Customer Name _____	Repair Order Number / Date _____	BMW Inspection 600 miles	BMW Service 6,000 miles	BMW Inspection 12,000 miles	BMW Annual Service
Vehicle Identification Number (VIN) _____	Mileage In _____				
Check Vehicle History for any outstanding recalls.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Read Motronic fault memories with BMWMoDiTeC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Integral ABS equipped - Perform bleed test with BMWMoDiTeC. (Print test results, attach to RO and file in Vehicle History File) 		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check Brake pads and discs for wear, renew as necessary*			<input type="checkbox"/>	<input type="checkbox"/>	
Check condition of tires		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check ABS sensors/pulse wheels for correct gap/contamination Adjust and clean as required *		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check front/rear brake fluid levels, top up if necessary*		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check brake system with regard to function, leaks, repair as required *					
<ul style="list-style-type: none"> Non ABS & ABS II ONLY - Change brake fluid once a year with DOT 4 Fluid.* 					<input type="checkbox"/>
<ul style="list-style-type: none"> Integral ABS equipped - Replace brake fluid in <u>wheel circuit</u> once a year (DOT 4).* 					<input type="checkbox"/>
<ul style="list-style-type: none"> Integral ABS equipped - Replace brake fluid in <u>control circuit</u> every 2 years (DOT 4).* 					<input type="checkbox"/>
<ul style="list-style-type: none"> Integral ABS equipped - Perform bleed test with BMWMoDiTeC. (Print test results, attach to RO and file in Vehicle History File) 					<input type="checkbox"/>
Check clutch operating fluid level. (fluid level increases as clutch wears)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Change clutch operating fluid every 2 years (DOT 4 brake fluid).*					<input type="checkbox"/>
Re-torque cylinder head nuts (torque to 20 Nm, then 180°)		<input type="checkbox"/>			
Check/adjust valve clearances		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check condition of spark plugs			<input type="checkbox"/>		
Replace spark plugs				<input type="checkbox"/>	
Change engine oil when at operating temperature, renew oil filter. (for short distance driving or when outside temperature is below 32 F every 3 months or 1800 miles.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change transmission oil when at operating temperature. (or every 2 years at the latest)				<input type="checkbox"/>	<input type="checkbox"/>
Change oil in rear drive when at operating temperature. (or every 2 years at the latest)		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Non ABS & ABS II Only- Clean inductive speed sensor at rear drive. (or every 2 years at the latest) R 1200 C, R 1100 S		<input type="checkbox"/>		<input type="checkbox"/>	
Check/adjust throttle cable play; any sticking, abrasion, tightness; replace*		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* invoiced as a separate item

Page 1 of 2

↓ Continue on page 2 ↓

R 1200 CL

Maintenance Schedule Checklist, Page 2

BMW Motorcycles

Maintenance Schedule (Continued)

- R 1100 S
 R 1150 GS
 R 1150 R
 R 1150 RS
 R 1150 RT
 R 1200 C

 Vehicle Identification Number (VIN)

	BMW Inspection 600miles	BMW Service 6,000miles	BMW Inspection 12,000miles	BMW Annual Service
Retension poly-V-belt Re-adjust new poly-V-belt one time at 6,000 miles		<input type="checkbox"/>		
Replace poly-V-belt* Replace poly-V-belt every 36,000 miles			<input type="checkbox"/>	
Renew fuel filter every 24,000 miles*; if fuel quality is poor every 12,000 miles.			<input type="checkbox"/>	
Check battery acid level, top up with distilled water if necessary; grease battery terminal posts.			<input type="checkbox"/>	<input type="checkbox"/>
Renew intake air filter (if riding in dirty/dusty conditions every 6,000 miles/check more frequently)			<input type="checkbox"/>	
Check torque of the rear wheel retaining bolts _____ Lb/ft _____ Nm. (76 lb/ft 105Nm)	<input type="checkbox"/>			
Check play in Telelever, wheel and swingarm bearings, renew if necessary. (replace wheel and swing arm bearings every 25,000 miles*)	<input type="checkbox"/>		<input type="checkbox"/>	
Adjust tire pressure to specification: Front _____ PSI Rear _____ PSI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grease side stand/center stand pivots		<input type="checkbox"/>	<input type="checkbox"/>	
Check for smooth operation of throttle butterflies, tighten hose clamps to eliminate possibility of air leaks, synchronize throttle valves and adjust idle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Final inspection with safety/operating check: <ul style="list-style-type: none"> • Lights, brake light, turn indicators, horn • Telltale and warning lights • Clutch, gear/neutral and side stand switch functions • Handbrake, footbrake and ABS; steering • Instruments and locks (including optional accessories: radio, alarm, cruise control, etc.) • Test ride, visual quality check • Stamp Service & technical booklet 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* invoiced as a separate item

Page 2 of 2

↓ **Maintenance Complete, Sign and Record Mileage Below** ↓

 Technician Signature

 Date

 Mileage Out

9/02

R 1200 CL

BMW Inspection I Procedures (600 Miles)

Check Vehicle History for outstanding Recalls using BMW DCSnet

BMW inspections/services I, II, III, IV

- www.bmwdcnet.com/dcsnet

Check Motronic and ABS fault memories with MoDiTeC

BMW inspections/services I, II, III, IV

- Connect MoDiTeC to diagnostic plug.
- Read the fault memories of each system. Print out trace report and place into history file as proof completion.
- If faults are logged, contact owner for approval. When advised, perform any diagnosis and repair work as necessary.

Check Brake Fluid Levels and perform Integral ABS Bleed Test

BMW inspections/services I, II, III, IV

- Refer to procedure on page 54 of this manual.

Check Tires

BMW inspections/services I, II, III, IV

- Check tire sidewalls and tread grooves
- Check Tire Pressures. Tire pressures are same for all conditions (solo, 2-up, & 2-up with luggage).

Front: 2.5 bar (36.25 psi)
Rear: 2.9 bar (42.05 psi)

Check ABS sensors and pulse wheels for correct gap/contamination

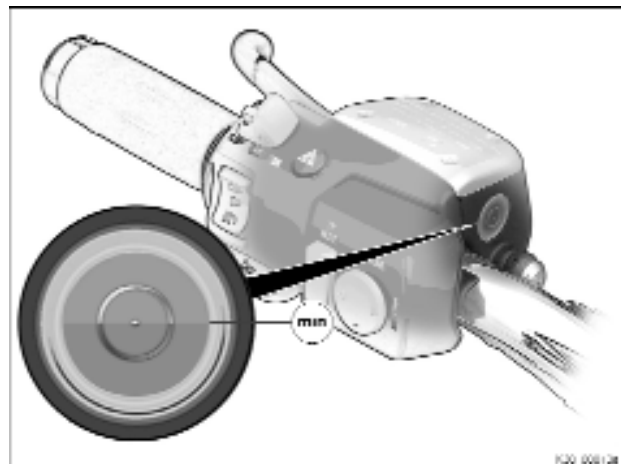
BMW inspections/services I, II, III, IV

- Adjust and clean as required
- Speed sensor gap 0.2-1.5mm

Check Clutch Operating Fluid

BMW inspections/services I, II, III, IV

- With motorcycle on center stand, turn the handlebar fully to the right.
- Desired fluid level when clutch lining is new is center of sight glass.



Check Clutch Fluid Level

- If necessary, add DOT 4 brake fluid.

Note: Fluid level will *increase* as the clutch plate wears. Fluid level must not fall below minimum (center dot). If a large amount of fluid is needed to bring level up, consider the possibility of a leak in the hydraulic actuating system.

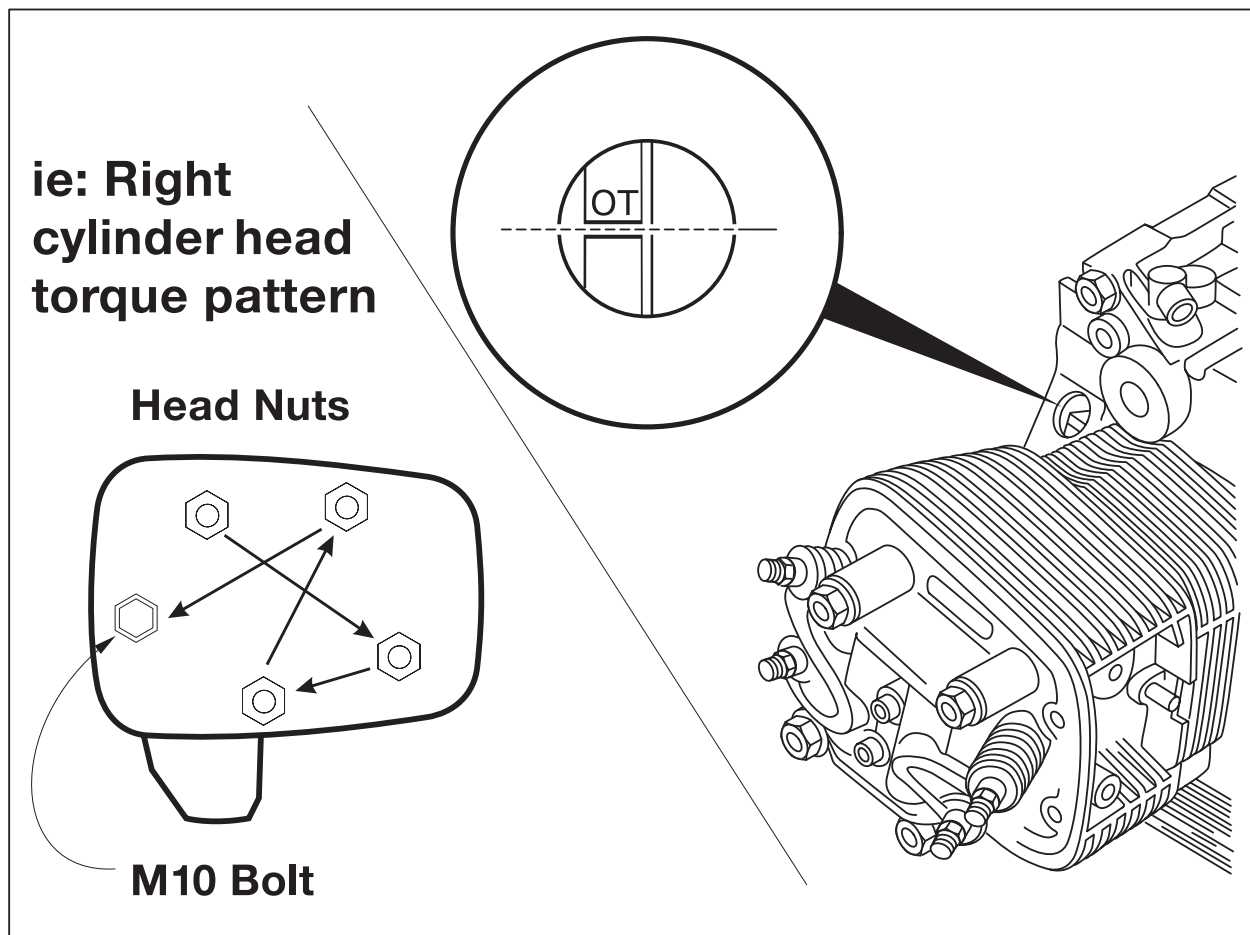
R 1200 CL

BMW Inspection I Procedures (600 Miles)

Re-torque cylinder head

Inspection I (600 Mi. only)

- Remove ignition coils using new special tool 12 3 561
- Remove cylinder head covers. **Caution:** catch draining oil.
- Do not remove spark plugs.
- Set engine to OT (TDC) by turning the crankshaft with wrench or by placing in 3rd gear and rotating the rear wheel.
- The OT will be visible in the inside window as shown
- Loosen one cylinder head nut at a time. Loosen nut further by hand and oil threads with engine oil.
- Retighten to: 20 Nm (14 ft. lb.) - Additionally, angle torque: 180°
- Re-torque the remaining 3 cylinder head nuts in a crosswise pattern in the same manner.
- Loosen and re-torque the M10 bolt: 40 Nm (29 FT. LB.)
- Repeat on opposite side



R 1200 CL

BMW Inspection I Procedures (600 Miles)

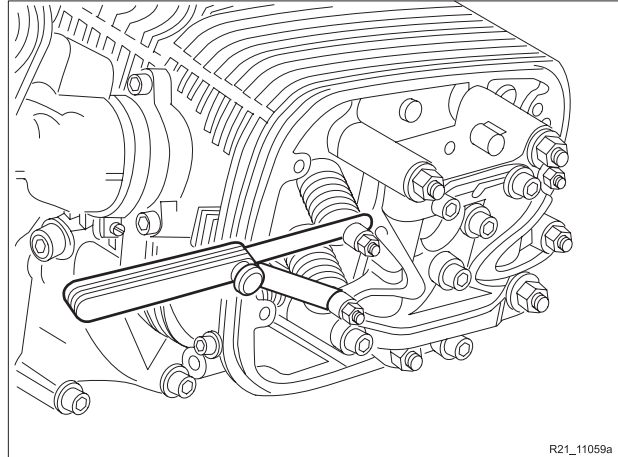
Checking / adjusting valve clearance

BMW inspections/services I, II, III, IV

- Check valve clearances with two feeler gauges simultaneously and engine temperature below 95° F.
- Adjust clearance if necessary

Caution: Make sure gaskets are seated correctly, the center gasket may have a wear pattern, install in same position as it was removed.

- Reinstall all components and torque to specification.



Check Valve Clearances, Adjust if necessary

Valve Clearances:

Intake	0.15 mm (0.006 in.)
Exhaust	0.30 mm (0.012 in.)

Tightening torque:

Adjuster lock nut, 8 Nm (6 ft. lb.)
Cylinder head cover, 8 Nm (6 ft. lb.)

R 1200 CL

BMW Inspection I Procedures (600 Miles)

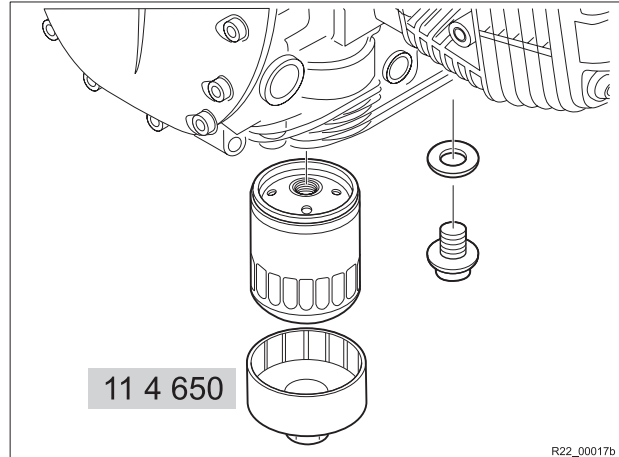
Changing Engine Oil & Filter

BMW inspections/services I, II, III, IV

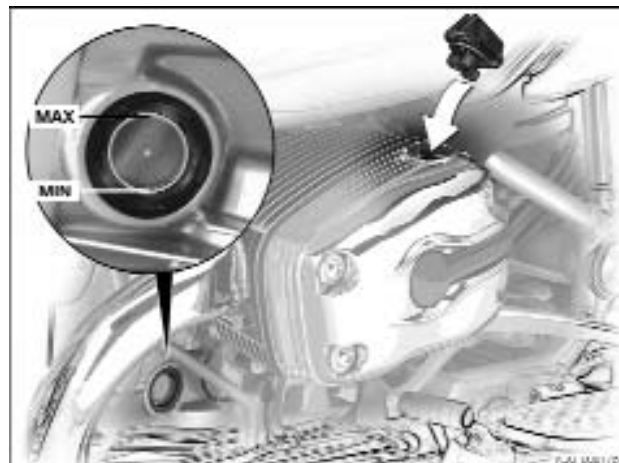
Note: Drain oil with engine at operating temperature.

