



1

Remove the cover from the rear storage compartment using the ignition key.



2 Remove the seat by pulling the red lever, then lift up on the rear of the seat and pull back to release.



3 Remove the front turn signals. Remove the 4 (Torx 25) screws securing the turn signals to the faring. Pull the light assembly away to expose the electrical connector.



4 Squeeze the sides of the connector to release it and pull to disconnect. Do not damage the wires from the turn signal, we will be reusing these. Follow the same steps to remove the other turn signal.



5 Remove the forward side covers. Remove the first screw from under the forward edge of the cover. (Torx 25)



6 Remove the two screws that secure the top of the cover. (Torx 25)



7 On the left side, remove the oil cap. Pull outward on the lower forward edge of the



cover.

8 Now lift upward along the top edge where the side cover snaps together with the center cover.



9 Remove the central cover. There are two screws at the forward edge of the cover. Also remove the two sheet metal nuts. The screws and sheet metal nuts will



be reused.

10 Remove the battery cables from the battery using either 2) 10mm open end wrenches, or a wrench and a Phillips screwdriver. Remove the battery vent hose, disconnect the strap and lift the battery from the tray. Always keep the battery level. NOTE: Battery acid is corrosive and is hazardous to your health!!



11 Disconnect the connector from the engine management computer. Pull out on the large red clip on the connector, as you feel the connector loosen lift up to release the cable. Remove the rubber o-ring that secures the controller in place. Now remove the controller. Save all these pieces, we will be reinstalling them later.



12 The bracket for the controller must be removed. Disconnect the electrical connectors from the bracket by releasing the little lock under the connector and pushing down. Remove the two screws at the base of the bracket, (Torx 20) and

remove the bracket. Cut the cable tie that ties the wires to the right side of the rear



triangle.

13 Remove the two electrical connectors from the fuel pump. Loosen the screw type clamp on the fuel line. Cut the band clamp from the second fuel line.



14 CAREFULLY remove the fuel lines. There may still be pressure in the fuel lines that will cause them to leak some fuel. Plug the fuel lines (use two bolts, 8mm

and 10mm) to avoid any contamination from getting into them.



15 Remove the 2 screws holding the top edge of each of the rear side covers.

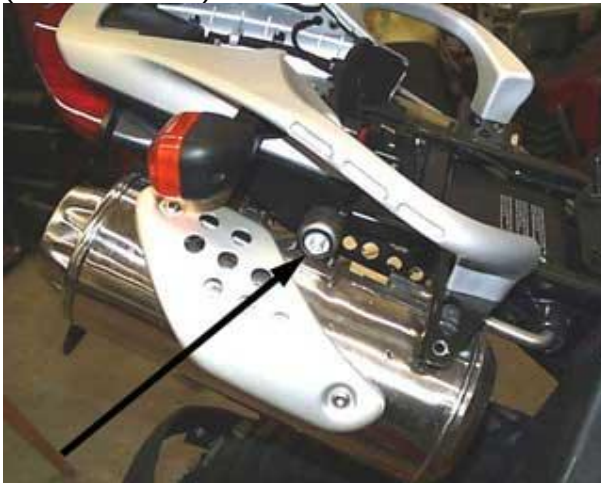


(Torx 27)

16 Remove the small plastic cover to expose the final bolt on each side. Remove the bolt (6mm Allen head) now remove the two side covers. The right side may need to be worked out from around the gas tank filler.



17 Unscrew the brake fluid reservoir from the right side of the rear framework.
(10mm wrench)



18 Remove the mufflers. On the right side remove the bolt (Torx 30) and carefully pry outward to release the muffler. If necessary a light tap with a rubber mallet from the inside will release the muffler. On the left side loosen the clamp that

connects the muffler to the exhaust pipe and work it back from the pipe.



19 Pull up on the gas take vent hose until it is free from the framework.



20 Remove the rear triangle. Take out the 4 bolts that secure the rear triangle to the frame. (Torx 40)



21

Complete with the gas tank, lift up and remove the rear triangle assembly.

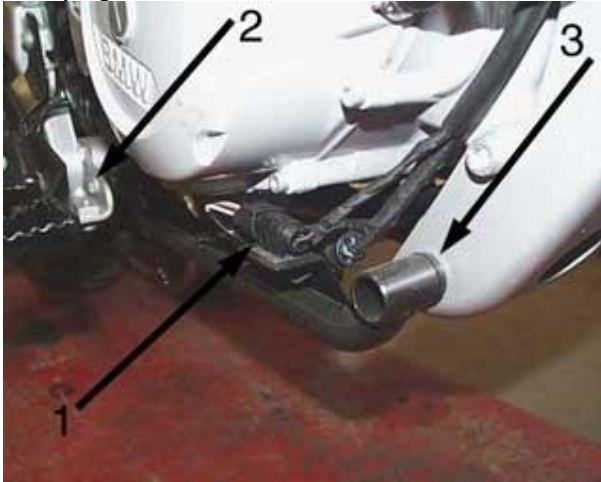


22

Remove the skid plate from under the motor. The skid plate is secured with three bolts (Torx 30)



23 Remove the foot peg mounts. There are three bolts (Torx 40) holding each foot peg bracket to the frame. Remove the three bolts and the bracket along with the foot pegs. On the left side also remove the small exhaust guard plate.



24 Disconnect the two (1) electrical connectors, one for the oxygen sensor and the other for the kickstand switch. The bolt (2) at the rear of the lower frame member should be removed. (13mm wrench) The lower of the two motor mount bolts (3) should also be removed. (8mm hex)

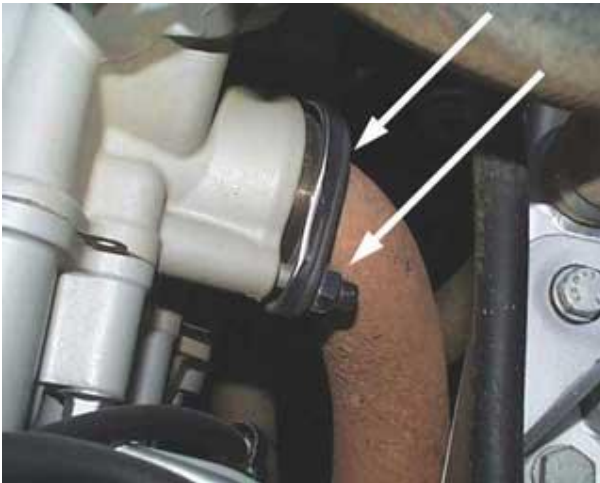


25 Loosen the crankcase breather hose (4) by slightly bending the tab on the frame. Next remove the M10 bolt (5) that goes through the motor. (8mm hex) Last remove the two upper bolts connecting the mount to the frame.(13mm wrench) Hold

on to the motor mount as you remove the top bolt. The bolt from (5) will be reused.



26 Disconnect the shift lever. Remove the bolt (5mm hex) and pull the shifter off.



27 Remove the head pipe. The two dome nuts connecting the pipe to the cylinder head must be removed. Save these. Also save the thin metal gasket from



the end of the pipe.

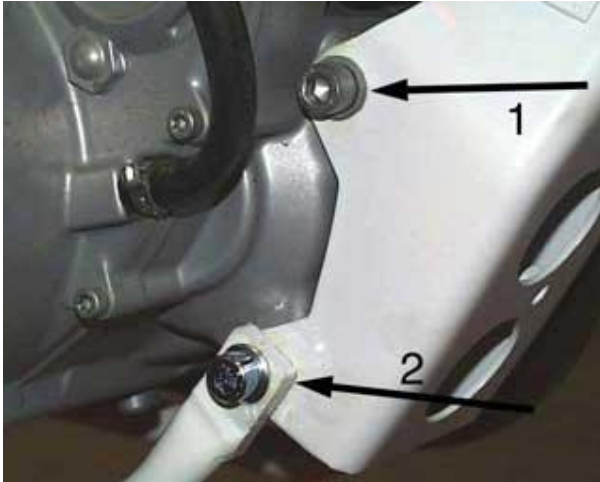
28 Remove the oxygen sensor from the pipe.



29 Installing the new left side lower frame member. Secure the rear of the frame member to the frame using a new 8mmX25mm (6mm hex) from the inside. Do not completely tighten yet.



30 Attach the right side frame member using an 8mmX16mm (6mm hex) and a washer from the outside. Do not tighten. NOTE: Both lower frame members are mounted to the inside of the frame as seen in the photos.



