MG Rover Parts

XPart
MGF Hydragas Suspension Replacement Kit - XPT006310

Fitting Notes

Contents

Fitting Instructions

Full Fitting Instructions can be found on the XPart Info Centre. Visit **www.xpartcommunications.com** select **Info Centre**, then select **Information**, then **Search** for **XPT006310 Fitting Instructions**. Should your insurance company request it, XPart has pre-prepared a declaration that you can send to them, it can be found in Section 3, Page 15 of the Fitting Instructions. *Please note that XPart cannot guarantee that your vehicle insurance company will provide insurance as a result of the declaration.*

Credit and Thanks

Credit and thanks from XPart go to Roger Parker for his original words, photography and test fitting that provides the basis of this publication.

If you have any queries please contact: xpart.communications@neovialogistics.com

MG Rover Parts

1. Before you start

Safety Advice
Under no circumstances combine the use of original and MGF Hydragas Suspension Replacement Kit parts.

Under no circumstances should any attempt be made to open or dismantle a Hydragas Suspension Replacement Unit. Unauthorised dismantling poses the real risk of serious injury or even death!

XPart recommend that the Hydragas Suspension Replacement Kit is fitted by competent motor engineers and that the fitting instructions are strictly adhered to. If in any doubt, seek professional assistance.

The original hydragas suspension system operates at very high pressures, so has to be given respect if injury is to be avoided. This system needs to be depressurised before the hydragas components are removed, we advise the use of the specific hydrolastic suspension pump to complete this process.

The fitting of the MGF Hydragas Suspension Replacement Kit should be completed on a hard and level surface. Normal safety procedures and any additional safety suggestions noted here should be adhered to.

General Advice
The MGF hydragas suspension is split into two separate sub systems, interconnected front to rear on each side, with a single high pressure valve connection per side. When depressurising either of the two valves will see the suspension settle to the bump stops both front and rear on that side. For this reason we suggest that the fitting of the MGF Hydragas Suspension Replacement Kit be done one side at a time, and that the side to be worked upon is raised and placed on stands BEFORE depressurisation.

Note! The car must not be driven with original suspension on one side and replacement suspension on the other, except for simple manoeuvring to gain access for fitting the replacement system to the remaining side.

Advisory note 1
Before disconnecting the car's battery, check that the key will operate the central locking through the drivers door lock. If it doesn't then it means there is no communication between the drivers door lock switch and the alarm ECU, if you disconnect the battery you will NOT be able to resynchronise and the car will be immobilised.

MGFs use the Lucas 5AS alarm system, when the battery is disconnected the rolling code synchronisation between the alarm fobs on the two sets of keys all cars have (had!) will be lost, the process of re-synchronisation is listed in full in the driver's handbook.

Insert the key into the drivers door and turn it to the UNLOCK position, followed by rapid pressing of the lock button of the alarm fob, after several presses the car will remotely lock and then respond normally to unlock and lock commands. This process has to be repeated for the second (and any additional) fobs.

Note MGF 1.6 models did not have remote central locking as standard, only key operated central locking.

Advisory note 2
Many radios in MGFs have a security code, which will be needed to reactivate the radio once the battery is reconnected. Ensure that you have the security code that you have the code, and the method of entering it.

Advisory note 3
Prior to fitting XPart's hydragas suspension replacement kit, the original suspension must be checked thoroughly, worn parts can result in unwanted noise and handling characteristics. Worn or damaged components must be replaced (except those parts relating to the hydrolastic system that will be replaced by the new kit).

Check the Kit Contents - XPT006310 (see cover picture)

Check the kit contents: 2 x Front XPart replacement MGF dampers (XPT006330), 2 x Rear XPart replacement MGF dampers (XPT006320), 2 x Front XPart replacement MGF spring units (XPT006350), 2 x Rear XPart replacement MGF spring units (XPT006340), Fitting Notes, 4 x Suspension rebound stops (2A4267SLP, *failure to fit may invalidate the kit warranty*), 4 x Suspension Rebound Stop Screws (13H2776), 4 x Locking rings.