- Remove fill plug.
- Unscrew oil drain plug & drain oil.
- Fit oil drain screw plug with new sealing ring.
- Using oil filter wrench, P/N 88 88 6 11 4 650, unscrew oil filter.
- Coat sealing ring of new oil filter with oil and screw in.
- Fill the new oil filter with oil and, install.
- Recheck oil level approx. 10 minutes after test run.

Important: Never top up engine oil above 'MAX' mark.



Change Engine Oil and Filter



Add new to proper level (do not overfill)

Filling capacity, engine:

With oil filter change 4 qt.
Without filter change 3.7 qt.
Oil capacity between min and max marks app. 0.5 liter (.53 qt)

Tightening torque:

Oil filter 11 Nm (8 ft. lb.)
Oil drain plug 32 Nm (23 ft. lb.)

Engine oil grades:

Brand-name HD oil for petrol engines of API classification SG/SH

R 1200 CL

BMW Inspection I Procedures (600 Miles)

Changing rear drive oil

BMW inspections/services I, III, IV

- Unscrew oil filler plug and oil drain plug/drain oil.
- Screw in oil drain plug with new sealing ring.
- Fill with transmission oil.
- Screw in oil filler plug with new sealing ring.



Rear Drive Oil Change

Check throttle cables for kinks, abrasion and verify smooth operation - replace if necessary

BMW inspections/services I, II, III, IV

- Inspect cables for external wear or breaks in casing from rubbing on other components.
- Turn handlebars to full lock left and right while operating throttle twist grip. If abnormalities in “twist grip feel” are present, determine location of binding and repair.
- Ensure throttle twist grip “snaps” back to closed position when held in open position and released.
- Do not lubricate cables! They are designed to operate dry.

Filling capacity:

Rear wheel drive up to bottom edge of filler opening 0.25 Liter

Transmission oil grade:

Brand-name Hypoid gear oil of SAE 90 API Class GL 5

Tightening torque:

Oil drain plug, 23 Nm (17 ft. lb.)
Oil filler plug, 23 Nm (17 ft. lb.)

R 1200 CL

BMW Inspection I Procedures (600 Miles)

Check throttle/cruise control cables play - adjust only if necessary.

BMW inspections/services I, II, III, IV
- **Only with cold engine (< 35°C / 95°F).**

- Switch Ignition on to allow the idle control motor to position the throttle plates for cold engine starting.
- Rotate throttle grip to full open, return to idle, then twist further in closed direction, listen for cruise control closer cable switch “click”. You should also feel detent.
- Return grip to normal idle position, Preset cable end play at adjusters for opener cable (1) and closer cable (2). (APPROXIMATE VALUES)

Opener cable (1) = 7mm
Closer cable (2) = 1mm

- Remove plastic throttle cable covering (detail in top illustration). Twist throttle backward to activate switch. Measure distance of notch and stop. Must be 3mm or more. Use closer cable adjuster (2) to achieve distance if necessary.
- Adjust clamping sleeves for cruise control and throttle cables located behind fairing as shown.

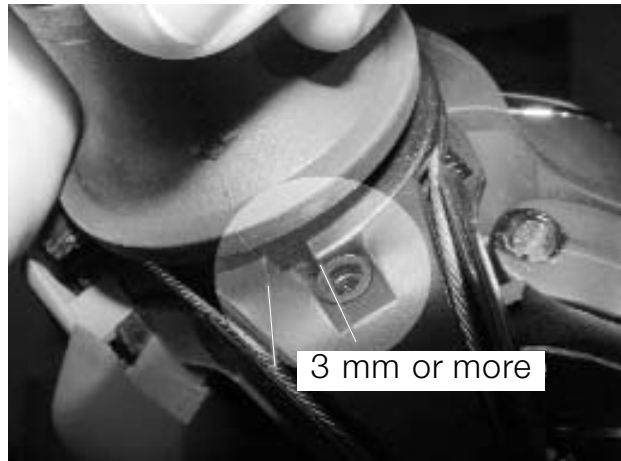
Cruise Control cable = 2-3 mm
Throttle Cable = 3.0 mm

As the engine warms up to operating temperature, the throttle cable play will reduce to approximately 1mm

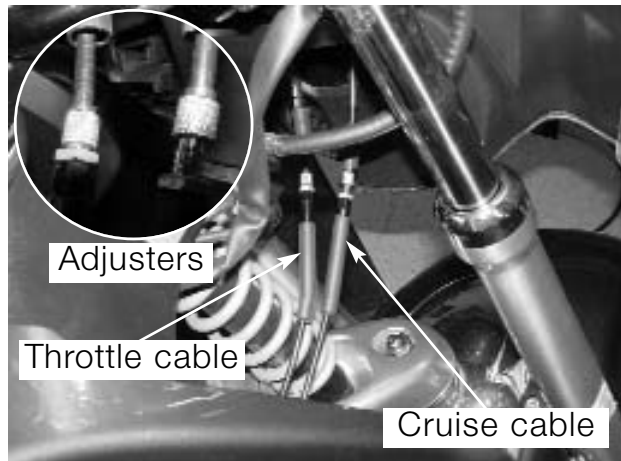
Check cables for smoothness as you turn bars from left to right. Check function of cruise control system by performing self test (see page 33).



Cable Adjustment Points



Closer Cable twist grip measurement



Cable Adjustment points

R 1200 CL

BMW Inspection I Procedures (600 Miles)

Torque Rear Wheel bolts

BMW inspections/services I

- Tighten the rear wheel studs in a crosswise pattern.

Tightening torque:

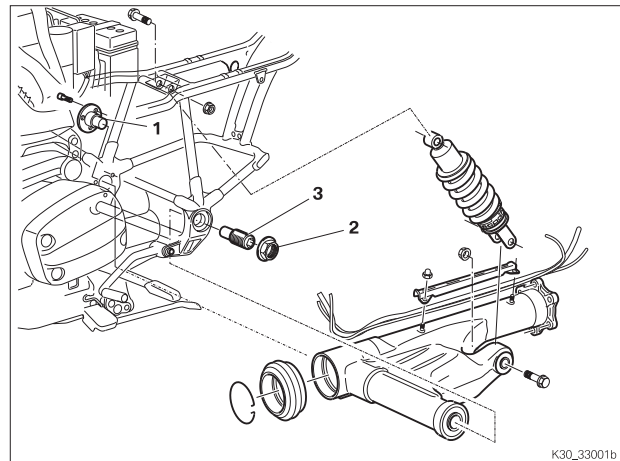
Rear wheel studs; 105 Nm (77 ft. lb.)

Check the rear drive, wheel, and swing arm bearings for play

BMW inspections/services I, III

- With motorcycle on accessory stand, rock the rear wheel side to side. Look for play at the rear drive, wheel and swing arm bearings.
- If play is detected at any of these locations, isolate and repair.

If play is detected at swing arm, re-torque swing arm bearing



Tightening torque:

Bearing journal for rocker at right side frame, 9 Nm (6.5 ft. lb.)

Bearing journal for rocker at right side frame, 7 Nm (5.0 ft. lb.)

Lock Nut for bearing journal rocker 160 Nm (115.0 ft. lb.)

R 1200 CL

BMW Inspection I Procedures (600 Miles)

Check throttle synchronization values with MoDiTeC

BMW inspections/services I, II, III, IV

Note: The R 1200 CL has a common throttle linkage system and an Idle Control management feature of Motronic. These two features have deemed the throttle synchronization useless on the R 1200 C/CL models.

However, as a measure of quality service, the throttle sync should be checked solely to ensure the system is free of air leaks that could lead to engine poor performance issues and customer dissatisfaction.

- Connect Synchro unit to intake vacuum ports and MoDiTeC.
- Engine should not run longer than 10 minutes while stationary. Have a fan running to cool engine. Do not leave unattended.
- The max difference should not exceed 0.3 bar as displayed by MoDiTeC.

If excessive difference is present, it is most likely an intake air leak which must be repaired.



Throttle Synchronization Test

R 1200 CL

BMW Inspection I Procedures (600 Miles)

Final Inspection with road safety and function check

BMW inspections/services I, II, III, IV

Check the operation of the following:

- Clutch & gearshift operation.
- Steering.
- Front & rear brakes.
- Clutch & gearshift operation.
- Cruise Control
- Tail light, stop light, and turn signals.
- Horn operation.
- Test ride (14 - 16 miles).
- ABS brake operation.
- Idle speed (after the test ride).
- Radio/ sound system
- Complete the Proof of Ownership section in the Service & Technical Booklet.

R 1200 CL

Service & Maintenance Data

Item	Specification	Units / Specifications
Lubricant capacities		
Engine (with filter)	3.75 (6.6/4)	litres (Imp. pints/US quarts) [Circular No. 2]
Transmission	approx. 0.8 (1.4/0.84) Oil to bottom edge of filler neck	litres (Imp. pints/US quarts) Brand-name hypoid gear oil, SAE grade 90 GL-5 or Castrol MTX SAE 75W 140 GL-5
Rear wheel drive	approx. 0.2 (0.35/0.21) Oil to bottom edge of filler neck	litres (Imp. pints/US quarts) Brand-name hypoid gear oil, SAE grade 90 GL-5
Valve clearances		
Inlet valve	0.15 (0.006)	measured cold (max. 35 °C/95 °F) mm (in)
Exhaust valve	0.30 (0.012)	mm (in)
Spark plugs		
Electrode gap	FR 6 DDC	Bosch
Wear limit	0.8	mm
Idle speed		
	900 ±100	rpm
Throttle cable setting		
without cruise-control system	approx. 1.5 (0.06)	engine warm mm (at throttle twist grip)
[cruise control] clearance between stop for cable pulley and edge of pulley	3 (0.12)	mm (at throttle twist grip)
[cruise control] cruise-control cable	2...3 (0.08..0.12)	mm (at tensioning sleeve)
[cruise control] throttle-valve cable	3 (0.12)	mm (at tensioning sleeve)
Brakes		
Brake fluid		DOT 4
Colour of identification mark on brake calipers/brake pads, front	green	
Brake disc thickness, min., front	4.5 (0.18)	mm (in)
Brake disc thickness, min., rear	6.5 (0.26)	mm (in)
Tyre pressures		
front (all load conditions)	2.5 (36.3)	bar (psi)
rear (all load conditions)	2.9 (42.06)	bar (psi)
Poly-V belt		
Preload	8	Nm (engine cold)
Tightening torques		
Oil filter	11	Nm
Engine oil drain plug	32	Nm
Gearbox oil drain plug	55	Nm
Gearbox oil filler plug	30	Nm
Clamp for manifold	55 (apply Optimoly TA to clamp seating faces)	Nm
Silencer heat shield	12	
Rear wheel drive unit drain plug	23	Nm
Rear wheel drive unit filler plug	23	Nm
Fuel tank to rear frame	10	Nm
Cylinder head nuts	Loosen / 20 +180	Nm (oiled) ° additional angle of rotation
Cylinder head screw, M10	40	Nm
Locknut, valve adjusting screw	8	Nm
Cylinder head cover	8	Nm
Spark plugs	25	Nm
Brake caliper, front, to slider tube	30	Nm
Brake caliper, rear, to rear wheel drive	40	Nm
Fastener of quick-release axle, front wheel	30	Nm
Clamp screws of quick-release axle, front wheel	20	Nm
Rear wheel to rear wheel drive unit	105	Nm

R 1200 CL

New Special Tools - Part of Automatic Initial Tool Shipment

The special tools outlined on the following pages are service maintenance requirements. They are in the initial tool package and have been shipped to every US market BMW Motorcycles Retailer. Also included in the R 1200 CL initial tool package are additional tools for F 650 CS and the latest SD ROM (9/02).

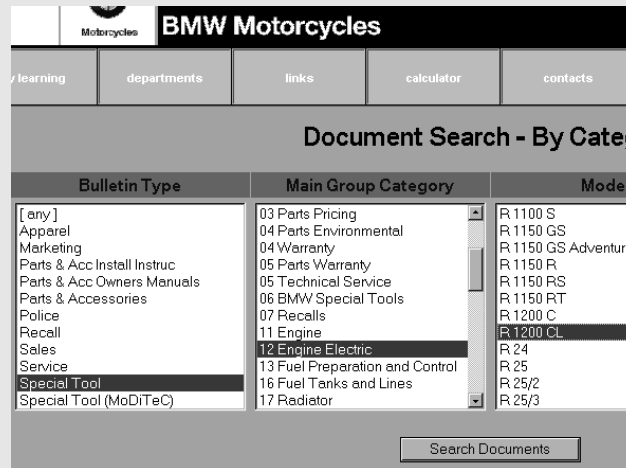
Part Number	Designation / purpose
	Special tools for R 1200 CL
90 88 6 001 630	00 1 630 / Service stand with integrated scissor R 1200 CL
90 88 6 123 560/561	12 3 560/561 / Spark plug cavity-ignition coil extractor
90 88 6 234 800/801	23 4 800/801 / Gearbox drain plug hex-head driver insert, length 14 mm
90 88 6 341 590/591	34 1 590/591 / Rear Caliper Piston resetting device
	For R 1200 CL diagnosis
90 88 6 122 500/501	12 2 500/501 / Primary ignition signal check adapter cable
90 88 6 127 050	12 7 050 / Secondary ignition signal check adapter cable
	Additional tools for F 650 CS diagnosis
90 88 6 122 510/511	12 2 510/511 / Primary ignition signal check adapter cable
90 88 6 122 520/521	12 2 520/521 / Secondary ignition signal check adapter cable
	Additional special tool for F650CS
90 88 6 271 510/511	27 1 510/511 / Output shaft belt pully holder (used when torquing nut)

Special Tool Catalog on MTAS

The special tools catalog has been restructured on MTAS. The tools are now categorized and accessed via the “On-line Bulletin Search”.

From the department button on the home page or in the Service, Parts, or Sales sections of the site, click on the “On-line bulletin Search” button.

Click “Search By Categories”, then select special tool or special tool (MoDiTeC) if its an adapter cable used for MoDiTeC diagnosis. Then you may specifically choose the main group and the model for a specific search, then press the search documents button.