31 Install the modified motor mount.

The motor mount installs using the original bolt (1), washers and lock nut from fig25. (5) and a new M10x125 Allen head bolt (2), washers and locknut. The two upper bolts of the mount are reused for now and will be replaced later with the installation of the tank mounts. At the bottom the new lower frame members are connected. The rear connections of the lower frame members can now be tightened to 15ft/lbs and the two M10 bolts of the motor mount can now be tightened to 30ft/lbs.

TIP: A small coating of grease can be applied to the lower frame members where they connect to the motor mount (2) to protect the coating.



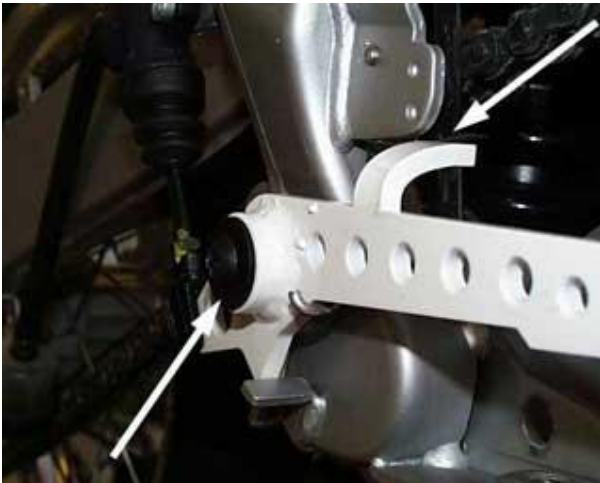
32 Disconnect the brake pedal.

With a small screwdriver disconnect the clip that connects the actuator rod to the brake pedal. Now remove the screw (torx40) and pull outward on the brake pedal to

remove. Save the bolt, washer and the bushing from inside the brake pedal.



33 Reposition the brake pedal spring into it's proper spot.



34 Install the new brake pedal:

Place the bushing into the new pedal, with the original screw install the new pedal. Make sure the lever on the brake switch is positioned above the brake pedal. The bolt can now be tightened to 15ft/lbs. Reconnect the rod from the master cylinder

using the original clip. The shifter can now be installed on the left side. (5mm Allen



key)

35 Remove the original foot pegs from the mounts.

Remove the cotter pin and washer then push the pin out of the mount. The pins, spacers, springs, and washers are reused. Disassemble both the right and left foot



pegs.

36 The new foot pegs are now installed into the new foot peg mounts using the original hardware we just removed. Place the spacer and spring in the center of the foot peg, now place the peg into the mount with the bent end of the spring into the hole in the mount. Hold the foot peg in place and install the pin. Place the washer on the bottom and install a new cotter pin



37 Install the new foot peg assemblies.

On the right, install the foot peg mount with three M8x20 button head bolts and the original washers. (5mm Allen key). On the left the upper and rearmost bolts are installed with M8x20 button head bolts and the original washers, the forward bolt is an M8x30 countersunk. Do not tighten the foot pegs yet, as we will need to install the



skid plate at a later time.

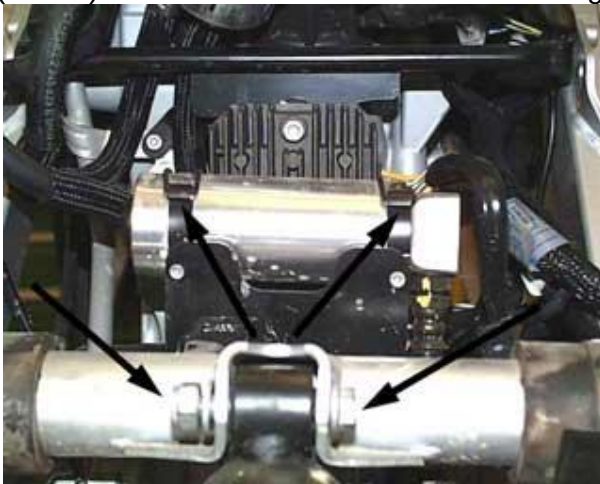
38

Remove the sprocket cover from the motor. (torx30) Also remove the chain guard from the rear swing arm. With a chain tool, separate the chain and remove. Place the motorcycle up on a center stand. Disconnect the rear wheel, Remove the axle nut (24mm socket) while holding the axle (19mm wrench), now remove the axle and remove the rear wheel.



39 Remove the rear shock adjuster.

(1) Remove the bolt, nut, and washer that secure the adjuster to the mount. (13mm wrench) Let the adjuster hang on the hose. Now remove the mounting bracket (2) (torx30). Remove the cable tie from the wiring harness.



40 Remove the shock reservoir.

Remove the two rubber bands that secure the reservoir. Pull the shock adjuster back so it is near the reservoir and free of the frame. Loosen the upper shock bolt, but do not remove it yet.



41

Remove the lower swing arm linkage bolt (1) so the shock bolt can be removed. Be careful with the two dust caps when removing the linkage bolt. Now remove the lower shock bolt. (2)



42 Remove the upper shock bolt. Lift up and remove the shock with the reservoir and the adjuster tank. The swing arm linkage bolt can now be replaced.



43 Remove the cable ties from the rear brake line to release the sensor wires. Remove the rear wheel sensor bolt (10mm wrench) from the brake caliper and completely remove the sensor and the wire.

For the USA model GS, you will need to reinstall the speed sensor.

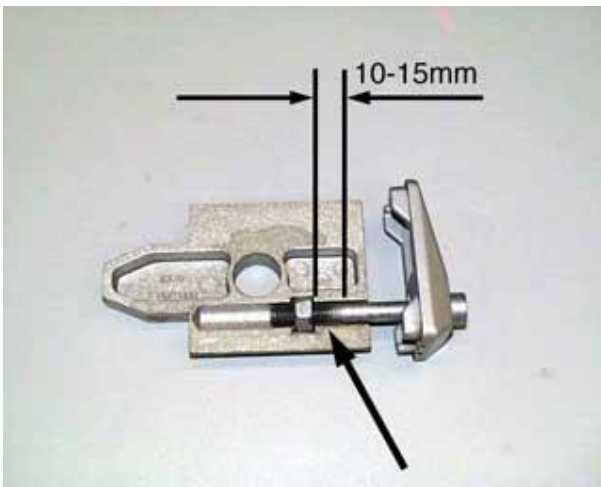


44 Install the new rear shock. Place the shock reservoir through the frame where the original adjuster had been. Place the shock down through the frame and install the original upper shock bolt with the washers and locknut.



45 The bottom of the shock is installed using a new M10x52 Allen head bolt (M10x55 must be cut) with M10 washers and a locknut. The shock bolts can now be tightened. (30-35 ft/lbs.)

The swing arm linkage bolt can now be tightened to 53ft/lbs.



46 Using an 8mm X 1.25 die, add about 10-15 mm more threads to the rear wheel adjusters.

This allows the axle to move back for the larger 18 inch wheel. Note the new chain is longer than the stock chain as well. You will need 114 pins minimum chain length to use the 18 inch wheel on stock swingarm.



47 The rear sprocket carrier must be removed from the original rear wheel. Remove the six bolts (13mm wrench) that secure the sprocket to the carrier.



48 The six screws that secure the brake disc to the wheel are removed. The brake disc can now be installed on the new EXCEL wheel. The recesses in the disc

for the bolts go toward the outside. Install the six bolts using Loctite 243, and tighten



in a cross pattern to 7ft/lbs.

49 The new TALON sprocket is now installed onto the original carrier using six new M8x40 button head bolts, washers and lock nuts. The markings on the sprocket face outwards, and the bolts fit into the recessed holes. The bolts are tightened to



15ft/lbs.

50 The rubber cushions from the original rear wheel are installed into the hub of the EXCEL wheel and the sprocket carrier is installed.



51 The EXCEL wheel is installed with the original axle and nut. The new EXCEL chain is shortened to 117 links and connected using a special chain rivet tool. Adjust the tension of the chain so there is 30-40mm of play with the suspension in the unloaded position. Tighten the axle nut to 72ft/lbs.



52 Install the new aluminum chain guard, and caliper guard following the



instructions included with the guards.

53 Remove the wiring cover (torx25) and cut the cable tie to the rear of the



cover.

54 Disconnect the three plugs under the cover. Remove the ground cable (torx30) and the starter cable (10mm).



55 Remove the tiny screw that secures the throttle idle micro switch. (Phillips head).

Disconnect the plug for the oil pressure switch.

Remove the original shock reservoir mounting bracket and the voltage regulator. Save the sheet metal nuts, spacers and the rubber bushings.



56 Disassemble the intake.

Remove the plug from the temperature sensor. Remove the two screws and pull outward on the clip that connects the two halves of the air cleaner housing together. Pull outward on the intake and then back to remove.