MG Rover Parts

2. Fitting Notes

Vehicle preparation

1. Chock the wheels (Fig. 1) on the side of the car not being worked on. In this case the passenger (left) side first.

   Loosen the wheel nuts and raise the right side of the car, then place axle stands underneath.

   Note! The subframes offer solid secure points to place axle stands, don't position them directly under the displacers.

   Remove the front and rear wheels.

2. Open the bonnet and remove the spare wheel and tools, then remove the thin plastic moulding that covers the rear of the under bonnet space.
3. The hydragas pipes and two valve connection points are then seen behind the washer bottle (Fig. 2).
4. The right side suspension needs to be depressurised (not the left side at this time). Use a hydrolastic pump with the correct adaptor that screws onto the valve.

Right front - removing the old hydrolastic suspension

5. Remove the front inner wheel arch liner.
6. If the car has ABS, remove the sensor cable from the retaining clips, and ease it to one side.
7. Remove the damper lower fixing bolt. Make a note of the positions of the brake hose clamp, spacer and two washers. The image (Fig. 3) shows the correct orientation.

   Check the bolt is straight, and replace if needed.
8. The damper is now hanging from the top fixing only, unclip the electrical plug connections to the horns and remove them and their brackets from the cars chassis leg.

   Remove the damper.
9. Place a fluid catch tray under the displacer position to collect spilt hydrolastic fluid, leave it there until you have finished this side. From inside the under bonnet area loosen the nut clamping the hydragas pipe to the displacer (Fig. 4-5). Remove the pipe from the displacer and push it downwards to allow fluid to drain into the tray. Leave it there until you have removed the rear displacer connection, further fluid will drain.
10. Remove the displacer front plate (Fig. 6), that is secured to the subframe by four bolts. Once the plate is removed (Fig. 7) the displacer is gently pulled forward to disengage the locating ring, lifted and tilted forward to disengage from the 'roller foot joint', more commonly known as the 'knuckle'. You may need to gently tap and prise the knuckle from the displacer alloy shaft (piston).

Figure 1, Chock the wheels.

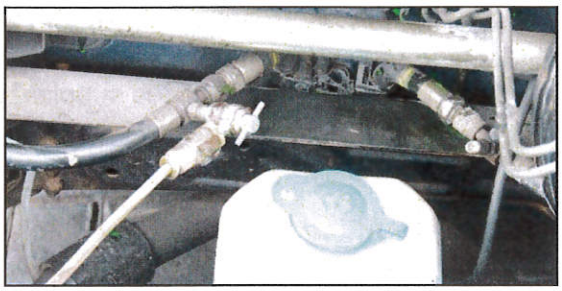

Figure 2, Two valve connection points.

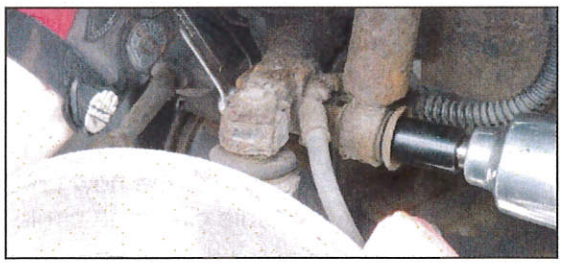

Figure 3, Note the correct positions of the brake hose clamp, spacer and two washers.

Figure 4-5, Remove pipe from displacer.

Figure 6-7, Remove the displacer.

2. Fitting Notes

Note! The knuckles wear and should be checked as poor knuckles will impair the ride quality and generate noise.

11. Retain the spacer washer (Fig. 8) that sits over the shaft of the 'knuckle' and clean off any dirt or corrosion.

    The spring found between the 'knuckle' and displacer is not refitted. A light smear of copper grease will help reduce any future sticking problems.

    Check the rubber damper bump stop is in place, if lost or damaged a replacement will be needed.