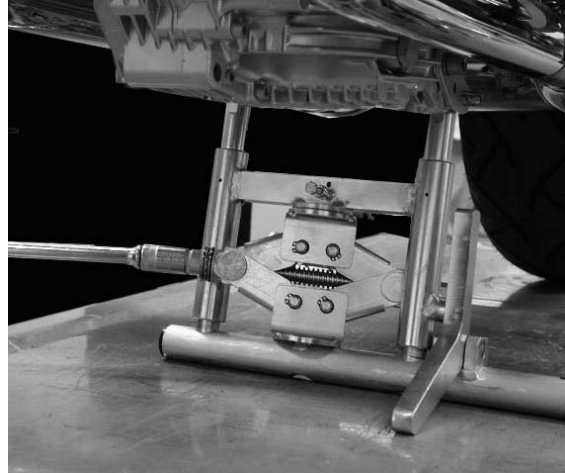
Special Tools Catalog moved to bulletin search

R 1200 CL

New Special Tools - Part of Automatic Initial Tool Shipment

- Auxiliary Stand** 90 88 6 001 630
- Base: 90 88 6 001 631
- Jack: 90 88 6 001 633
- Handle: 90 88 6 001 634

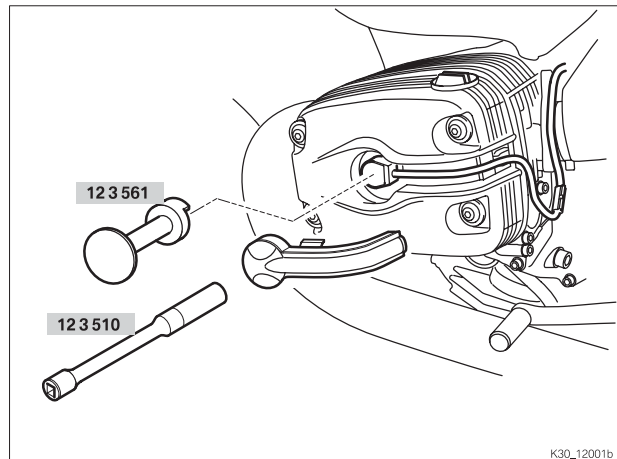
Part of Automatic Tool Shipment



Auxiliary Stand Assembly

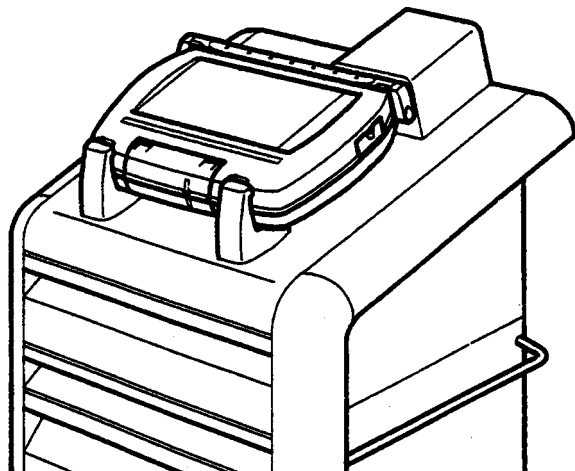
- Coil extractor** 90 88 6 123 561

Used to extract ignition coil from cover.
Part of Automatic Tool Shipment



Ignition Coil Extractor

- Adapter Cable** 90 88 6 122 501
- Used to interface ignition coil primary circuit with MoDiTeC for diagnosis
Part of Automatic Tool Shipment

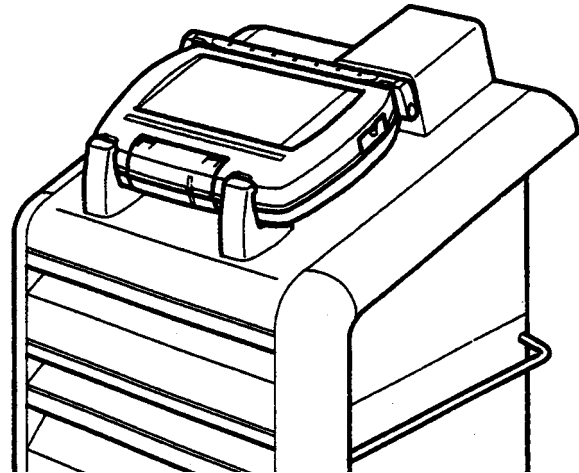


Check primary ignition wave form with MoDiTeC

R 1200 CL

New Special Tools

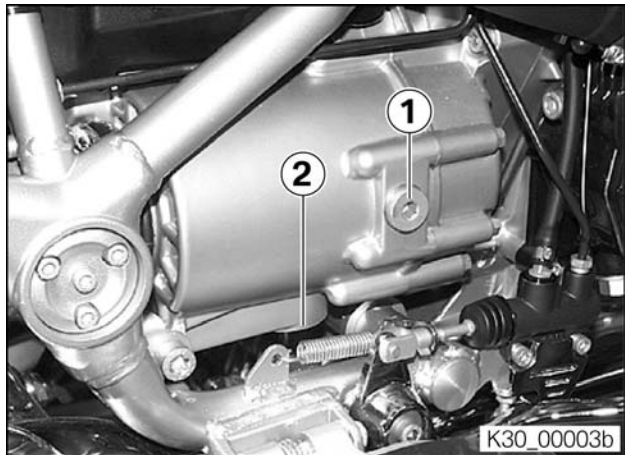
Adapter Cable 90 88 6 127 050
Used to interface ignition coil secondary circuit with MoDiTeC.
Part of Automatic Tool Shipment



Check secondary ignition wave form with MoDiTeC

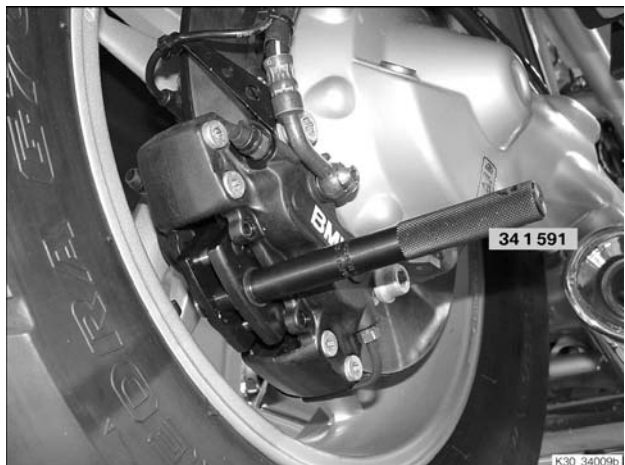
Hex Socket 14mm 90 88 6 234 801

Remove and install gearbox drain plug
Part of Automatic Tool Shipment



Removal and install of Drain Plug (2)

Caliper Spreader 90 88 6 341 591
Resets caliper pistons for bleeding and pad replacement on rear caliper
Part of Automatic Tool Shipment



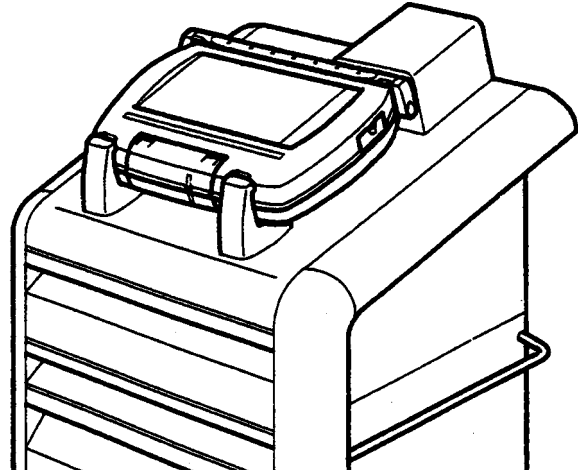
R 1200 CL specific rear caliper spreader

F 650 CS Additional Information

New Special Tools For F 650 CS

Adapter Cable 90 88 6 122 511

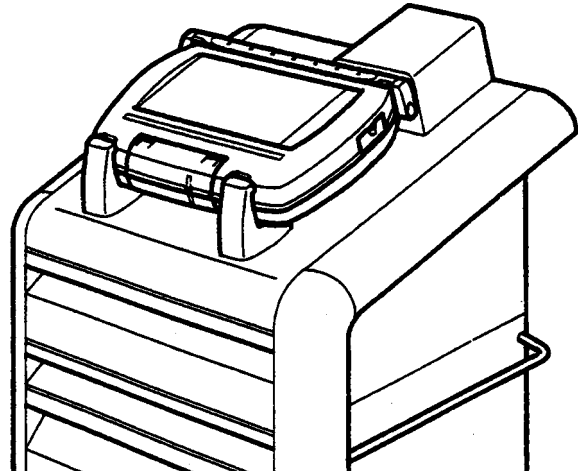
Used to interface ignition coil primary circuit with MoDiTeC for diagnosis.
Part of Automatic Tool Shipment



Check primary ignition wave form with MoDiTeC

Adapter Cable 90 88 6 122 521

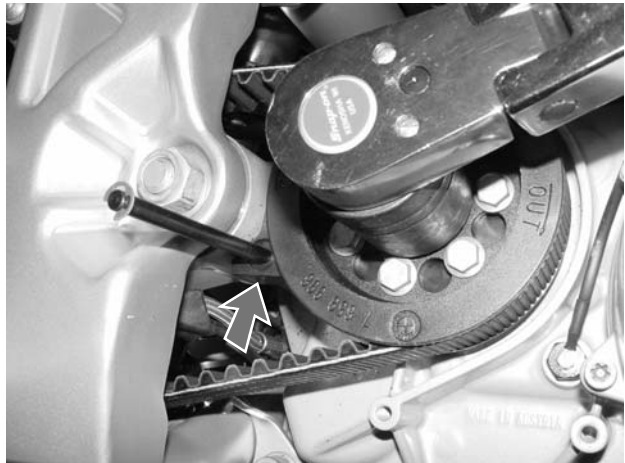
Used to interface ignition coil secondary circuit with MoDiTeC for diag.
Part of Automatic Tool Shipment



Check secondary ignition wave form with MoDiTeC

Pulley Holder 90 88 6 127 511

Used to hold belt pulley for nut removal and torquing when installing new nut.
Part of Automatic Tool Shipment

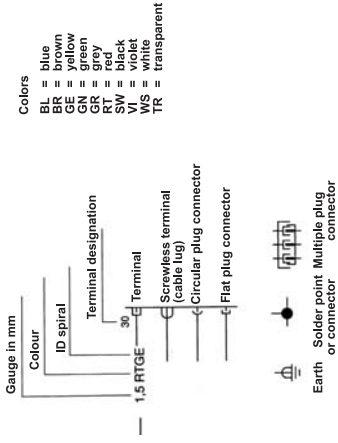


Checks pulley in place when torquing

R 1200 CL

R 1200 CL

Wiring & Terminal Designations



- Colors
- BL = blue
 - BR = brown
 - GL = yellow
 - GR = green
 - GR = grey
 - RT = red
 - SW = black
 - TR = white
 - WS = white
 - TR = transparent

Terminal (KCI)	Designation
1	Ignition coil, Ignition distributor - low voltage (primary winding)
4	Ignition coil, Ignition distributor - high voltage (secondary winding)
15	Ignition switched battery power supply
30	Battery input - constant power supply
31	Ground
49	Input
49a	Output
49b	Second flasher relay output
50	Starter circuit - Starter signal
55	Fog lights
56	Headlights
56a	Main beam headlights and main beam control
56b	Low beam
56d	Passing-light contact
56	Side, tail, license plate and instrument lights
61	Generator (Alternator) indicator light
85	Output, drive, (end of winding, ground)
86	Start of winding
86a	Start of winding or first winding
87	Input
87a	First output (opener side)
87b	Second output
B+	Battery, plus
B-	Battery, minus
D+	Dynamo, plus
D-	Dynamo, minus
DF	Dynamo, field
U.W.V.K.Y	Alternator, alternator terminals (windings)

Electrical Component Designation Legend

A = Control Units (Processors)

- A9001 Instrument cluster
 - A9004 Clock
 - A9008 Cruise Control Module
 - A9020 Flasher relay module
 - A9190 ABS control unit
 - A9229 Fuel Level Indicator, Dampener
 - A9260 A/C Rectifier (Voltage Reg)
 - A9500 Motronic control unit
 - A9700 Alarm Module
 - A9710 Alarm Receiver
 - A9910 CD/Radio Electronics
 - A9920 Radio Display/Controller
- ### B = Sensors
- B9193 Front ABS sensor
 - B9194 Rear ABS sensor
 - B9220 Fuel level sensor
 - B9540 Hall Sensors
 - B9550 Air temp. sensor
 - B9561 Oil temp. sensor
 - B9690 Oxygen sensor
 - B9709 Motion Detector (alarm)
- ### E = Lights
- E9001 Instrument lights
 - E9011 Low beam I
 - E9012 High beam I
 - E9013 Taillight
 - E9015 Marker light I
 - E9016 Marker light II
 - E9039 License plate light
 - E9039 Low Beam II
 - E9044 High Beam II
- ### F = Fuse
- F9200 Fuse box I (+8)
 - F9201 Fuse box II (9-16)
- ### G = Vehicle Power
- G9230 Battery
 - G9240 Alternator
- ### H = Indicators & Output components
- H9002 Neutral Indicator
 - H9012 High beam indicator
 - H9020 Cruise Control Indicator
 - H9030 Front left turn signal
 - H9031 Turn signal indicator
 - H9035 Rear left turn signal
 - H9040 Front right turn signal
 - H9045 Rear right turn signal
 - H9050 Brake light
 - H9095 Oil Pressure indicator
 - H9150 Horn

H9190 ABS and Gen warning Ind.

- H9190 ABS and Gen warning Ind.
 - H9708 Alarm LED Indicator
- ### K = Relays
- K9110 Engine Mang. relay
 - K9120 Load Shed relay
 - K9123 Hazard flasher relay
 - K9125 Turn signal relay
 - K9130 Starter relay
 - K9168 Low Beam Relay
 - K9197 ABS Warning Relay
 - K9348 High Beam Relay
- ### M = Motors
- M9100 Fuel pump
 - M9130 Starter
 - M9575 Idle Control Motor
- ### P = Gauges
- P9002 Rev counter (Tach)
 - P9210 Speedometer
- ### R = Resistors
- R9570 Throttle potentiometer
 - R9611 Spark plug 1
 - R9612 Spark plug 2
 - R9931 Heated grip, left
 - R9932 Heated grip, right
- ### S = Switches
- S9021 Hazard flasher switch
 - S9051 Brake switch, hand
 - S9052 Brake switch, foot
 - S9060 Ignition switch
 - S9070 left comb. switch
 - S9071 High beam switch
 - S9072 Horn switch
 - S9073 Left turn signal switch
 - S9074 Headlight flasher
 - S9080 Right comb switch
 - S9083 Engine Stop Switch
 - S9084 Starter switch
 - S9091 Clutch switch
 - S9092 Neutral safety switch
 - S9093 Side stand switch
 - S9094 Cruise Control Switch
 - S9095 Oil Pressure Switch
 - S9120 Radio Control (handlebar remote control switch)
 - S9930 Heated Grip Switch

V

- V9400 Diode/Resistor (Starting Sys.)