57 Remove the two large shoulder bolts (torx45) that secure the airbox to the frame and the (torx30) bolt that connects the oil tank to the airbox. Pay attention to the spacers. Lift up on the airbox to release it from the throttle body. Next remove the two screws on each side of the air cleaner mount cross member. (Torx30) Remove the cable ties, the plugs and the fuse box from the right side of the cross member. On the left side remove the clamp from the fuel pressure regulator/filter assembly. Now



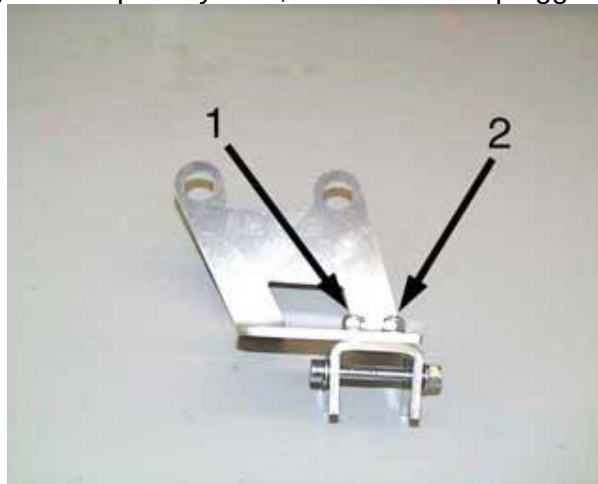
remove the cross member.

58 Disconnect the plugs from the throttle body, the actuator and the ignition coil.

Take off the two nuts that secure the battery box. The battery box with nuts and washers will be reused.



59 Pull the entire wiring harness upwards as it now needs to be rerouted on the top side of the motor mount. After the harness has been situated all the plugs can now be reconnected. If the harness is not rerouted the fuel pump wires will not be long enough. The plugs are all polarity safe, and cannot be plugged in incorrectly.



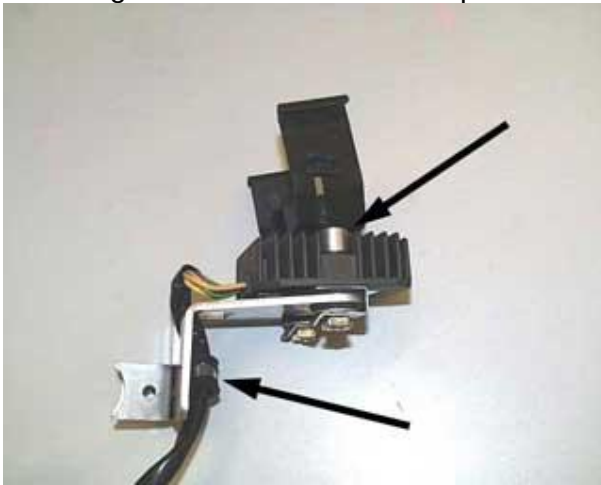
(Without forcing them)

60 Assemble the new mounting bracket for the regulator and engine computer. The two pieces of the bracket are assembled using an M6x20 (1) countersunk bolt with washer and locking nut. This long bolt will also have a wire loop clamp (12mm) installed with an additional locknut. The second bolt M6x16 (2) is installed with a washer and locknut as well.



61

The original rubbers with spacers and sheet metal nuts are installed on the new mounting bracket as shown in the photo.



62

The original engine computer bracket is now installed on top of the voltage regulator using two new M6x60 bolts (5mm hex key), washers and the two aluminum spacers. The wires for the voltage regulator are placed through the mounting bracket and secured in place using a loop clamp. Be sure the wires cannot rub against any of

the sharp edges on the mounting bracket or use a file to round any sharp edges near



the wires.

63 This assembled unit is now attached to the frame using an M6x60 bolt with washers and a locknut. It will mount where the original shock reservoir mount was located, if necessary washers can be used to take up any space between the frame and the mount. After installing the unit and connecting the electrical connections the original wiring cover from step 54/55 can be reinstalled.



64 The parts for the shock reservoir mounting bracket.

- (1) Sheet metal mount for the reservoir.
- (2) Six M6 washers
- (3) Two bolts M6x16 Button head
- (4) Two bolts M6x20 Button head
- (5) Bracket from frame to the sheet metal bracket
- (6) Two M6 self-locking nylock nuts



65

Pre-assemble the mounting bracket for the shock reservoir.

The two pieces of the bracket are bolted together using the M6x16 bolts with 4 washers and the two locknuts.



66

Mount the bracket to the frame using the remaining two M6x20 bolts and washers. On the two edges of the sheet metal bracket two pieces of rubber hose

100mm long can be split open and placed over the edges to protect the shock

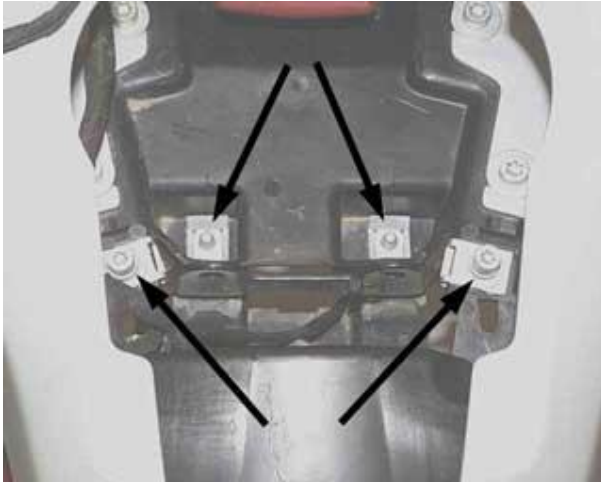


reservoir from being damaged.

67 The two hose clamps 40-60mm can now be placed through the slots in the mounting bracket and the shock reservoir clamped in place.



68 Install the front sprocket guard, either the original plastic cover or the optional aluminum cover. Do not forget to hook up the micro switch wire with the toothed washer from Step 60.



69 Remove the tail/brake lamp assembly from the original rear frame. The lamp is secured with four bolts (torx25) two from above and two from below. Remove the three nuts (10mm wrench) that hold the lamp to the plastic fender piece. Disconnect the wires and remove the tail lamp. Remove the torn signal lenses pull out the light socket and disconnect the wires. The turn signal wires can now be removed from the turn signal by pulling from the inside of the luggage compartment. The entire wiring harness for the tail/brake lamp and the turn signals can now be removed from the frame.



70 The three rubbers and spacers from the tail lamp should be installed into the new rear fender, and the tail/brake lamp can be installed. The wires are re-connected.

Brown (31)

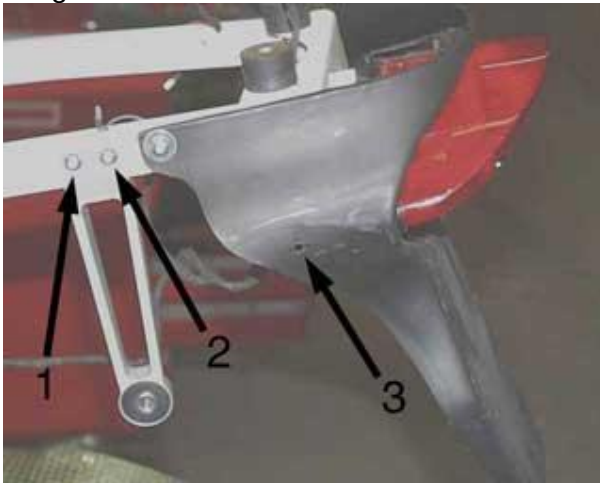
Grey/Black (58)

Green/Red (54)

The new rear fender with the tail lamp is installed onto the frame using four M6x16 button head bolts with large washers.



71 The two threaded rubber spacers (30/20 M8) are attached to the rear frame using two M8x10 bolts.

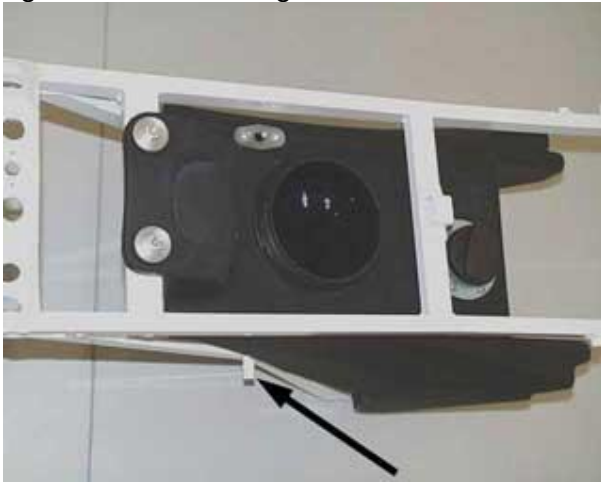


72 Insert the rubber bushing and the metal sleeve into the aluminum exhaust hanger. The exhaust hanger is then secured to the frame using one M6x35 (1) button head bolt and one M6x30 (2) button head bolt. Both bolts get a washer and locknut.