    Replace the rebound bump stop and screw (inset Fig. 8), located under the top suspension arm, between the arm and the subframe, with new ones supplied with the kit.

    Note! Failure to fit the rebound bump stops may invalidate the kit warranty.

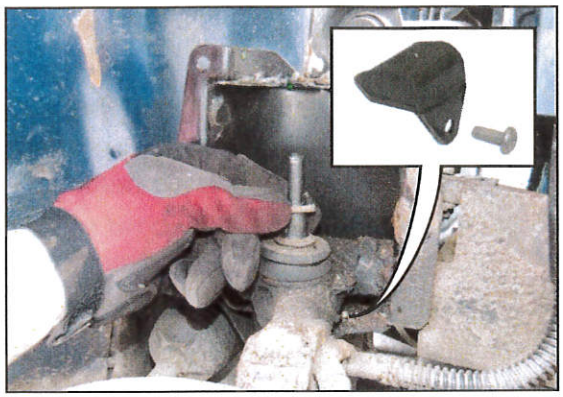

Figure 8, Retain the spacer washer.

Right front - fitting the new suspension replacement kit

12. Select a new front suspension replacement unit, wind out the adjuster until it protrudes by 4mm from the hex. on the spring seat. Drop a locking ring over the knuckle shaft, then fit the suspension unit over the knuckle's shaft. If the body of the suspension unit is fouling the cars body and it can't be slid over the knuckle pin, temporarily wind back the adjuster, fit the unit and wind back out. The front cover plate is then fitted to lock the new unit in place (Fig. 9), replace the ABS cable clips and cable if appropriate.

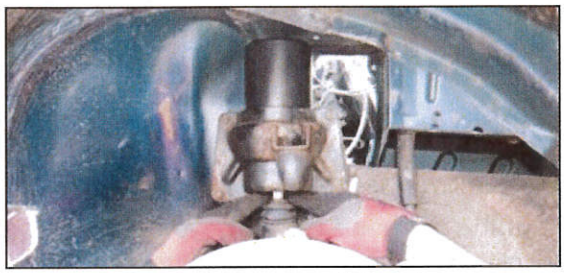

Figure 9, Lock the new unit in place.

13. Once fitted, use a felt tip pen to mark the front flat of the hexagon (Fig. 10), wind out the hexagon adjuster (Fig. 11) from the new replacement unit by 18 turns. Fit the locking ring to the threaded adjuster, do not tighten.

    Fine tuning of the ride height can be done after the car has had a settlement drive and is covered in step 42, later.

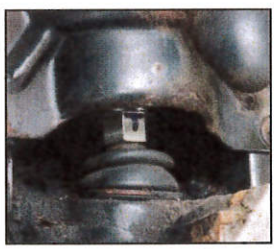

Figure 10, Mark flat.

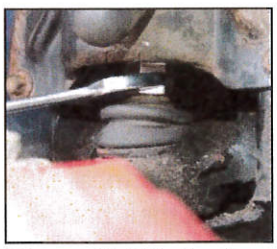

Figure 11, Wind out.

14. Fit the new front damper. The dampers upper dust cover needs to be slid on from the bottom and engaged onto the concave top fixed plate. Remove the top locknut, concave washer and upper rubber, leaving the lower rubber and concave washer in place. Feed the threaded shaft of the damper up through the cars body damper mounting and replace the rubber and concave washer, followed by finger screwing the nylock nut on as far as you can. Tightening is done after the next step.
15. Refit the lower damper bolt (Fig. 12) through the top arm, feeding it through the flexible brake hose bracket, sliding on the tubular spacer and smaller washer on too. Next slide the dampers lower bush onto the bolt and then the large concave washer before refitting the nylock nut. Fully tighten both this nut (37Nm) and bolt and then the upper mounting

Figure 12, Refit the lower damper bolt.

nut (45Nm). Ensure that each component on the bolt is in the same order as shown in the image (Fig. 13).