W

- W9690 Oxygen sensor signal ground shield

X = Connectors & Solder Points (SP)

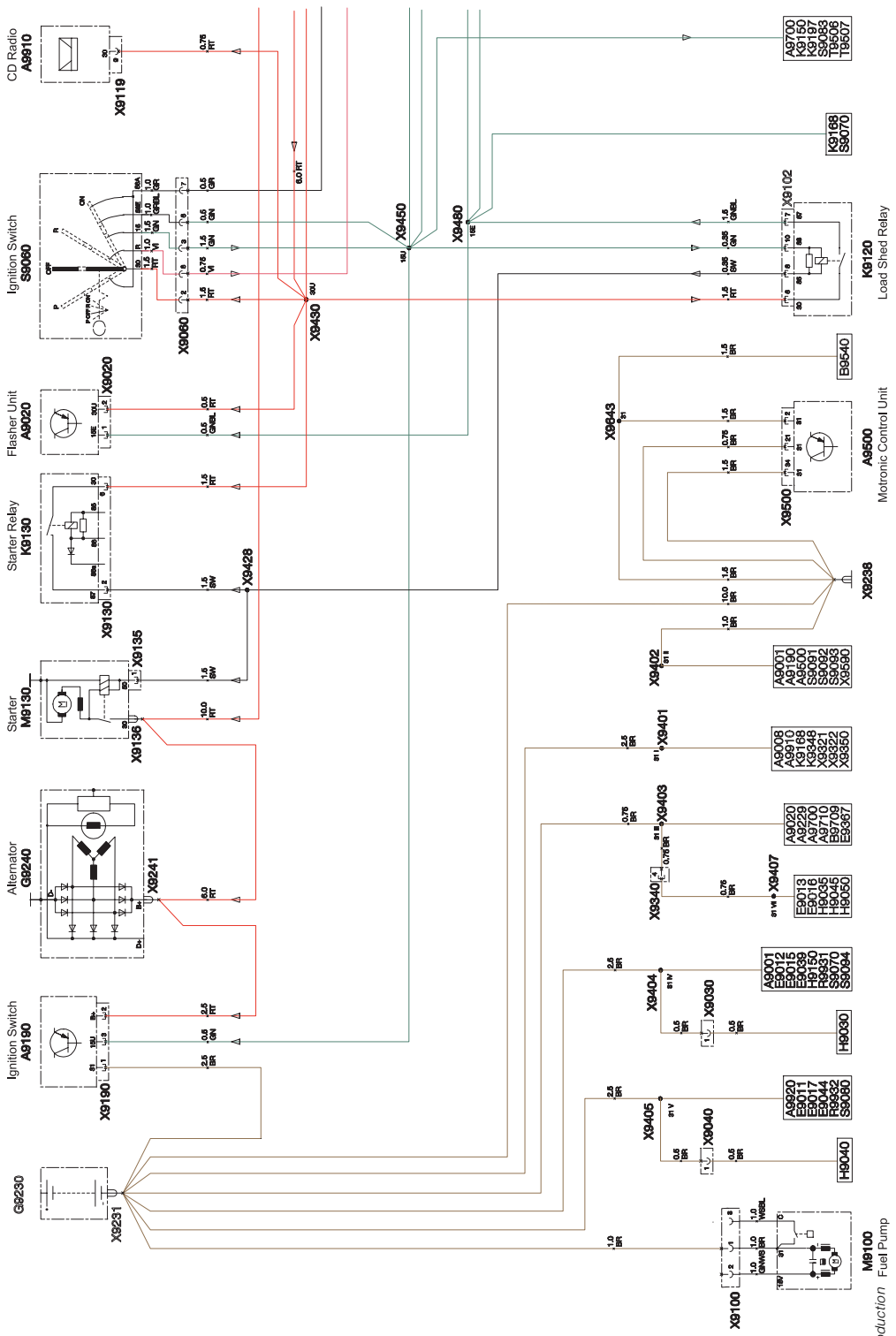
- X9001 Instrument Cluster (Processor inputs)
- X9010 Headlamp
- X9011 License light (58)
- X9012 License light (80)
- X9013 Rear light (31)
- X9014 Rear light (58)
- X9018 Parking Light
- X9020 Flasher relay
- X9021 Hazard warning switch
- X9028 Instrument Cluster (indicator circuits)
- X9030 Front left turn signal
- X9036 Rear left turn signal
- X9037 Rear left turn signal
- X9040 Front right turn signal
- X9047 Rear right turn signal
- X9051 Brake light switch, front
- X9052 Brake light switch, rear
- X9054 Brake light switch, front
- X9060 Ignition Switch
- X9070 Left combination switch
- X9080 Right combination switch
- X9091 Clutch switch
- X9092 Neutral safety switch
- X9093 Side stand switch
- X9095 Oil pressure switch
- X9100 Fuel Pump
- X9123 Hazard flashers
- X9129 Starter relay (86)
- X9130 Starter relay (85)
- X9133 Starter relay (30)
- X9134 Starter relay (87)
- X9136 Starter Relay (30)
- X9157 Horn
- X9190 ABS control unit
- X9193 Front ABS wheel sensor
- X9194 Rear ABS wheel sensor
- X9200 Fuse Box connector
- X9230 Battery positive
- X9231 Battery ground
- X9238 Engine case ground
- X9241 Alternator
- X9334 Hazard flashers
- X9351 Heated grips