The fender must be drilled for the installation of the new turn signals. Drill the holes so the lights are straight and in alignment with the tail lamp, approx. 80mm from the top, and 35mm from the front edge of the fender. Drill the new holes to a 10mm diameter.



73 Install the turn signals and tighten the M10 nuts and washers from the inside of the fender. The original turn signal wires must now be routed through the new signal housings and connected to the new sockets. Make sure you have the correct right and left hand signals installed with the small drainage slots on the bottom.



74 Assembly of the center tank onto the rear triangle.

From the front place the tank into the frame. Place the two spacers into the tank.

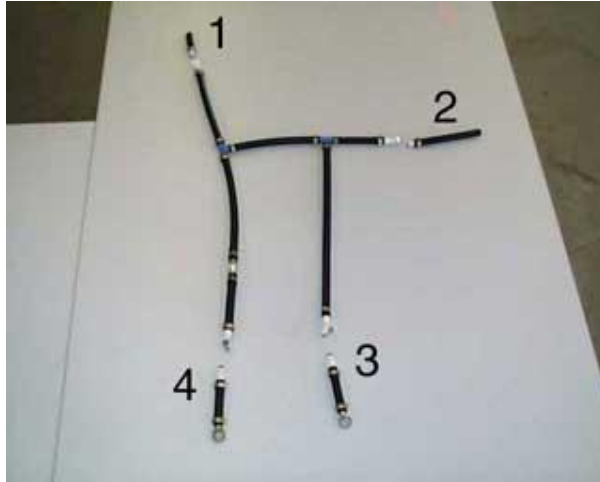
A tap should be used and all the threads in the new framework should be retapped since they may be covered in paint. The indicated thread in the photo must be cut all the way through since it will be used for the inner fender mounting bracket as well.



75 The upper mount for the inner fender is placed between the tank and the frame and secured along with the tank using two M8x40 socket head bolts. (6mm hex)



76 Install the quick release mechanism for the seat to the frame. The mechanism is secured using two M3x10 Phillips head screws with washers and locknuts.



77 The fuel line connections will be as follows:

- (1) The left front
- (2) The right front
- (3) The right rear
- (4) Left rear



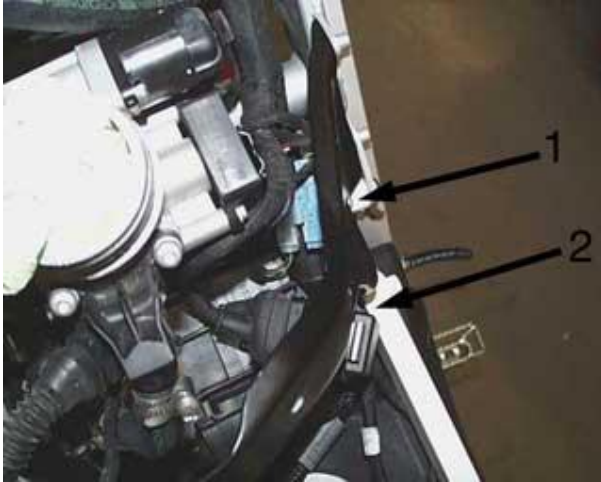
78 The right front fuel line runs under the shock reservoir hose and out.



79 The right rear line runs over the brake line and over the frame, forward of the connection for the rear frame triangle



80 The left front "T" is situated beside the clutch lever and the left front hose runs under the clutch cable and



101

Install the airbox support cross member. The plugs on the right hand side (1) can be screwed back onto the cross member. The fuse box (2) can be clipped back on. The cross member may need to be bent slightly where the fuse box is located if it



interferes with the engine computer.

102

The fuel filter/pressure regulator (3) can be remounted using the original clamp and the original bolt. Mount the cross member (4) to the frame using the four original bolts. (torx30)



103

Install the forward tank mounts.

Remove the two upper, still original, bolts from the modified motor mount. Also remove the two top radiator support bolts. Place the tank mounts in place with the round tube into the rubber grommet in the radiator support, and the top slid over the frame with the slot cutout between the frame and the rubber spacer on the upper radiator support. The upper mounts are secured with an M6x35 bolt (5mm hex) and a large washer. The two lower bolts through both tank mounts and the motor mount are now replaced with two M8x70 bolts, 8 washers and 2 lock nuts. The washers are placed in-between the tank mounts and the motor mount as well as on the outside of the tank mounts. (total of 8 washers)

TIP: Grease the tube where it fits inside the rubber bushings.



104



105 Remove the front fender.

Remove the four bolts that secure the front fender from below. Save these screws as they will be reused when installing the new rallye fender.



106 Drain the front brake fluid. A suitable pump should be used to suck the fluid from the system.

NOTE: Brake fluid is flammable and hazardous to your health.



107 107-110 These steps are only needed when changing to the MAGURA handlebars.

Remove the cover of the electronics box (E-box) (torx30) and disconnect all the electrical plugs. (from left to right: Clutch switch, combination switch left, combination switch right, ignition switch, above: Heated grips, if included, and the stop light switches). The cable ties should be removed and the combination switch cables should be pulled clear of the frame so they will be free for the next step. Unscrew the



switches for the heated grips. (torx20)

108 Remove any hand guards. Disconnect the brake line from the master cylinder. Remove the right side combination switch. There is a Phillips head screw

underneath and one from the front to disassemble the combination switch.



109 With the switch removed the cable and throttle assembly can be disconnected. Remove the one screw from the side that secures the cable. Make note of how the throttle assembly goes together. The two bolts (torx30) that secure the entire mirror mount, along with the brake cylinder and throttle housing can be removed and the entire assembly removed from the bars.



110 Remove the left side grip. Pay attention to the wires for the heated grips (if supplied). The two bolts (torx30) can be removed and the entire left side

combination switch, mirror mount and clutch lever assembly can now be removed.



111 Remove the horn:

The plug should be disconnected and the bolt (torx45) can be removed from the mount. The rubber grommet can be pulled out of the cover and cut off of the cable, it is no longer needed. The cable can now be slid out through the hole.



112 Remove the three screw (torx25) and remove the windscreen.



113 The two plastic screws can now be removed from the headlamp cover and the cover hinged forward.



114 Disconnect the electrical plugs.

Disconnect the plug from the H4 headlamp and remove the parking lamp along with the rubber boot. Move the boot and disconnect the white plug from the back of the indicator lamp unit, also the plug to the tachometer unit can be disconnected, the black clip will need to be pivoted to the right to release the plug.



115 The sockets for the front turn signals can be separated from the headlight mount. Grab the sockets and turn them slightly to release them from the holes in the bracket. The mounting lugs can be removed from the sockets. Do not damage the sockets.



116 The two bolts of the headlamp bracket can be removed (torx45) and the complete headlamp mounting assembly with instruments can be removed.



117 The four bolts of the handlebar clamps and the bars can be removed .



118 The top lock nut on the steer tube can be removed. (30mm socket wrench). Next the center tube can be loosened (12mm hex). The two clamping bolts at the fork tube on either side can be loosened



119 Remove the top fork brace by lifting straight up. It must come off straight or it will bind and get stuck. If necessary a rubber mallet can be used.



120 Disconnect the brake line at the brake caliper. Next remove the caliper from the forks.



121

Remove the front wheel.

Loosen the axle clamping bolts on both sides of the forks. Unscrew the axle and remove the wheel.



122

Remove the forks complete with the lower fork clamp. Remove the top round nut that secures the lower fork clamp and the steer tube bearings. Use BMW No. 31 6 521 or a soft aluminum drift and a hammer.

Check the steering bearings and replace if necessary.



123 The parts for the front end replacement are as follows:

- (1) Handle bars risers
- (2) Lower bar clamps
- (3) Upper bar clamps
- (4) New caliper mount
- (5) Sensor cover (Stainless Steel)
- (6) Steering stops
- (7) Sensor mount



124 Install the new lower fork clamp into the head tube with the bearings and secure with the original round nut. The adjustment of the nut comes after the installation of the complete front end. The two steering stops are bolted to the clamp with two M8x20 bolts and washers. Secure the stops with Loctite 243.



125 Remove the ignition assembly. The two bolts that secure the Ignition switch will need to be drilled out to remove them. TIP: If no drill press is available, the clamp can be placed onto the fork tubes and held for drilling.