Note! The main shaft will need to be held with mole grips (Fig. 14) whilst the upper nut is tightened. Most torque wrenches will not allow the shaft to be held and tightened at the same time so a guide is to wind down until there is obvious compression of the rubber of approximately 1/3rd from its uncompressed state.

16. Refit the horns and electrical connections and then refit the inner wheel arch liner.


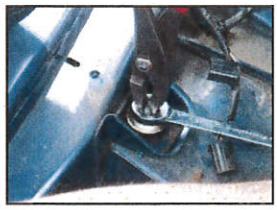

Figure 13-14, Component order as shown - hold shaft with Mole grips while the upper nut is tightened.

Right rear - removing the old hydrolastic suspension

17. Open the boot and remove the grille (if fitted) covering the access to the rear of the engine bay.
18. To access the rear right top damper mounting and the displacer's fluid connection the coolant expansion tank needs to be moved (Fig. 15). It is held in place by two 8mm bolts and an extension 'peg' underneath.
19. Move into the wheel arch, undo and remove the anti roll bar to link top nut and bolt (Fig. 16).
20. Remove the lower and then upper damper mounting nuts and bolts in the same way as described in steps 7 and 8, remove the rear damper.
21. Remove the rear displacer as described in steps 9 and 10, the displacer is best lifted out through the engine bay, rather than the wheel arch (Fig. 17-18). (It may be necessary to gently lever the displacers alloy piston into the displacer to fully disengage the piston from the 'knuckle', the spring can then be pulled clear.) Then follow step 11.

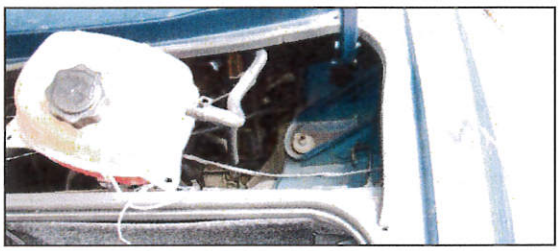

Figure 15, Move the coolant expansion tank.

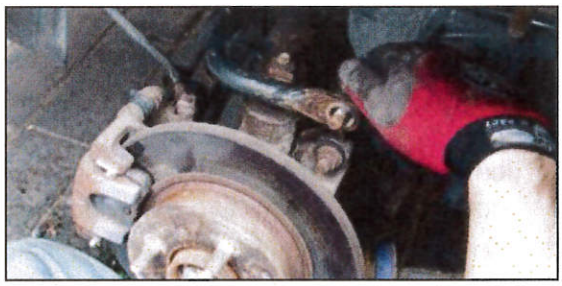

Figure 16, Undo and remove the anti roll bar to link top nut and bolt.

Right rear - fitting the new suspension replacement kit

22. Select a new rear hydragas suspension replacement unit and fit this in from the wheel arch and 'post' it up between the body and subframe, before negotiating it into position in the same way as described in step 12.
23. Follow the set up process as step 13, noting that the rear springs are higher rated so the pre-tensioning does make this much stiffer to turn.
24. Fit the rear damper as steps 14 and 15, with the following differences: the upper nut (Fig. 19) tightening torque is 50Nm. The rear anti roll bar is reconnected (Fig. 20) 45Nm.
25. More hydrolastic fluid will have emptied into the tray under the exposed end of the front pipe, if you have access to compressed air you can clear residual fluid from the line now.
26. Replace the wheels and lower the car.
27. Refit the expansion tank.


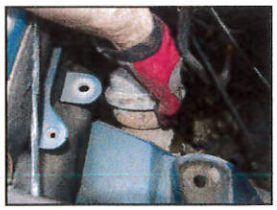

Figure 17-18, Lift out the displacer through the engine bay, rather than the wheel arch.


Figure 19-20, The upper nut torque is 50Nm - reconnect the rear anti roll bar, torque 45Nm.

2. Fitting Notes

Left side of the car - preparation

28. Follow step 1 but this time on the right hand side of the car.

Left front - removing the old hydrolastic suspension and fitting the new replacement suspension

29. Follow steps 5 to 7.
30. The under bonnet fuse box (Fig. 21) is now in the way of access to the damper top fixing so has to be moved to one side.