Y = Solenoid valves

- Y9572 Evaporative purge valve
- Y9601 Fuel injector

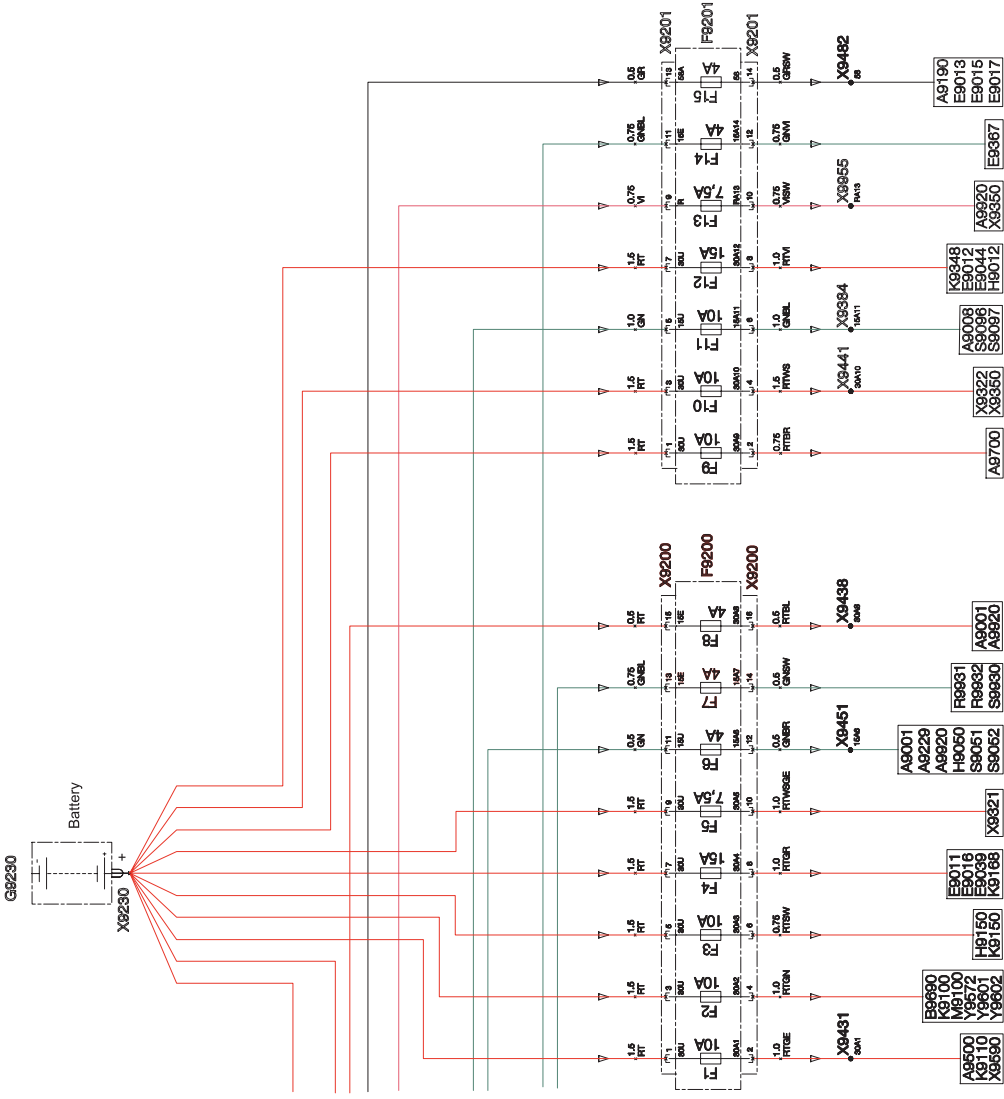
R 1200 CL

Power Distribution and Grounds - Part 1 of 2



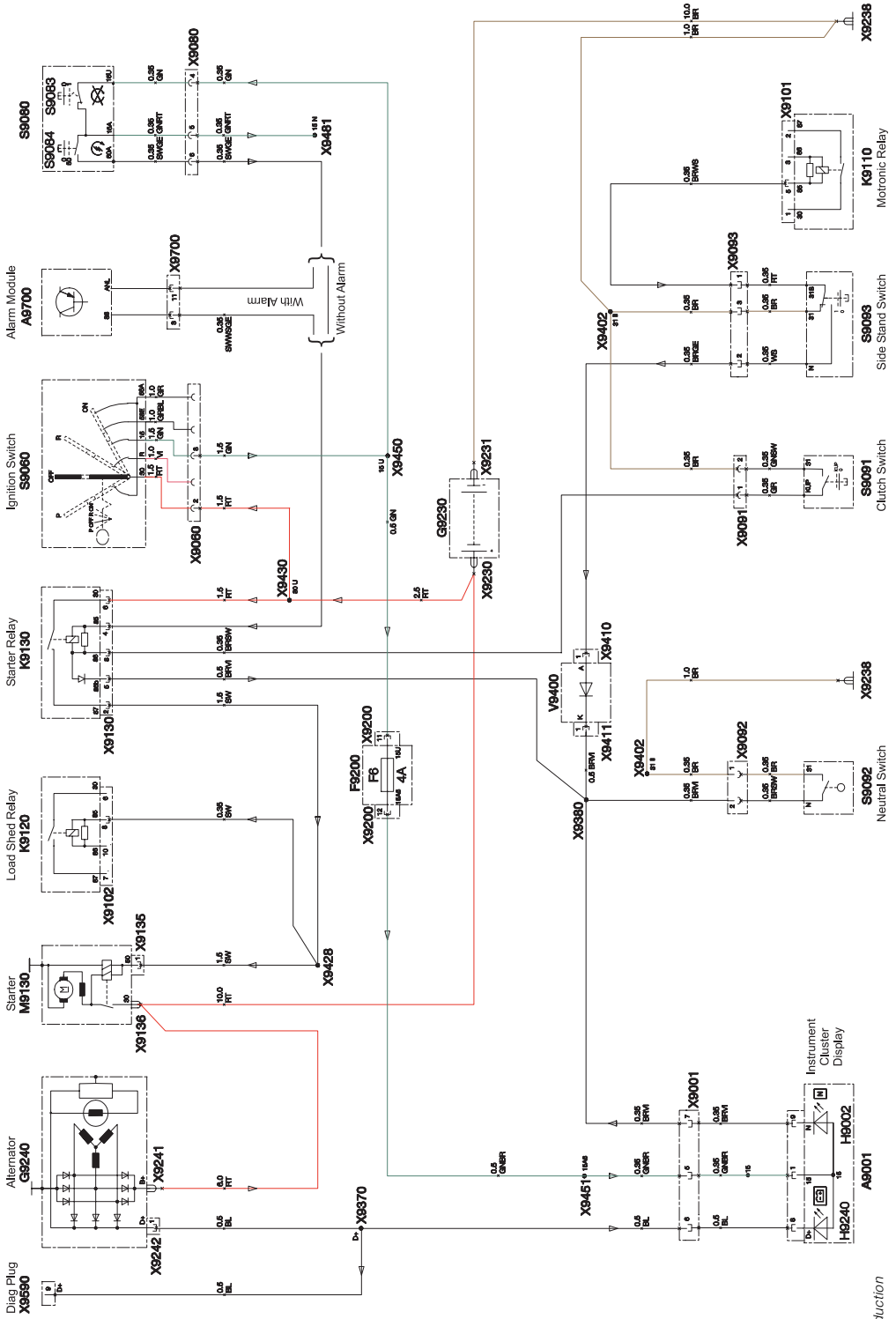
R 1200 CL

Power Distribution and Grounds - Part 2 of 2



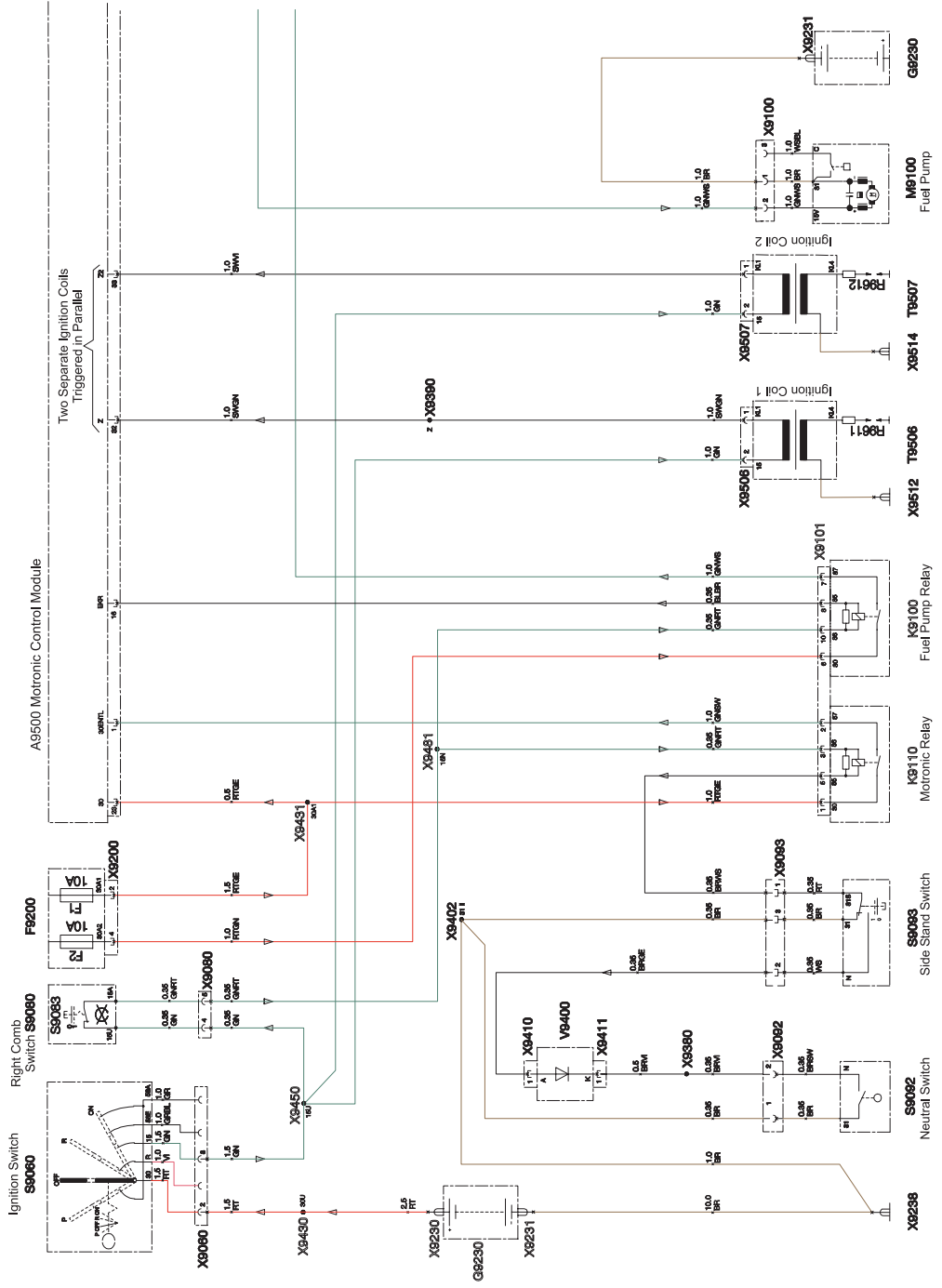
R 1200 CL

Starter and Alternator



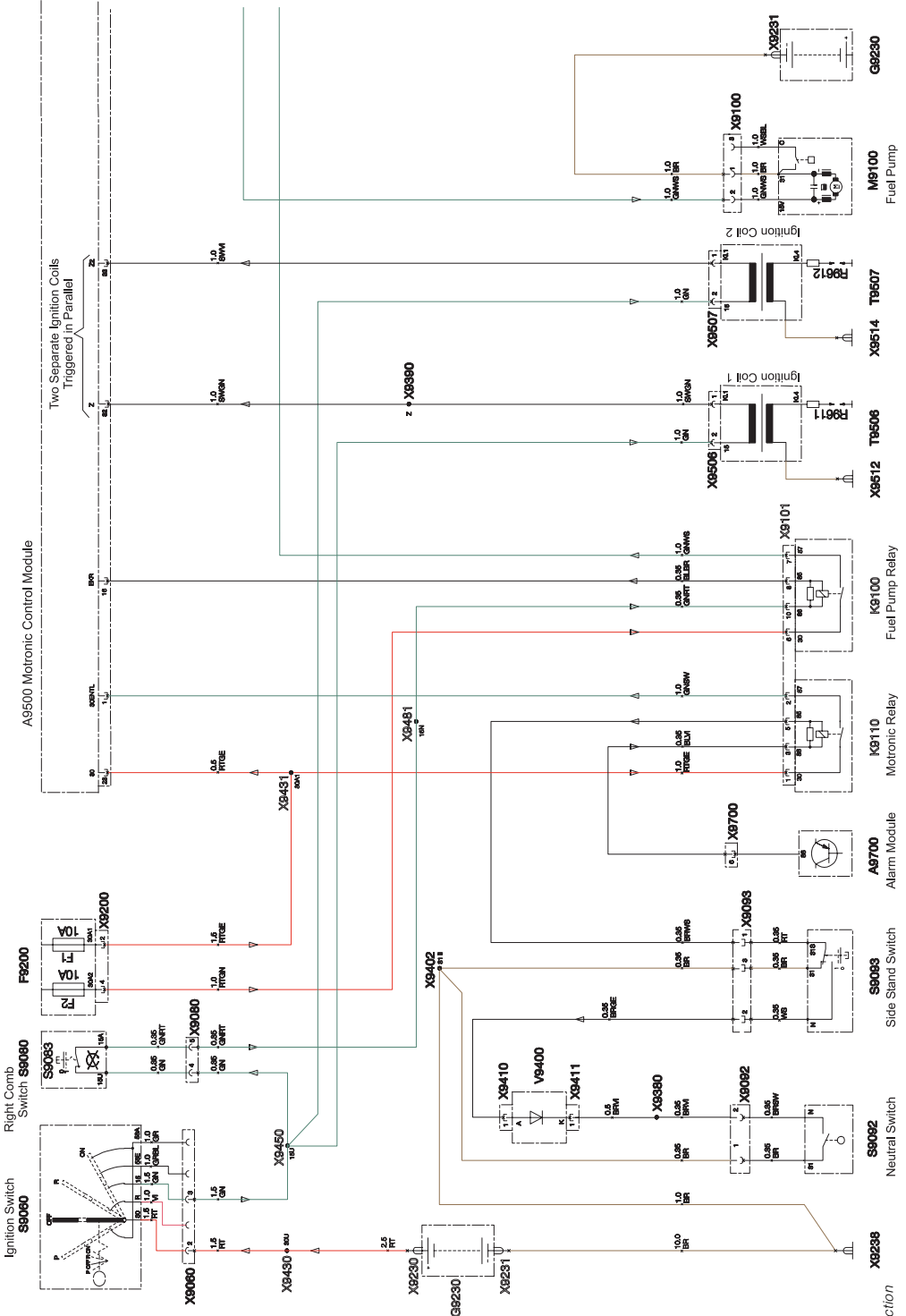
R 1200 CL

Motronic M2.4 without Anti-Theft System (Part 1 of 2)



R 1200 CL

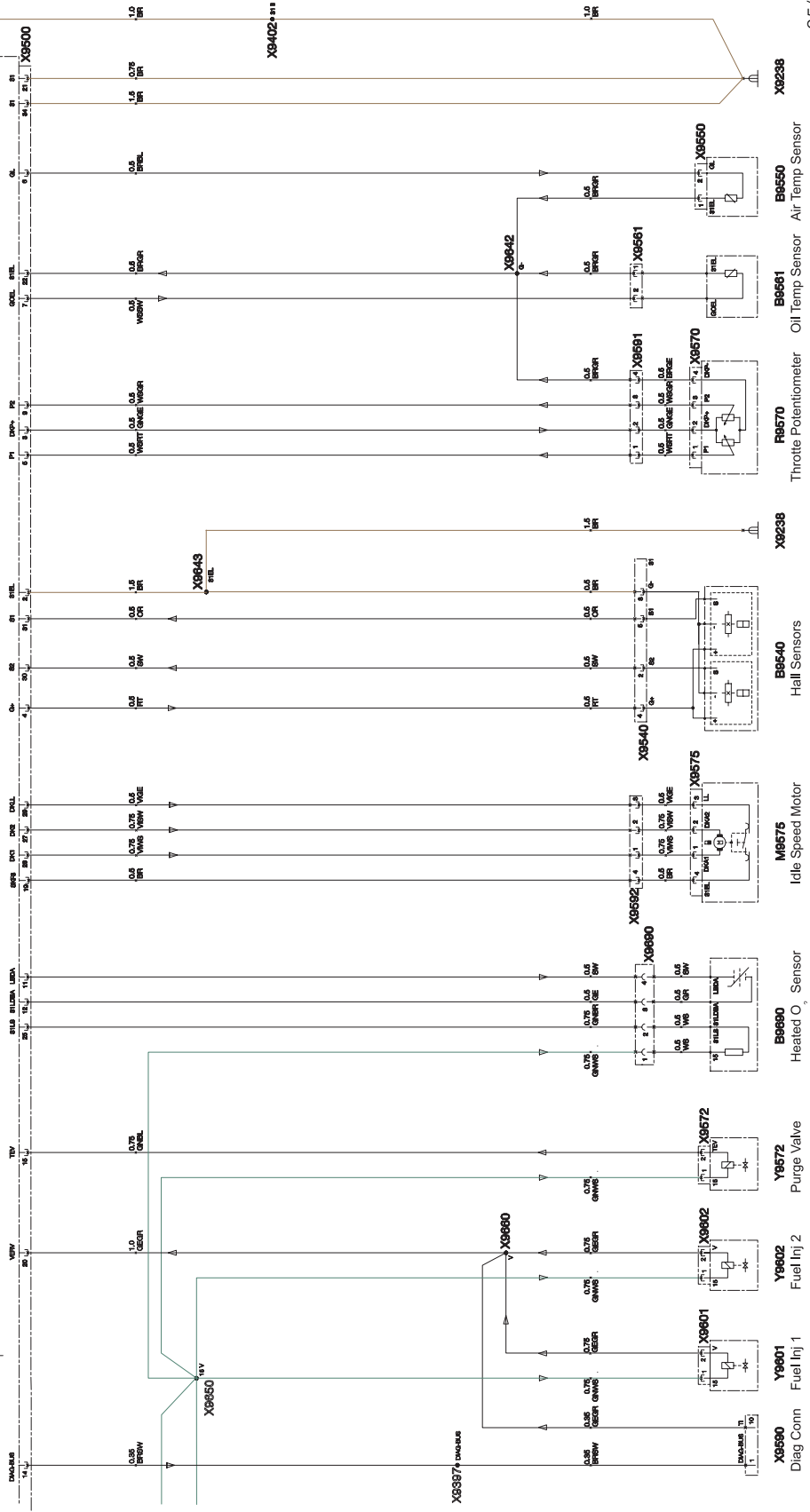
Motronic M2.4 with Anti-Theft System (Part 1 of 2)



R 1200 CL

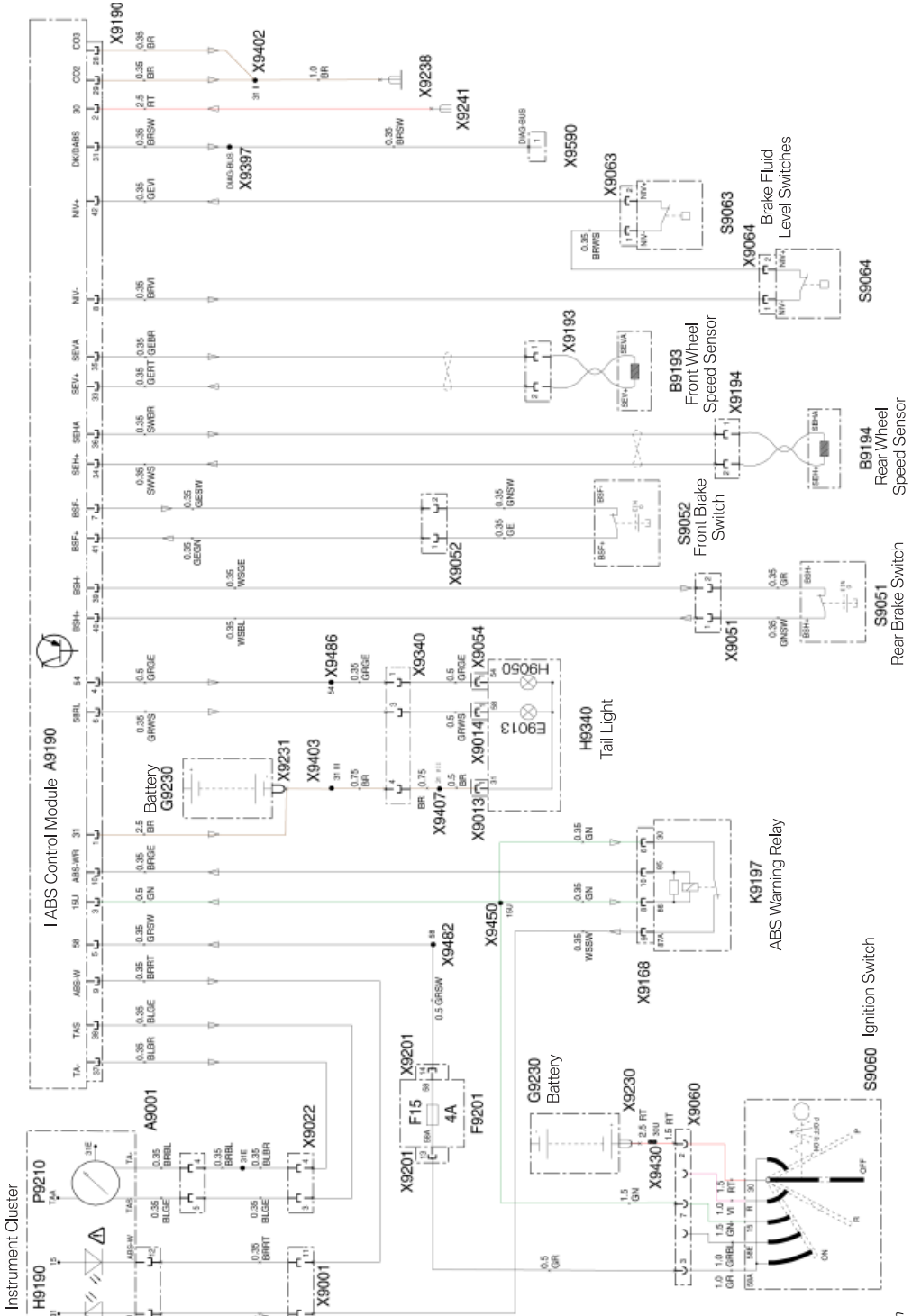
Motronic M2.4 with or without Anti-Theft System (Part 2 of 2)