NOTE: There are two versions of the Ignition assembly. If your switch is the long (130mm) completely black version (without the white bottom) you will need to modify the assembly. Remove the lower half of the switch from the lock cylinder by removing the two Phillips head screws. Remove the cable tie that secures the wires to the bottom of the black plastic cover. Very carefully cut the bottom off of the housing to a total length of 45mm. Be extra cautious near the wires. You will need to cut halfway through the original hole in order to free the wires. Once you have freed the wires you can remove the switch and finish modifying the cover to the proper length. Drill two small holes in the cover approx 10mm up from the bottom on the left-hand side (left-hand side as if you were facing forward on the bike) that will be used to run a cable tie through to secure the wires. Place the switch back into the shortened cover, secure the wires to the side of the cover and seal the bottom of the now exposed switch with an insulating potting compound. Reinstall the switch on the lock cylinder using the original screws.



125a



126 The ignition lock/switch assembly (modified or not) can now be installed onto the new mounting bracket with two M8x25 bolts (6mm hex) and the original washers. Secure the bolts with Loctite 243



127 127-128 The upper fork clamp is installed on the steer tube and the top locknut installed. The top nut is not tightened until the two clamps are aligned, or the forks have been installed which will insure the alignment of the two clamps. The ignition switch assembly is installed onto the upper clamp with two M6x14 (5mm hex) bolts and secured using Loctite 243. The handlebar mounts are installed onto the fork clamp with two M10x70 bolts from above with washers and locknuts below. Do not tighten these yet as the bars will be needed to insure that the mounts are properly aligned. The pinch bolts can now be installed into the fork clamps. 6 of the bolts will be M8x35, and two are M8x40. The two longer bolts are installed where shown, the uppermost and lower most holes in the left side. Under these two bolts install two each of the turned down M8 washers and a loop clamp (12mm) that will be

used to guide the brake line and the sensor wire. The washers are used as spacers to space the loop clamps out away from the fork clamp.



128



129

The forks can now be installed into the fork clamps. The brake caliper sits on the left hand side. Tighten the pinch bolts of the lower clamp to 15ft/lbs. The round nut of the steer tube can now be tightened to 18ft/lbs, with the BMW tool No. 31 6 521. Tighten the center countersteering tube (2), and finally the top locknut (1) to 48ft/lbs. The forks have three grooves machined into the top of the fork tube to be used as a guide, the position at this point is not critical, as long as both fork tubes are set to the same height. Tighten the remaining upper fork pinch bolts to 15ft/lbs.

NOTE: If no special tool is available to tighten the round nut, tighten by hand so there is no axial play in the forks with the complete front end assembled (including the front wheel) and the forks can turn with very little resistance.



130

Install the handlebars.

Place the MAGURA X-line bars into the mounts and place the top mount halves in place and start the four M8x35 bolts (6mm hex) Once the mounts are in alignment tighten the two M10 mounting bolts from below the fork clamp to 30ft/lbs. If the bolts try and turn while you are tightening them remove the bars and hold the bolts from the top while they are being tightened. Now the handlebars can be centered using the etched markings on the bars and the clamping bolts can be tightened to 16ft/lbs.



131

Install the fork slider covers. Into the three holes at the bottom of the covers place the three small bushings, then install the fork slider covers with the six M6x12 bolts (4mm hex) and six large washers. Place the brake line support clamp onto the left side cover.



132 Remove the brake pads from the caliper, and take the caliper off of the original mounting plate. Unscrew the pin from the original caliper bracket. (It is secured with high strength Loctite) Also remove the small metal clip and the rubber boot from the caliper bracket.



133 The parts we removed from the brake caliper mounting bracket are once again installed onto the new mounting bracket. The pin is installed using Loctite 270. The rubber boot and the metal clip are also installed. The pins and the metal clip can be lubed slightly with a copper anti-seize paste.



134 Reassemble the brake

caliper.

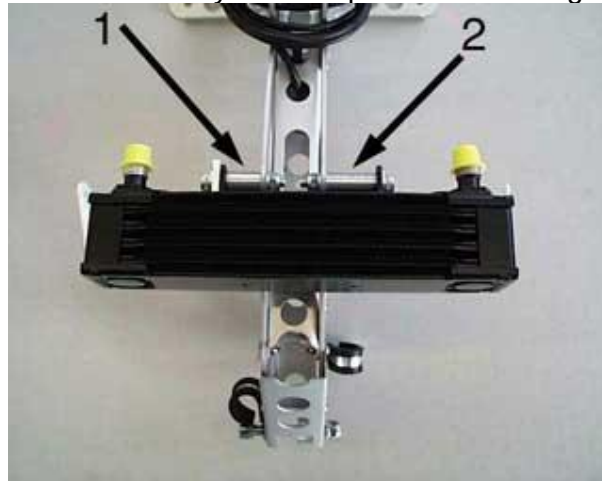
Place the caliper onto the new bracket, reinstall the brake pads, along with the pin and safety clip. Now the complete brake caliper is installed onto the left fork with two M8x35 bolts and washers. Tighten the bolts to 15-18ft/lbs. Be careful to keep the brake pads clean and free of any grease while assembling and installing the caliper.



135 The wheel speed sensor is installed into the mounting bracket as shown in the photo.



136 The front brake disc is installed onto the new wheel the same as in the rear. (torque 7ft/lbs, and Loctite 243) The sensor magnet in the 43mm long bolt is installed into the front wheel hub and adjusted using the two nuts (8mm wrench). Adjust the magnet so that the clearance between the magnet and the sensor does not exceed 1mm. The sensor cover installed over the sensor with two M4x8 bolts (2.5mm hex). The sensor assembly is secured in place using the front axle. The front axle is installed from the right hand side and secured with the hub nut on the left. The hub nut is tightened to 12-15ft/lbs. Finally the four pinch bolts are tightened to 15ft/lbs



to lock the axle in place.

137 Assemble the oil cooler.

The cooler is installed onto the mount using the short spacer (1) (18.5 mm) with an M6x40mm bolt (5mm hex) two washers and a locknut. The other side (2) uses the longer (26.5mm) spacer and an M6x45 bolt with washers and locknut. On the right

hand side, under the shorter bolt (1) the mounting bracket for the horn is installed.



138 Assemble the double headlamp assembly.

Place the two rubber bushings (1) and the metal spacers into the headlamp unit. The fork piece of the adjusting rod is fastened to the adjusting screw with an M6x20 button head (4mm hex). The rod is now attached to the headlamp plate from the front with a M6x16 button head (4mm hex)



139 Place the compression spring onto the adjusting rod, and place the rod through the faring mount. After the rod is positioned through the hole in the mount, push on the headlamps to compress the spring and screw on the knurled plastic nut. After the plastic nut a M5 locknut is installed as a safety. The double headlamp

assembly is mounted to the faring mount at the top with two M6x35 button head bolts



with washers and locknuts.

140 Place the fuel tank vent hose from the central tank along with the prepared oil line (from step 97) above the coolant tank and forward through the forks.



141

141-142 The installation of the faring mount with the headlamp/oil cooler assembly. The complete assembly is installed with two M8x50 bolts and four spacers at the front of the head tube. Each bolt has a loop clamp installed as shown. The two oil lines are held in place with the loop clamps on the left and right. On the left the additional tab is installed to secure the oil line in place with an M6x10 bolt and washer. The right side oil line is connected to the oil cooler (17mm wrench), this is the line that connects to the bottom of the motor and is therefore complete. Make sure there is proper clearance for the line while steering all the way to the left and right. If the line is positioned correctly the bracket and cable tie down near the starter can be tightened. The oil line on the left side can now be connected to the cooler. The other end of the line with the reducer can now be installed into the rubber line at

the base of the oil tank (return line) and secured with the original hose clamp.



142



143

Install the horn.

The horn is installed onto the mount with an M8x20 button head (5mm hex) and the original sheet metal nut. The horn is placed on the inside of the mounting bracket. The plug can now be reattached to the horn



144

Install the grips, remote switches, levers and hand guards.

The original levers for the clutch and brake will need to be shortened just after the "ball". The remote switches for the IMO and the roadbook are installed after the clutch lever mount and left side combination switches. Then the left side "pro-grip" can be installed. The clutch cable must now run under the coolant tank, between the tank and the radiator.



145

Install the hand guards as described in the instructions from Acerbis. Use the special mounting kit for use with the MAGURA x-LINE bars. The grips must be

cut open at the ends for the installation of the hand guards.



146 The stainless steel brake line is screwed onto the brake master cylinder with a new gasket. The levers are shortened as shown.



147 The modification to the throttle with heated grips. The twist grip is removed from the switch housing, pay attention to the pulley position. Remove the cables for the heated grip and carefully cut down the slider.