    Note! See the appendix with regard to the cars security system and radio security before proceeding.

    First remove the battery negative (earth) terminal and place to one side so it can't spring back. The two securing bolts for the under bonnet fuse box can now be removed and the fusebox moved to one side.
31. Follow the damper removal instructions in the latter part of step 8, and then follow steps 9 to 15.
32. Refit the under bonnet fusebox but leave the battery disconnected until the rear unit is fitted.

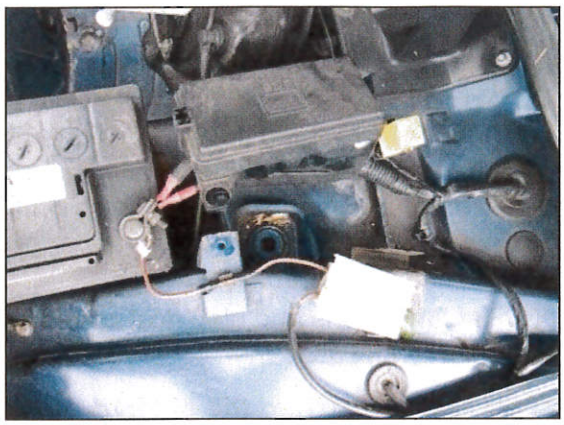

Figure 21, Move the under bonnet fuse box.

Left rear - removing old the hydrolastic suspension and fitting the new replacement suspension

33. The engine ECU and several main electrical connections (Fig. 22) need to be moved to provide access to the displacer and damper top nut. First disconnect the ECU main connections (one or two depending on age and model).
34. The ECU sits on a bracket which also carries a number of main electrical connections. The bracket is retained by two bolts on the top edge and a sliding foot below. The upper bolt holes are slots so remove the inner bolt and just loosen the outer, which allows the bracket to be slid towards the car's centre line and then lifted to disengage the lower foot.
35. With the bracket disengaged you have access to the va-rious connections and relay pack underneath. The wiring will not have enough free play to allow the ECU and bracket to be moved out of the way so disconnect the various connectors. The relay pack and half of each main connector clip to tongues pressed out from the back of the bracket, these need to be disconnected. They have a 'barb' type of lock in the plastic moulding of the plugs that has to be gently levered as you slide it off the tongue. Once disconnected the bracket with ECU can be placed out of the way.
36. Depending on the age and model there are various standard air filters fitted, they interfere with access to the displacer to varying degrees so may have to be moved, requiring the rear of the hood to be opened and the engine cover removed.

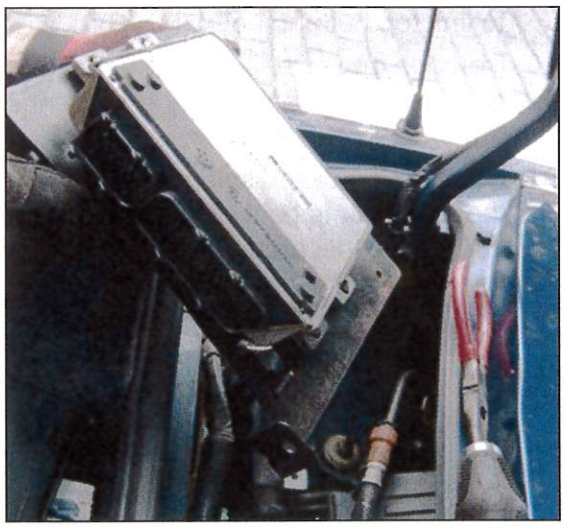

Figure 23, The ECU needs to be moved.

The common standard air filter uses a pair of bolts or clips to the side of the main filter box facing the left side of the car, and one or two moulded pegs under the box. The air filter to throttle body hose must also be disconnected.

Most filters have a single hose entry at the front of the filter box (Fig. 23), connecting to a resonator with a cold air pick up hose that can be in the way, as it is trailed past the displacer and cable tied to the subframe, remove if needed.