A8500 Motronic Control Unit



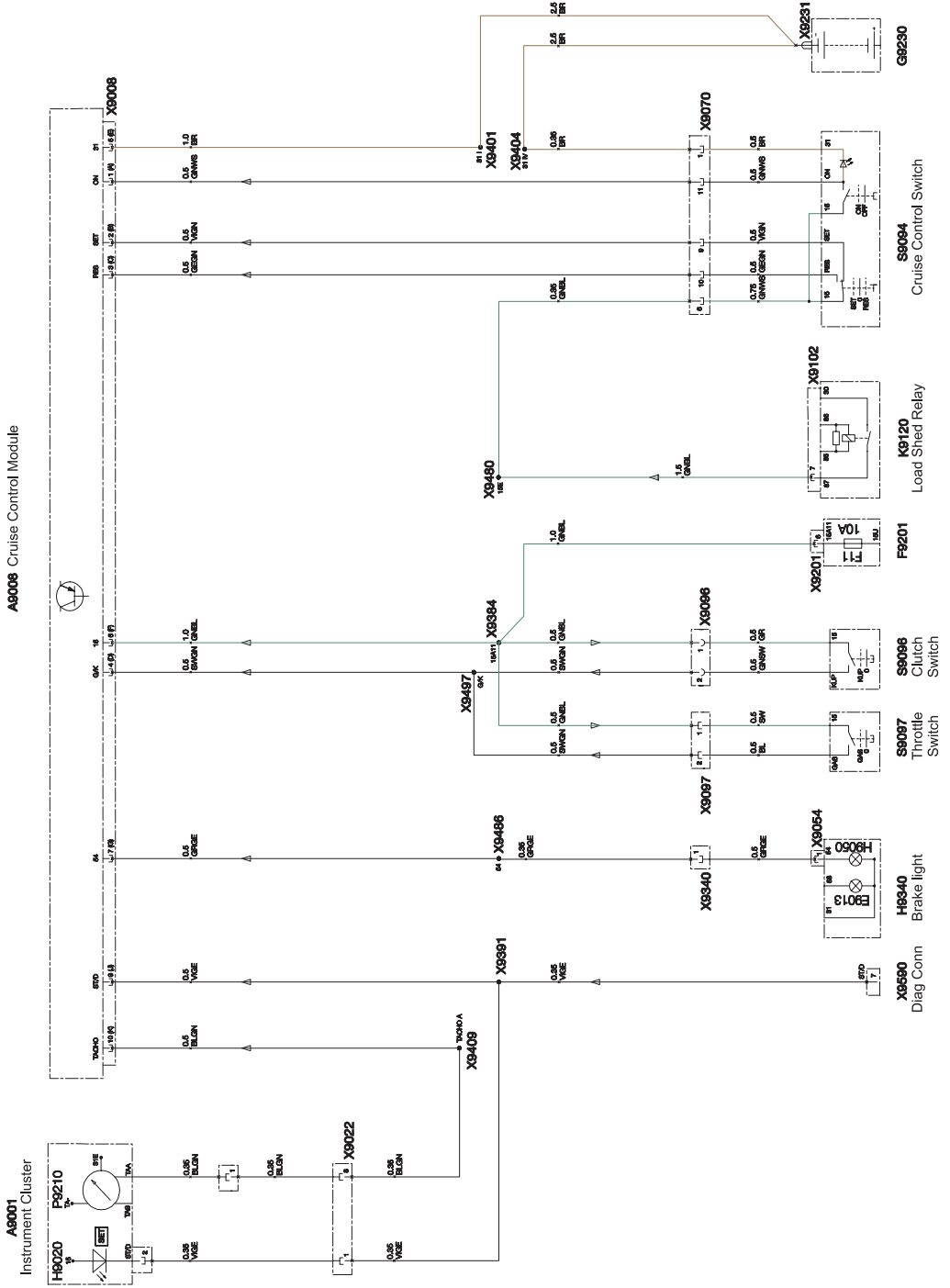
R 1200 CL

Anti Lock Brakes

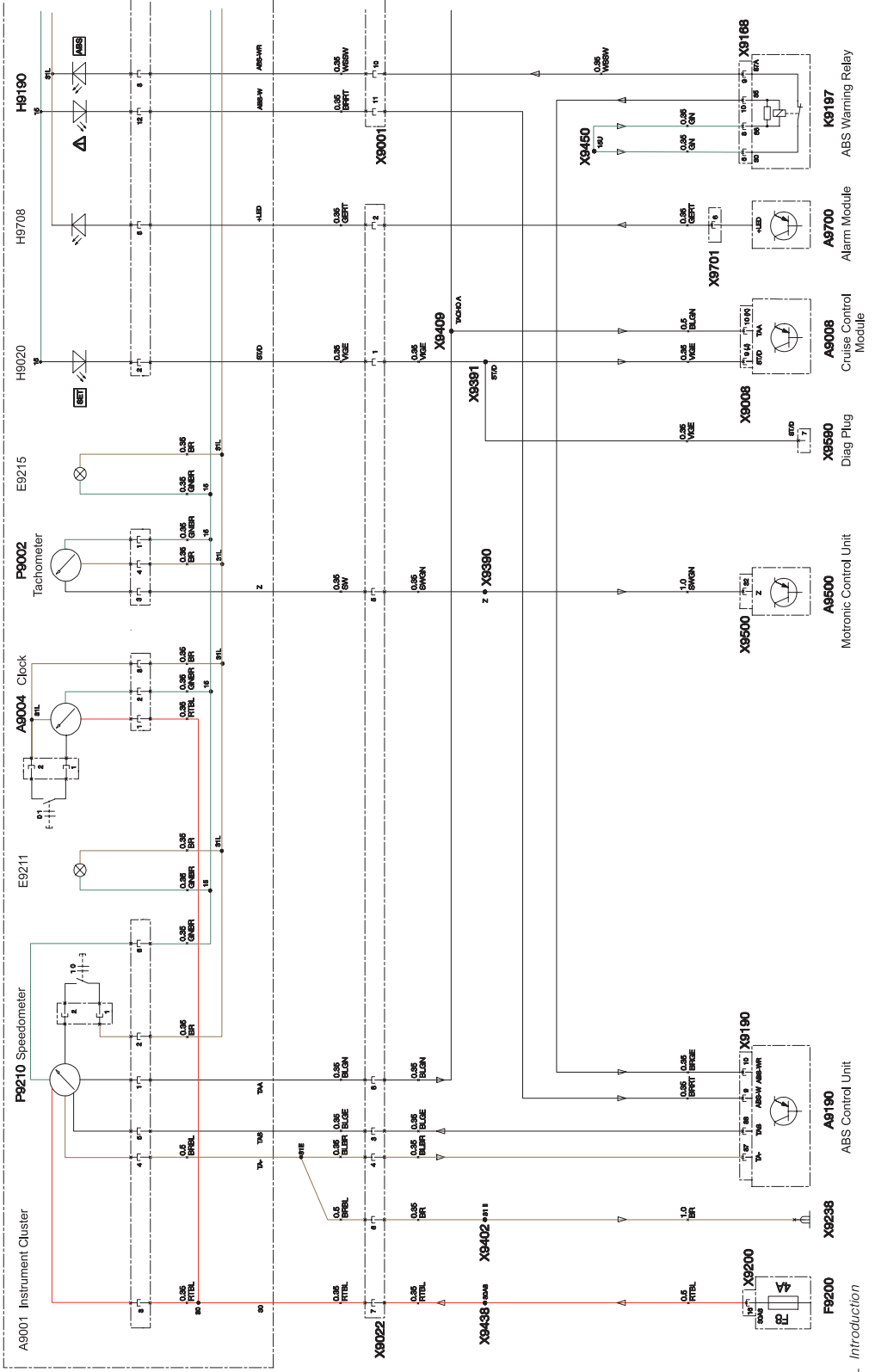


R 1200 CL

Cruise Control

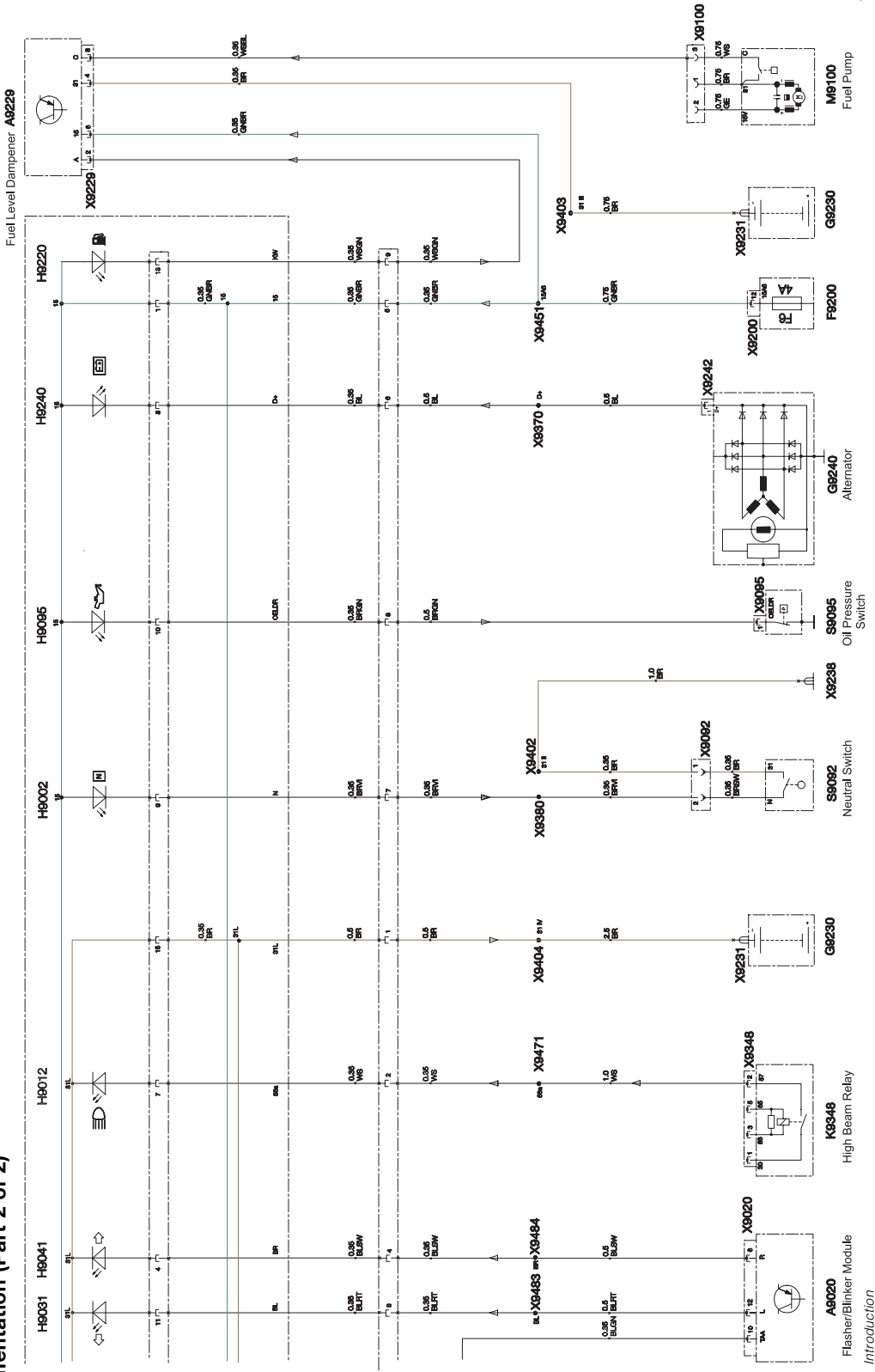


R 1200 CL Instrumentation (Part 1 of 2)



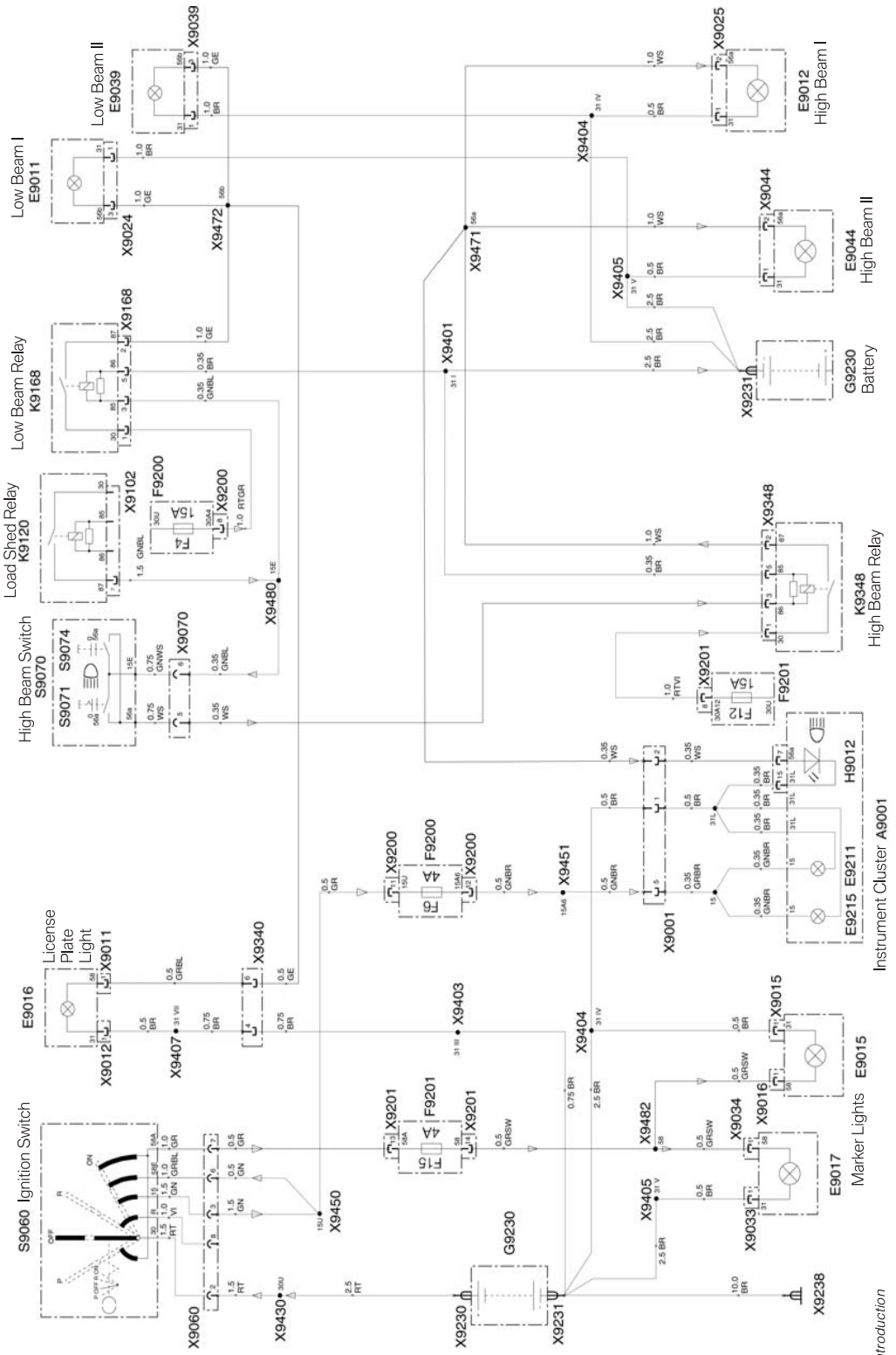
R 1200 CL

Instrumentation (Part 2 of 2)