NOTE: If you do not want to destroy the heated grips, you can get the non-heated slider from your BMW dealer instead. If you are using the MAGURA bars the heated grips cannot be used.



148 Place the second "pro-grip" with the lettering facing up, onto the twist grip slider, and reinstall into the switch housing.



149 The complete throttle and switch housing can now be installed onto the bars. The throttle cable can be reconnected, along with the shortened brake lever. The mounting plate for the throttle cable can be reattached with the original screw.



150 Reinstall the right side combination switch and route the wires along the bars and down through the forks. Cut off the end of the grip and install the right side hand guard.



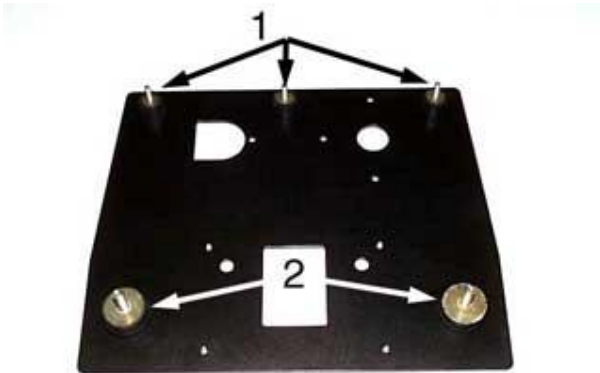
151 The brake line should run parallel to the bars and on the left side run through the two loop clamps we placed onto the fork clamp pinch bolts. Connect the brake line to the caliper using the original hollow banjo bolt and two new gaskets. The banjo bolt is tightened to 9ft/lbs. Fill and bleed the front brake master cylinder per the manufacturer's specifications. Clamp the brake line and the sensor wire to the fork slider cover.



152 The wires for the combination switches on the left and right are laid along side the head tube, and once again routed back through the lower left rear corner of the e-box. The plugs of the left combination switch (orange), ignition, brake light, and clutch switch can all be reattached. The plug for the right combination switch (black) is left loose and will be modified later (step 164-167). The plugs for the heated grips are omitted with the MAGURA bars.



153 The tank mount crossbar is installed from the left side so that all the wires are situated behind it. the crossbar is then bolted to the tank mounts on each side using an M6x20 bolt (5mm hex) two washers and a locknut. Once the crossbar is installed and you have checked for proper clearance while steering both directions, the wires can all be secured with cable ties.



154 Assembling the base plate for the cockpit.

- (1) The three rubber/metal mountings 15/15 M4 are installed with Phillips head screws M4x8
- (2) The two rubber/metal mountings 25/15 M6 are installed with M6x10 countersunk bolts. (4mm hex)



155 The IMO 100 is installed with two M4 washers and locknuts. Between the IMO and the aluminum base plate install the polycarbonate bedplate.



156 The roadbook holder is installed directly onto the aluminum base plate with four M4x8 button heads (2.5mm hex) and large washers. The bolts are installed from inside the roadbook holder. Secure the screws with Loctite 243.



157 The new indicator lamp unit is fastened with two Phillips head screws M4x14 countersunk, and two special countersunk washers, two large washers and locknuts.



158 The pre-assembled aluminum base plate is now mounted onto the faring mount with two M6 locknuts and large washers and three M4 locknuts and large washers.



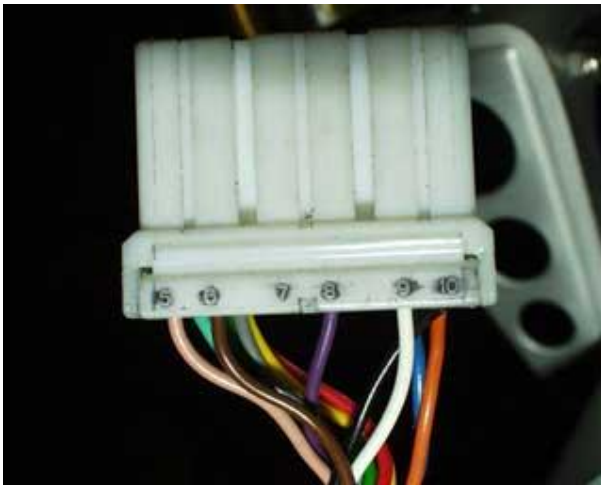
159 The original plug for the indicator lamps must be removed from the original speedometer assembly. The two plastic latches on the sides of the plug must be hinged open, then from the front of the plug a small sharp pin must be inserted to release the individual connectors. Release and pull each of the original wires from the plug.

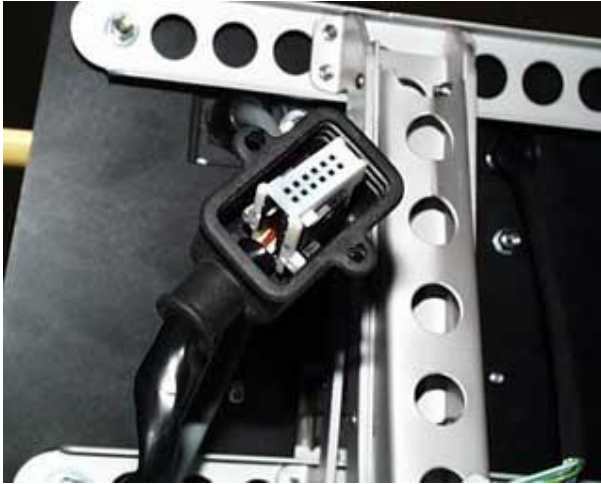


Insert the wires of the new indicator lamp assembly into the original plug. If you look closely the plug is numbered where each of the wires goes in. The list below shows the proper installation of the new wires into the plug. When the wires are installed you will hear them click when they are fully into the plug. When all the wires are installed, close the two hinged latches and connect the plug to the matching connector of the wiring harness.

Connector code

- | | |
|-----------------------------|-----------|
| 1: Aqua | 6: Brown |
| 2: Gray, green, red, yellow | 7: Unused |
| 3: Blue | 8: Violet |
| 4: Orange | 9: White |
| 5: Pink | 10: Black |



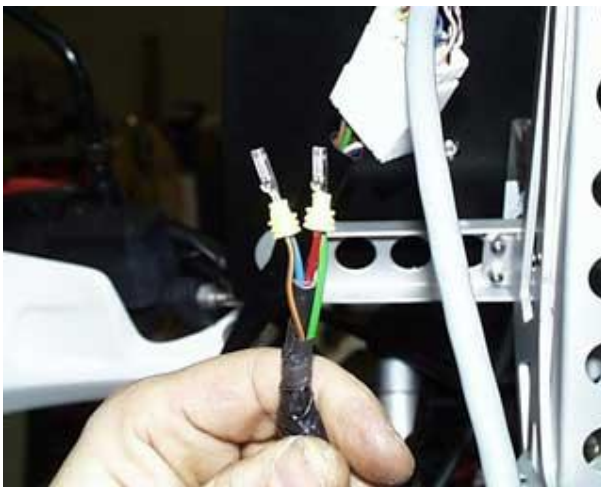


160

160-161 Wiring harness modifications.

The plug that was originally connected to the instrument cluster is cut off, including the rubber boot. The following wires are no longer needed and should be cut slightly shorter and sealed up inside the insulation: Red, black, yellow/brown, and blue/yellow. The white/green and white/blue wires need to be stripped back and soldered together, then insulated with heat shrink tube and also tucked into the harness covering.

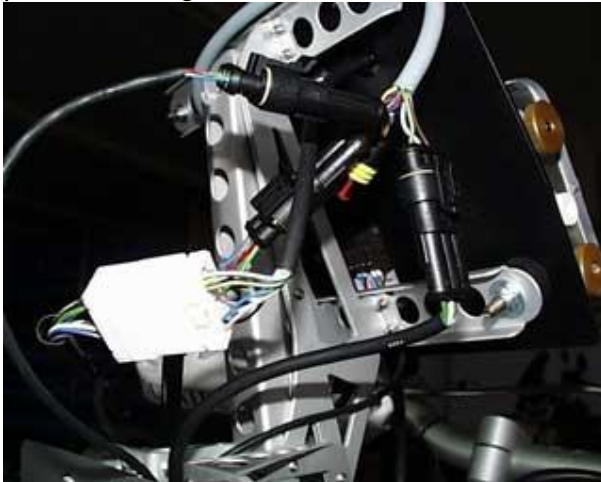
Now grab the 300mm long piece of new wire, two conductor, and strip the end of the red wire, along with the green wire from the original harness, twist these two wires together. Slide one of the small silicone rubber seals over the end of the two wires and solder on one of the connectors that will be placed into the plug housing after we have done the same with the remaining blue and brown/orange wires. Now slide the two connectors into the housing and push the small rubber seals in to seal up the connector. (1: Plus, red and green, 2: Ground, blue and brown/orange)



161



162 The remaining end of the new two conductor cable needs to be connected to the small two wire connector that will be plugged into the back of the Roadbook holder. Solder two small sleeves to the ends of the wires, then place the ends into the connector and tighten the two small screws. Be sure and check the polarity on the back of the roadbook holder and connect the wires properly. (red: plus, blue: ground). Tape up the end of the wire where it meets the connector to protect it. Plug the connector into the back of the roadbook holder.