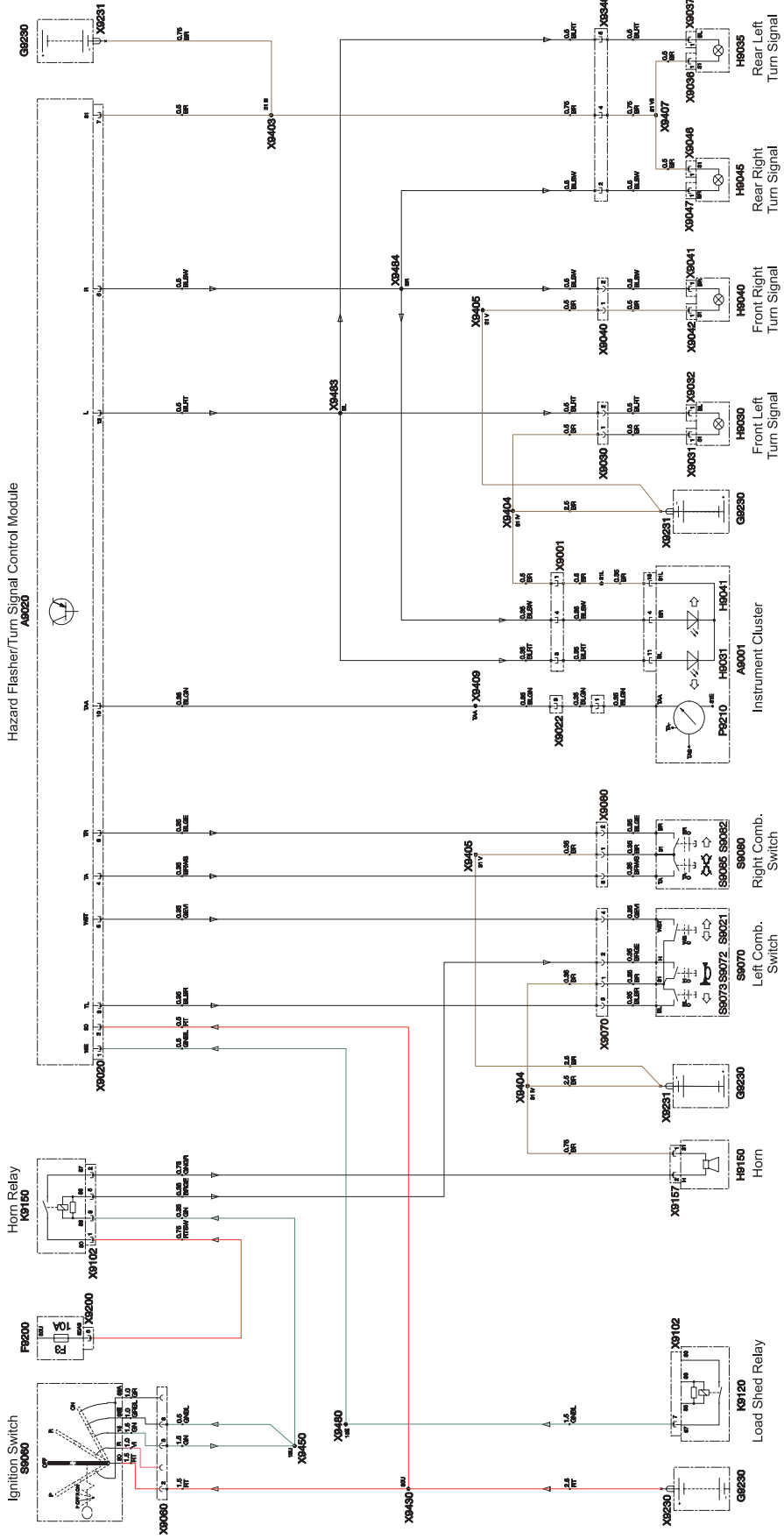
R 1200 CL

Lights

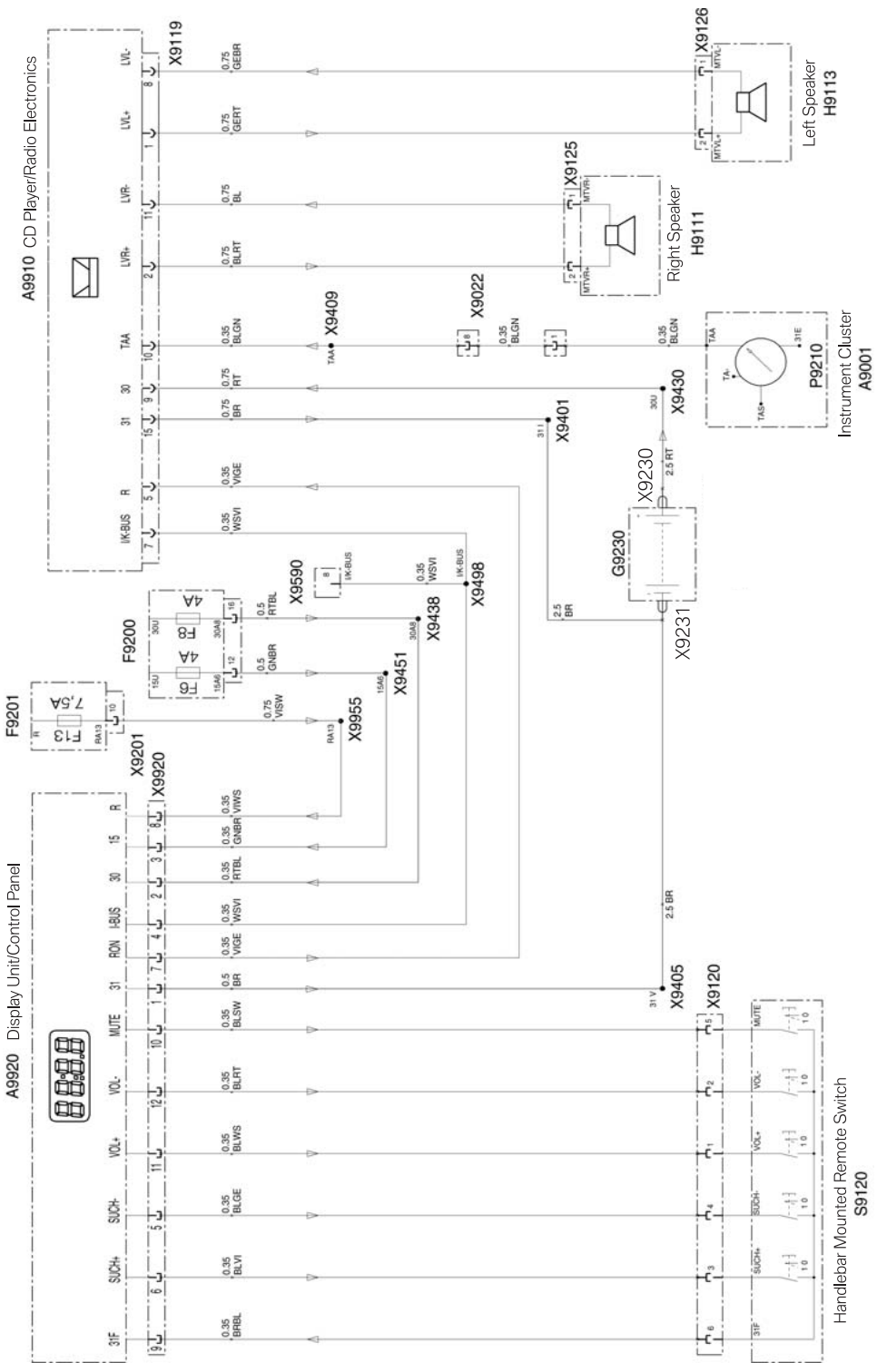


R 1200 CL

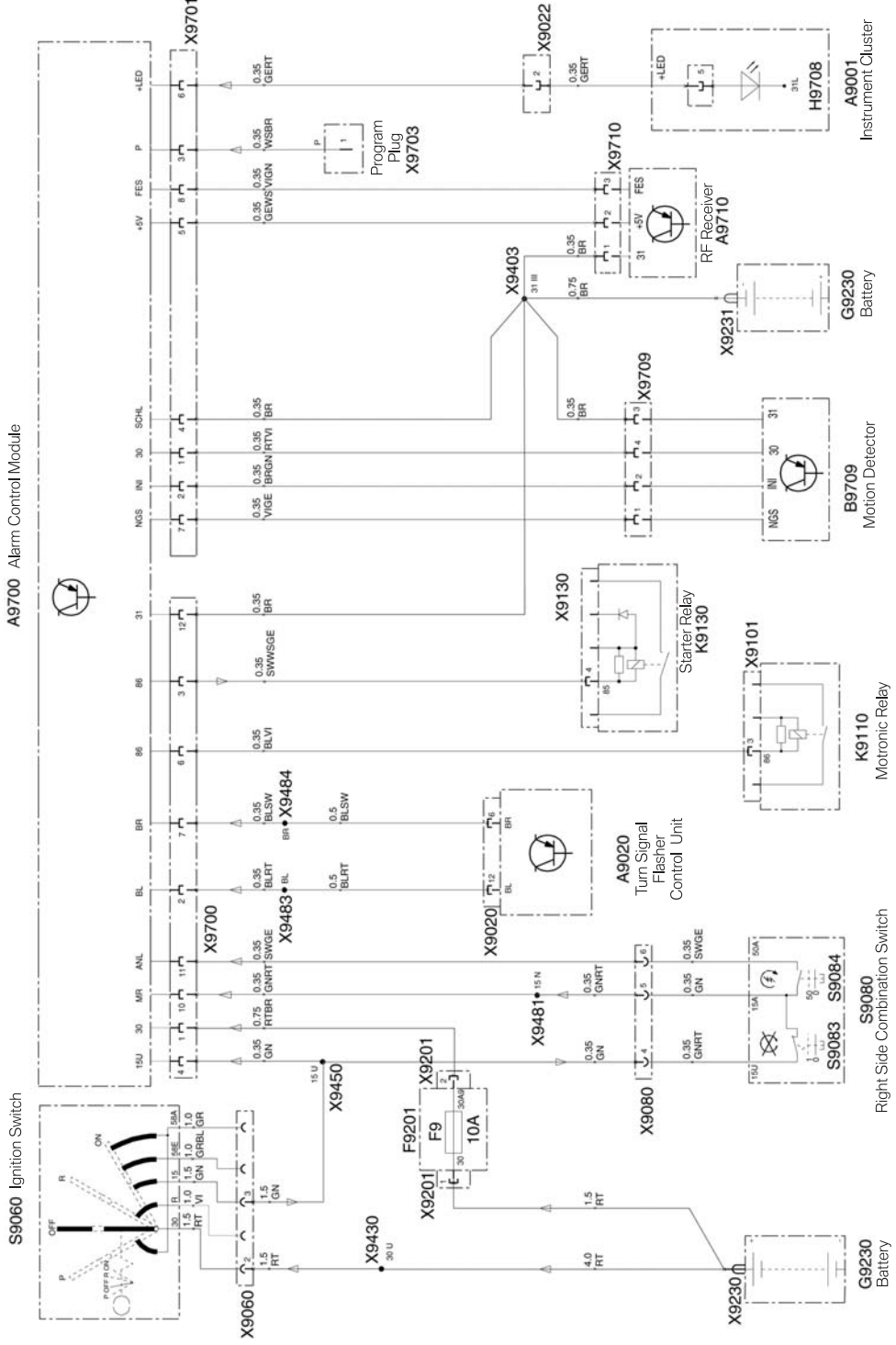
Horn, Hazard Flashers & Turn Signal Lights



R 1200 CL Radio/CD Player

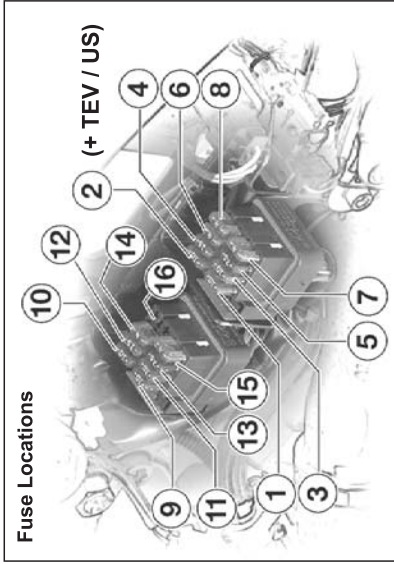


R 1200 CL Alarm System (DWA)



R 1200 CL

Fuse Designations and Electrical Components View 1



Clutch switch:

High Beam Connectors

Anti-theft system (see detail page)

TEV (purge valve)

Ignition coil 2 ground X9514

Ignition coil 2 connector X9507

Diagnostic plug

Neutral switch X9092

Alarm program plug X9703

Side stand switch X9093

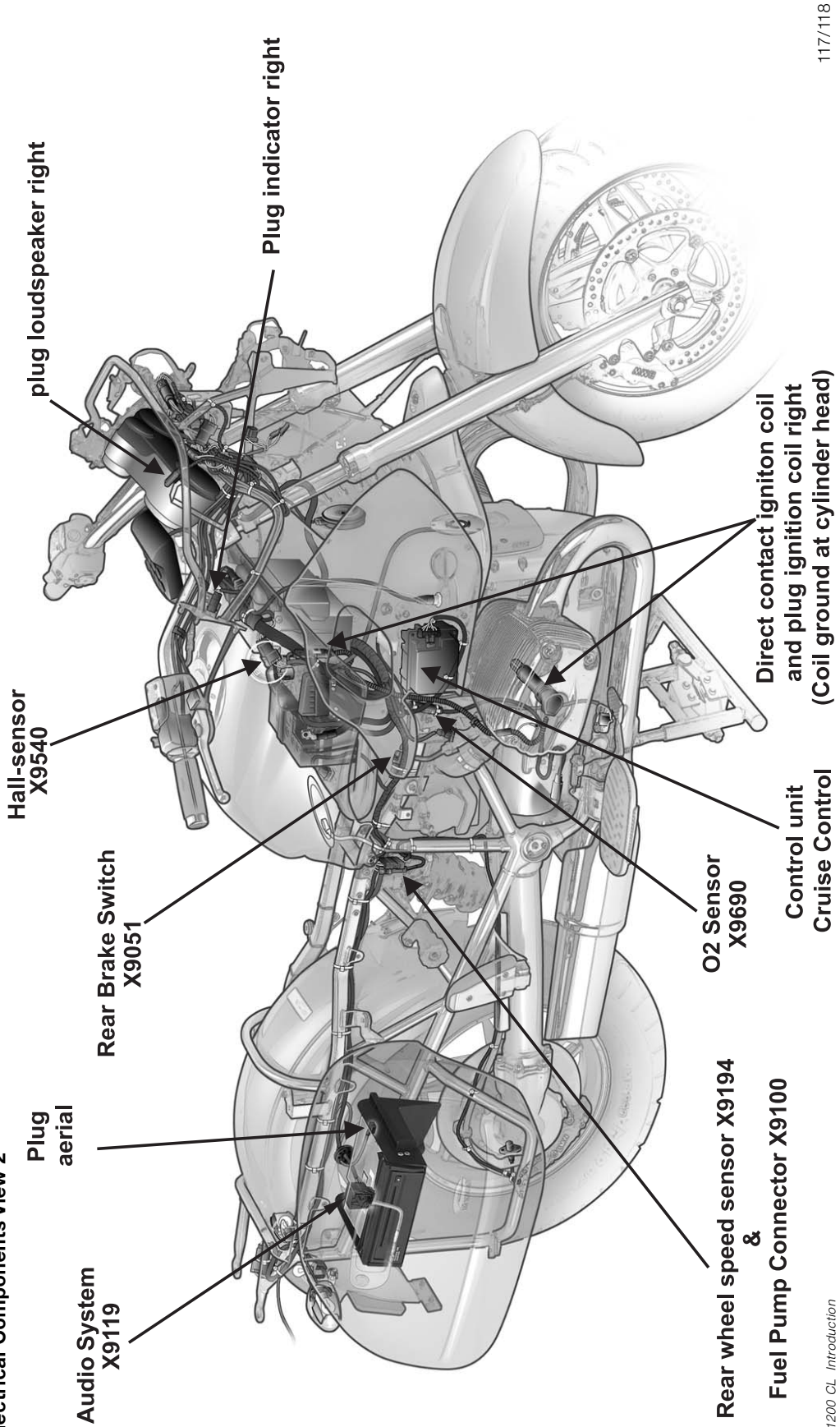
Rider Seat heating Plug

Accessory Plug Sockets

Fuse Designations	Fuse Designations
1 Diagnostic plug, motronic-relay, motronic control unit	10A
2 Fuel pump, injection valves, oxygen sensor	10A
3 Horn	10A
4 Headlights, number plate	15A
5 Power accessory socket	7,5A
6 Instrument cluster, Radio, control unit fuel level LED	4A
7 Heated grips (optional)	4A
8 Radio, Instrument cluster	4A
9 Anti theft alarm system	10A
10 Power accessory socket	10A
11 Cruise control	10A
12 High beam lights	15A
13 Radio, accessory-plug	7,5A
14 Heated seats	4A
15 parking (marker) lights	4A
16 (not used)	

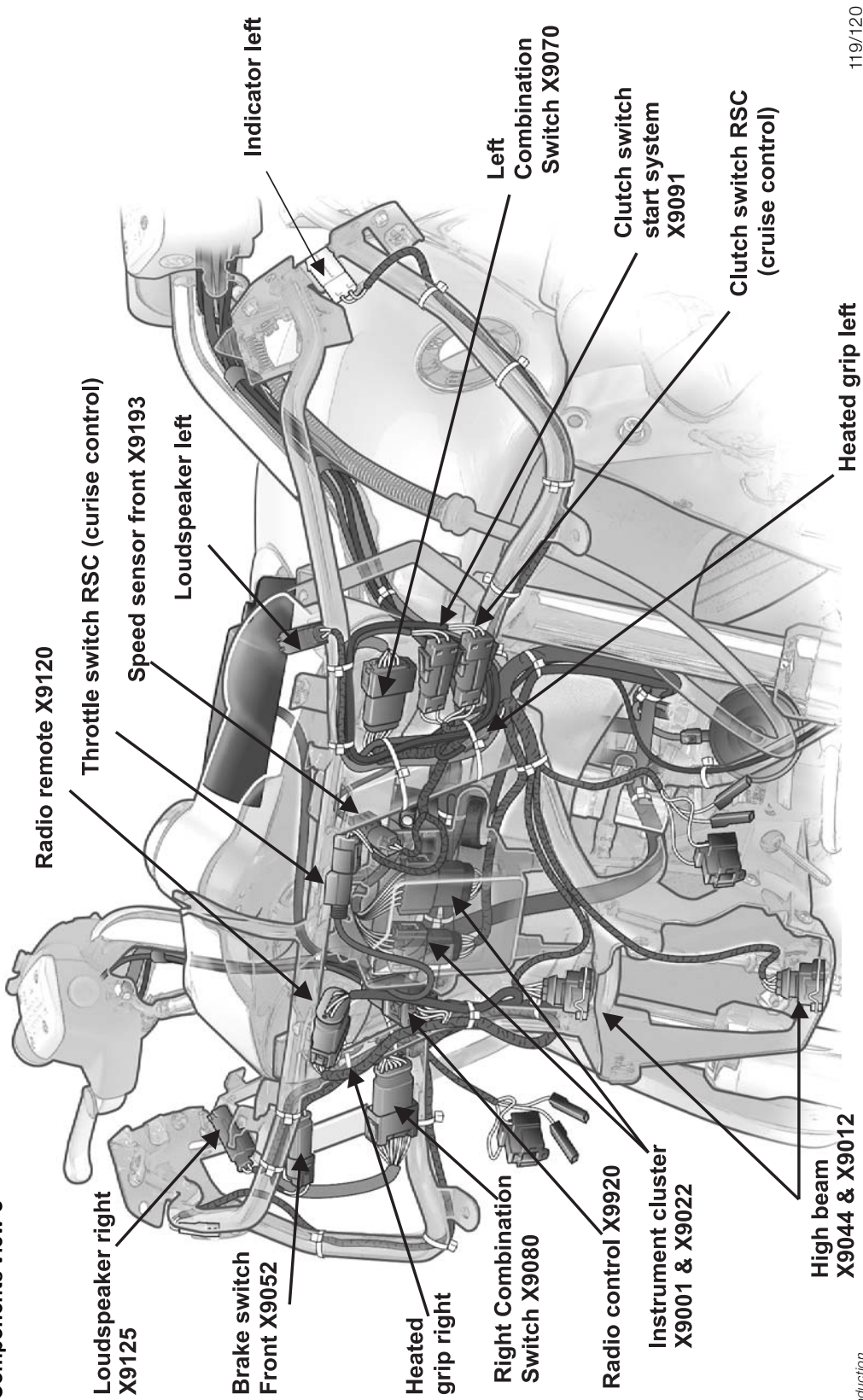
R 1200 CL

Electrical Components View 2



R 1200 CL

Electrical Components View 3



R 1200 CL

Alarm System Components and Programming information

Overview

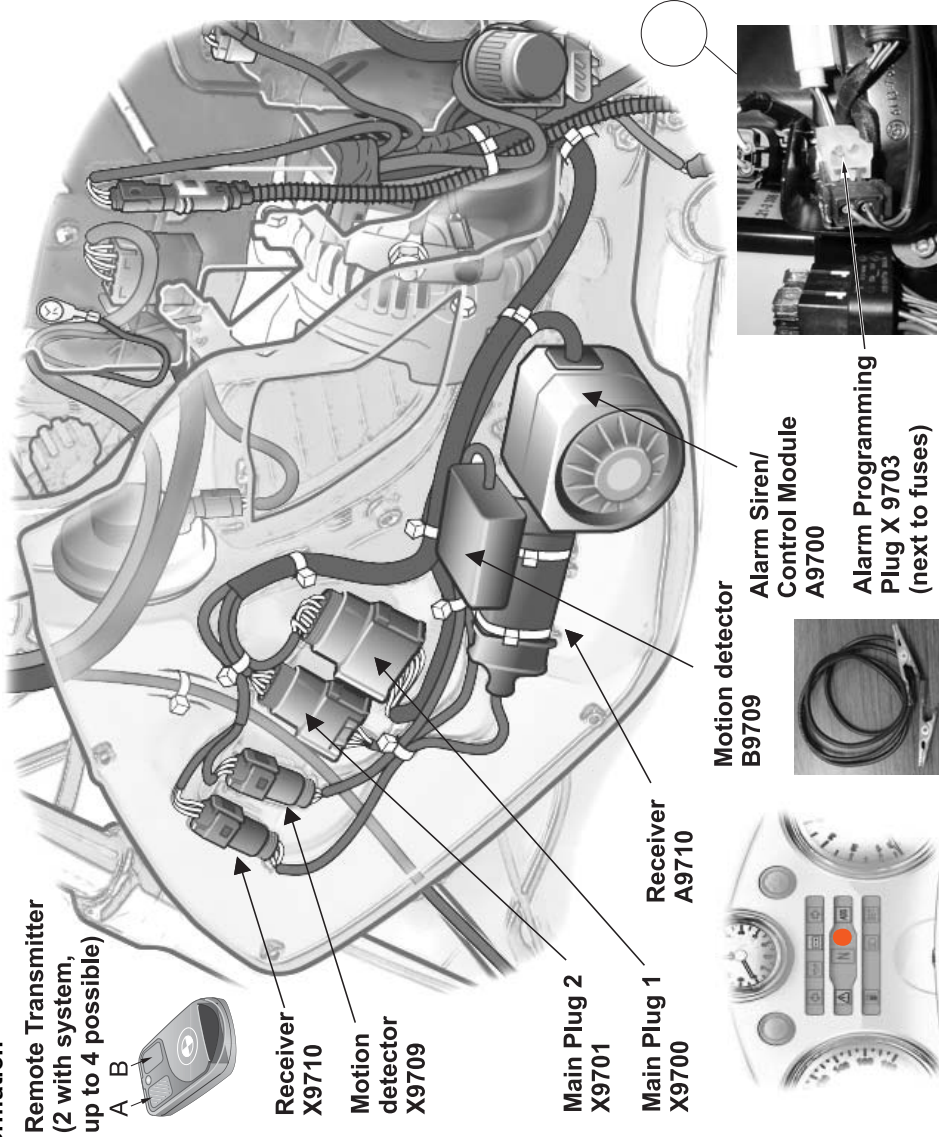
The alarm system is programmed for various function choices by using the remote control push buttons after the system has been set to programming mode. Programmable choices include:

1. Alarm Tone Type (intermittent or steady)
2. Arm/Disarm Beeping Tone (on or off)
3. Automatic immobilization (on or off)
4. Automatic Alarm Arming (on or off)
5. Panic alarm feature (on or off)

Enabling Programming Mode

- Locate single pin programming connector (X9703) in the area of the fuse box.
- Fabricate a jumper lead long enough to connect the programming plug to a suitable ground point. Connect jumper lead to programming plug but do not connect other end to ground at this point.
- With the ignition key OFF, press button A on remote to Arm system. The directional lights blink twice and the alarm will beep twice if it is currently programmed for audible beeping tone.
- Now press button A again to disarm alarm.
- Immediately connect jumper lead to suitable ground.
- Press button A again.
- Immediately switch ignition key ON. A series of three unique beep tones will be heard from alarm system, this sound signifies the programming mode is active.
- Disconnect programming lead from battery ground. You are now ready to program as outlined on the next page.

NOTE: If the beeps were not heard, you must repeat the steps above following the instructions completely.



Alarm program procedure requires a jumper wire as shown to connect X9703 to ground.

R 1200 CL

Alarm System Programming Information

Programming Procedure

The alarm system is designed for 12 programmable functions. However, only 5 functions are currently available (beeping tone, panic alarm, tone type and automatic activation of the starter immobilizer and automatic arming of the alarm).

The other channels are free channels and must be skipped by pressing either button A or B during the process.

Follow the chart below and press either button A or B to select the function you want active. All channels must be programmed in the following sequence by pressing either button A or B on the remote:



Channel	Function	Button A	Button B
1	free	any	
2	free	any	
3	free	any	
4	free	any	
5	free	any	
6	Panic alarm	On	Off
7	free	any	
8	Tone type	Intermittent	Steady
9	Beeping Tone	On	Off
10	free	any	
11	Automatic activation of alarm function (flashers and siren)	On	Off
12	Automatic activation of immobiliser	On	Off

After the selecting channel 12, programming is completed and indicated by three consecutive beeps.

- Turn off the ignition.
- Wait for the control LED to flash, the system is now armed.
- DisArm the alarm system by pressing button A.

Programming procedure is now completed.

R 1200 CL

Alarm System Programming Information

Encoding Replacement RF Remote Controls

Note: To encode RF Remote Controls you will need the 5 digit “personal pin code” for the alarm system. The code is entered into the system by synchronizing the switching of the ignition key when the appropriate LED flash corresponds with each digit of the code.

A maximum of four RF remote controls can be encoded on the system.

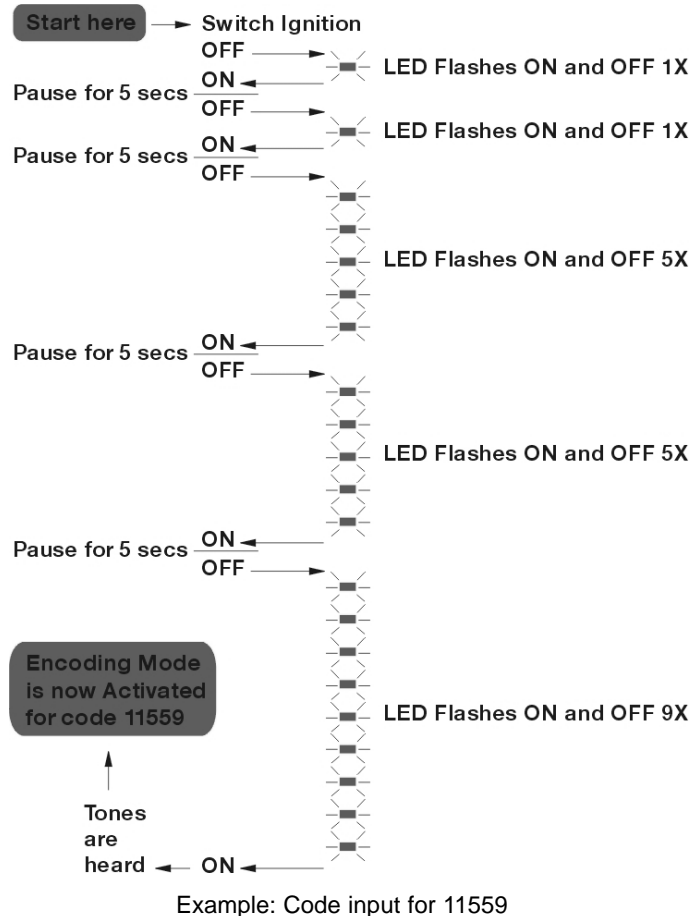


Personal Pin Code Card

Activating the encoding function

Signal the five digit code to the system by switching the ignition key ON when the total number of flashes occur for each number in the code.

1. Use a jumper to connect the programming plug to battery ground.
2. Turn the ignition switch to ON, after a brief pause switch to OFF.
3. Wait for the first digit code to flash ON and then OFF. Once OFF, switch the key back ON.
4. Pause for approximately 5 seconds and switch ignition off. Repeat this process for each of the remaining digits in the code.
5. On completion of the last digit, three beeps will be heard indicating encoding function is active.



NOTE: If the beeps are not heard, you must repeat steps 2 - 5 ensuring the key is switched ON after the last flash of the coded number switches OFF.

R 1200 CL

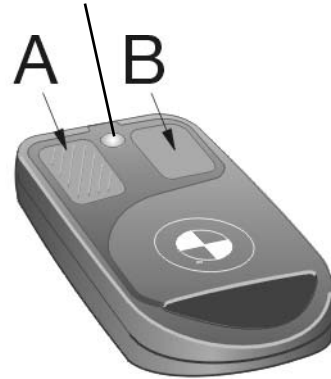
Alarm System Programming Information

Encoding the remote controls

Note: All RF remote controls must be encoded at the same time for them to be functional

- Press and hold buttons A and B on the remote control simultaneously.
- LED on remote will flash rapidly, keep buttons A and B pressed down.
- After approximately 10 seconds, the remote LED will stop flashing, release buttons A and B.
- Once released, the RF Remote LED will light up steadily.
- Press either button A or B.
- A beep will indicate that the encoding of the remote control has been successful.
- Repeat the procedure for all other remote controls.

RF Remote LED



Encoding RF Remote Control