163 The plugs for the power (assembled in step 160) along with the wheel sensor, and the remote control switches can be connected to the IMO. The connectors are all unique and therefore cannot be plugged in incorrectly.

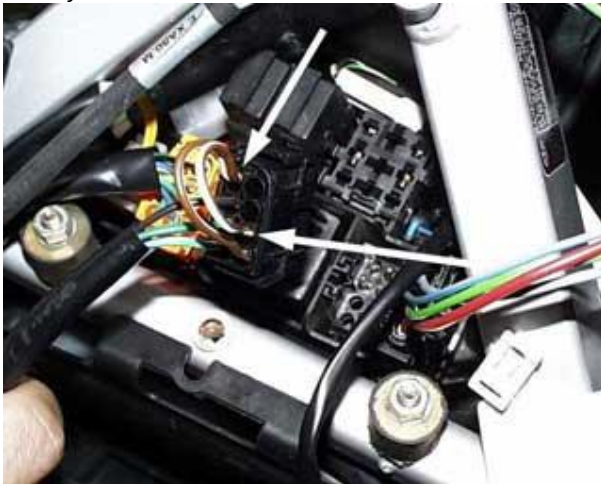
NOTE: Some of the parts shipped with the IMO and the roadbook holder are not necessary, wire with plug, cable ties, and self-adhesive magnet.



164 Wiring for the double headlight.

The original plug for the H4 headlamp and the socket for the parking lamp are cut off. Cut the wires at an even length. Connect the two brown (ground) wires together and solder on one of the connectors for the MOLEX plug. Solder additional connectors on each of the remaining three wires individually. Slide the four connectors into the MOLEX plug as follows:

Original wires	New headlamp wires
Brown	Blue
White	White
Yellow	Black
Grey	Yellow



165 Wiring up the light switch.

Two connectors will need to be removed from the plug housing of the original headlamp plug inside the e-box. The two plugs are indicated in the photo. Both have brown/white wires connected to them. In the row with 4 pins, the farthest one to the right with the two brown/white wires should be removed, and in the second row the

single brown/white which is also farthest to the right needs to be removed.



166 The brown/white wire should now be cut just behind the connector with the double wires as indicated. This should leave a short wire that is still connected to the plug housing. The short wire with the two connectors that were removed from the plug is no longer needed.



167 The red wire from the new light switch that is mounted in the new faring mount should have one of the new female 0.35 BMW connectors crimped and soldered on. The blue wire should be connected along with the remaining short brown/white to a new BMW connector as well.



168 The two new connectors are now slid back into the plug housing. The red wire goes into the row with all four connectors, and the blue and brown/white plugs in next to the other brown/white.



169 Connecting the aux power socket.

On the ends of the wires from the aux plug socket, strip the wires and crimp on two ring eye connectors, these will be connected directly to the battery terminals later when we reinstall the battery.

NOTE: Pay attention to the polarity when connecting these wires !! Blue is ground.



170 With all the plugs connected inside the e-box the cover can be installed using the original screws (torx30). The battery mount can also be installed using the original nuts and washers (10mm wrench).



171 The air cleaner housing (airbox) can be remounted onto the throttle body/butterfly housing. The two new aluminum mounting bolts are used to secure the airbox to the cross member mount. (6mm hex). These bolts are tightened to 4-6 ft/lbs.



172 The intake housing is now cut off 10mm past the temperature sensor. After cutting the intake the edge can be smoothed using a file or knife blade.



173 Slide the cut off intake into the slot with the air cleaner/airbox. Place the outside clip over the two housings to hold them together and secure it with the two original screws.



174 The oil reservoir is placed back onto the original mounting pins and secured with the original clips. The bolt (torx30) and spacer that connects the oil tank to the airbox is carefully reinstalled (max 6ft/lbs.).



175 The battery is reinstalled into the original battery support. (Hawker battery optional). The original rubber hold down strap is connected along with the two battery cables. Connect the positive cable first, then the ground. Do not forget to hook up the two wires for the aux socket when connecting the battery cables. Once the battery is installed the solenoid can be placed back on the top of the e-box and the IMO, roadbook holder, remote controls and the indicator lamps can all be tested.



176 The transverse mounting tube for the faring can now be installed through the faring mount. It needs to be passed through the center of the mount and on the ends the four sheet metal nuts that were removed from the original tail section (from the tail lamp) can be installed.

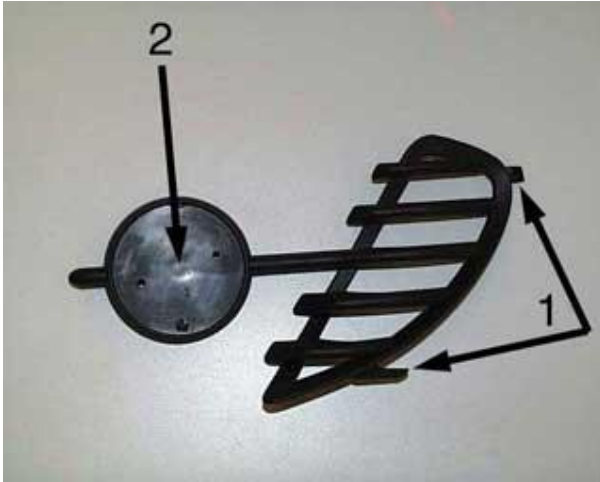


177 The two aluminum clamps for the tube can be placed into the faring mount and loosely mounted using two M5x35 bolts (4mm hex) and washers. The mounts are positioned just below the headlamp switch. Do not tighten these until the faring has been installed and positioned correctly



178 Installation of the front fender.

Place into the two forward holes two M6x16 button heads with large washers and underneath place the two fender reinforcements with washers and locknuts. The fender is now installed to the fork bridge using the four original bolts (torx30). The bolts should be secured with Loctite 243 and tightened to 4ft/lbs.



179 Modification of the front side cover plaques. The logo plaques should be removed from the original side covers by removing the Phillips head screws. The BMW logos can now be carefully pried from the plaques. The two plastic tabs (1) can now be cut off of the plaques and the rough edge sanded so that a smooth even curve is left. The original screw hole should be drilled through with a 5.1mm drill and countersunk from the front for the 5mm slot head screws.



180 Assembly of the rear fuel tanks.

The two metal plates are installed at the bottom of the rear tanks using two M6x16 countersunk bolts (4mm hex) with an o-ring seal placed between the plate and the tank. Disconnect the two quick disconnect fittings of the rear fuel lines and secure the banjo fittings to the tanks using new banjo bolts and two gaskets per connection. The lines should be pointed upwards (as they would sit on the bike) as shown.



181

The right side vent hole (as the tank sits when installed on the bike) should be plugged with the threaded plug and gasket.



182

The rear tank is now placed over the rear frame and lowered in place so the rubber mounts are lined up with the slots in the tank. Before the tank is bolted in place the previously positioned vent hose is connected to the left-hand side of the tank using a new banjo bolt and two new gaskets. Lift the tank slightly to install the vent fitting.

TIP: Slightly grease the two round rubber mounting donuts.



183 The tail tank is now bolted in place with two M8x25 bolts and washers into the threaded rubber mounts. Install the locking gas cap.



184 Install the center tank cover.

The original rubber grommet for the oil tank filler neck is installed on the new tank cover and the oil cap removed. Place the new tank cover down over the oil tank filler and bolt the cover in place at the front near the head tube with the original screws (torx25). The oil cap can be reinstalled. Two of the original sheet metal nuts from the original cowling should be installed on the forward edge of the tank cover.



185 The tank cover is secured at the rear as at the front using the original screws (torx25)



186 The reserve pickup tube should be removed from the new fuel petcocks. To remove the reserve tube the filter should be unscrewed, the plastic tube removed and the filter screwed back in place. The o-ring seal should be slid onto the petcock over the filter, and the petcock installed into the tank using two M6x16 button heads. The petcocks should be installed onto both the left and right fuel tanks. You will

notice that there are different right and left side petcocks. Once all the tanks are



installed, check that all fittings are tight.

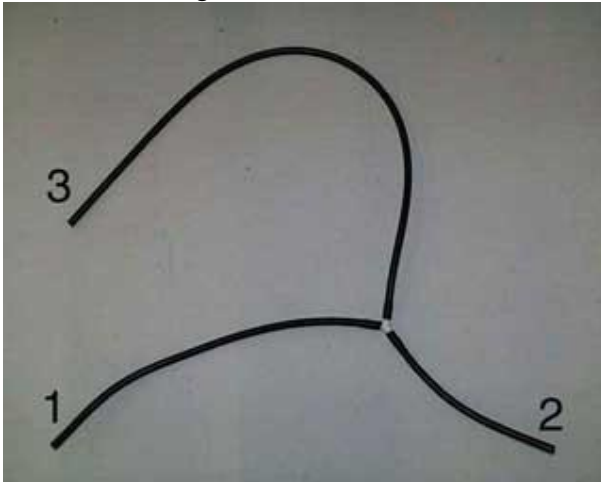
187 Onto the top of the left side tank install two brass fittings with a gasket for the vent hose connections. Install the one remaining fitting into the right side tank. Along the inside top edge of the tank the self-adhesive foam tape is installed.



188 The modified plaques are installed onto the front fuel tanks with one each M5x20 countersunk screw. When the plaques are in tightened in place the BMW logo can be reinstalled.



189 On both the left and right tank mounts the remaining four round rubber mounting donuts are installed with four M8x16 shallow head Allen head bolts. Into the mounting hole near the rear of each tank install the large rubber grommet. The tank is installed from the rear and slid forward onto the rubber donuts, then secured with an M8x40 countersunk bolt and the special machined aluminum bushing. If necessary the tanks can be spaced out from the center tank cover by placing some of the remaining turned down M8 washers underneath the round mounting donuts.



190 The fuel tank vent lines are installed as follows:

- (1) Front left tank
- (2) Right side tank
- (3) Open end which is led upward into the faring.



191 Connect the vent from fig. 190 (2) to the right side tank. After placing the vent through the frame to the left side the vent can be secured to the crossbar with cable ties.

Be careful not to pinch off the hose!



192 Connecting the left side vent lines. Connect to the rear fitting the vent line from the rear and central tank. To the front fitting connect the hose coming from the right side tank. The hose (no. 3 from fig. 190) is led upward inside the faring and near the top curved back to point downward. Be sure there is clearance for full steering

from stop to stop. Secure the hoses with cable ties, being careful not to pinch the



hoses.

193 Install the center cowl fiberglass piece. The cowl is installed with two M5x16 button heads and four large washers. Two of the washers are placed under the cowl, between the cowl and the frame, and two on top. the bolts are carefully screwed into the two fixed rivet-nuts in the rear framework.



194 Assemble the seat.

At the front of the seat install the aluminum tab. Place the tab onto the underside of the seat and mark the two holes. Drill the holes to 6.2mm diameter. The tab is bolted to the seat with two M6x16 buttonheads, washers and locknuts. The two washers

and locknuts are installed from inside the tool storage compartment in the seat.



195 In the rear of the seat the quick release mechanism is installed. The pin is placed through the machined aluminum bushing and installed through the hole in the rear of the seat. Then the star washer is pushed onto the quick release pin to retain



the pin in the seat.

196 The seat is then installed from the rear and slid forward such that the tab slides into the bracket on the framework. Once the seat is slid in place the quick release pin is locked by turning 90 degrees.



197 Remove the original wires from the old turn signals. Remove the lens and pull the lamp holder from the housing, unplug the wires and then pull them out from the turn signal housing.



198 Installation of the front mini-turn signals.

The front turn signals are located in the center of the small raised areas of the sides of the faring. Mark and drill a 10mm hole. Mount the turn signals housings with the washer and nut supplied with the signals. Make sure the drain slots in the lamp housing are facing downward. (The right and left side lamps are different) Place the original wiring into the new signal lamps, plug them into the bulb holders and replace the lens.



199 Install the oil cooler screen into the lower opening of the faring. Place the screen into the opening, mark and drill the four holes with a 3mm drill. The screen is now bolted in place with four M3x10 button heads, large washers and locknuts.

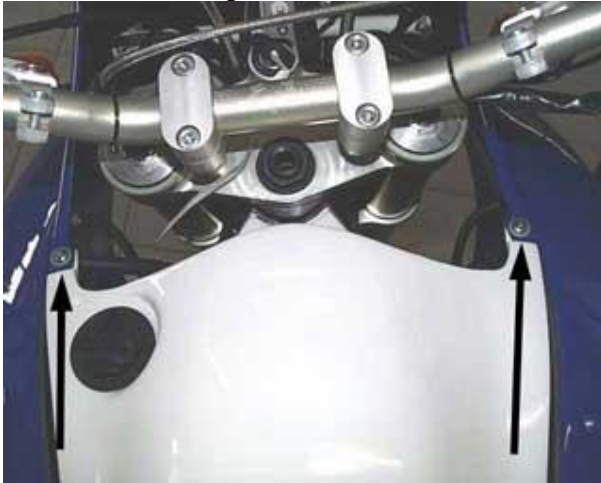


200 Place the headlamp cover in place on the faring, mark and drill five 2.4mm holes that will be used to secure the cover. Place foam tape all the way around the opening and punch through the foam where you have previously drilled the five holes.



201

The headlamp cover is bolted to the faring with five M2.5x12 countersunk Phillips head screws, large washers and locknuts. Slowly and evenly snug down the cover.



202

Install the completed faring assembly.

Connect the faring to the tank cover when the two sheet metal nuts have been installed. Between the faring and the cover place a rubber washer. The faring is bolted using the screws from the original front turn signals. Place a plastic washer under the head of the mounting screw.



203 Once the faring is positioned correctly the cross tube can be tightened.

Now mark the four holes where the faring will attach to the cross tube. Remove the faring by removing the screws from step 202 and drill the four holes to 5.2mm. Once again reinstall the faring, repeating step 202. Bolt the faring to the cross tube mount using four more of the front turn signal screws with four more plastic washers. Shim out to the faring if necessary, so the fibreglas is in a relaxed state, not under tension. Plug the turn signal wires into the original plugs of the wiring harness.



204 Place the sealing rubber along the edge of the glare shield and slide it into the faring in front of the mount and above the headlamps. Secure the shield with

two M6x16 bolts, large washers above and below, and locknuts.

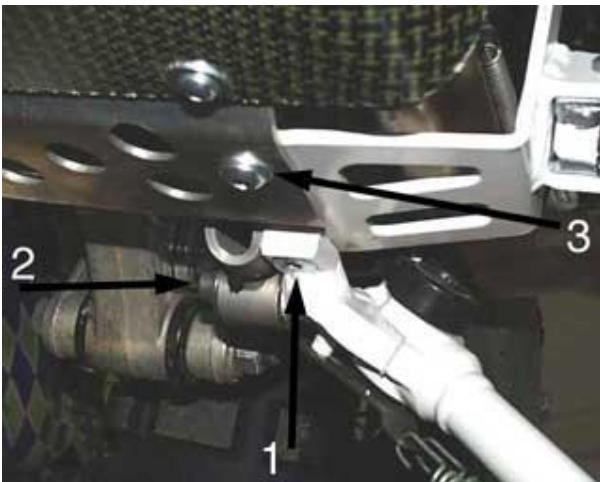


205

205-207 Installation of the kick stand and skid plate assembly.

Remove from the original kickstand mount the switch, washer and snap ring, the large countersunk screw, the bushing along with the two springs and mounting plate. Place the bushing into the new mount and slide the shortened kickstand in place over the new mount and install the countersunk bolt. Secure the bolt with Loctite 243. Reinstall the kickstand switch with the original washer and snap ring. The kickstand mount is placed through the boss underneath the frame on the left hand side. It is secured using the countersunk bolt of the foot peg mount (1) (fig 206) and through the boss (2) with an M8x20 bolt and large washer. The two springs and the mounting plate are installed between the kickstand and the mount. The switch is connected to the original plug of the wiring harness and secured to the frame along with the wires for the oxygen sensor with cable ties.

The rear of the skid plate is fastened to the frame using the two forward mounting bolts of the foot peg mounts. The skid plate is now bolted on in the front using an M6x30 bolt and large washer. Between the skid plate and the motor mount the large aluminum spacer is placed.



206



207

A few final notes:

Check the oil and coolant levels.

Before the first ride, be sure and double check that all the bolts are really tight, and proper torque has been applied. Make sure the steering head bearings are in proper adjustment and the bars are positioned correctly and tight now that the seat and all the related parts are in place.

Make sure the brakes are filled correctly and that there is proper brake pressure. Bleed again if necessary.

Enjoy.