Trophy models have a dual entry with the second entry at the rear with its hose also tied to the subframe. This rear pipe/hose has a single screw fixing inside the filter box and removal is not possible without removing the main filter box.

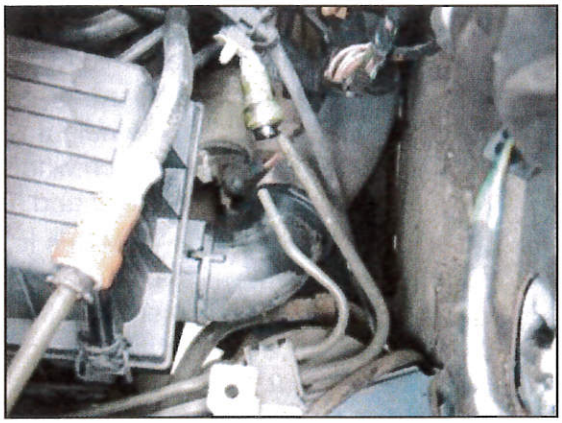

Figure 23, Air filter - single entry hose.

Release the hood by unclipping the two front latches to remove hood tension. Pull forward the rear deck carpet to access the five spring clips that hold the rear lower spar of the hood frame into the rear body channel, unclip and move the ends out of contact with the hood spar. It is advised to unzip the rear windows top zip and separate the two side Velcro fasteners to allow the rear window to remain flat whilst the rear of the hood is raised.

Figure 24, Hold spar in position.

The hood's lower spar can then be eased out of the body channel and raised, feeding the now partially loose rear window forward to keep it as flat as possible. When moved through approximately 90 degrees the spar can be held in position, a bungee strap is ideally suited to clip behind the spar and the front of the hood frame (Fig. 24).

The carpet and insulation underneath is removed. The main engine cover is now accessible and the eleven bolts are removed. The cover is then manoeuvred out, negotiating it around three of the hood spar catches (Fig. 25).

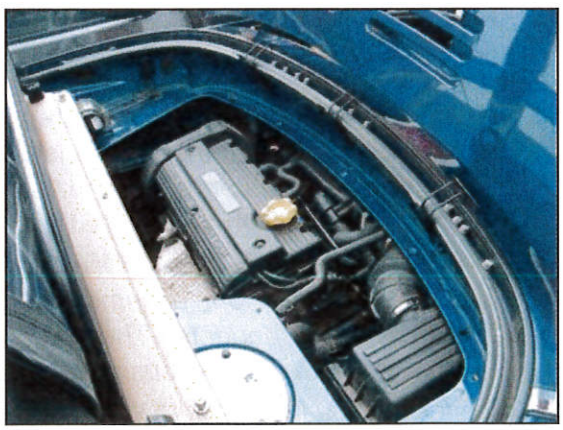

Figure 25, Remove engine cover.

37. Do not smoke or have naked flames anywhere near for the following operation. Disconnect the charcoal canister electrical connection and quick release connection (press in the centre collar and pull the pipe off) to the fuel tank line. Lift from the rear bulkhead and slide down and to the side. The fuel feed and return lines also have quick release connections, remove them for more space.

    Note! Wrap a rag around the joints as they are released as some fuel spillage will occur, especially from the feed line.

38. Now follow steps 19 to 26.

    Note! 2000 on model year cars have an ABS sensor on the left rear, even if the car is not equipped with ABS.

39. Refit the air filter, charcoal canister and connections.
40. Refit the electrical connections and ECU and bracket.
41. Reconnect the battery

2. Fitting Notes

Fine tuning the new suspension

42. Take the car for a two mile run to allow it to settle, some settlement noises may be heard. Park the car on a level surface and measure the ride height on all four corners. Measure from the centre of each wheel to the underside of the wheel arch lip directly above and note the results.

    The official MG ride height of MGFs is 368mm front and 363mm rear, both +/- 10mm. Trophy 160 SE models have a measurement 20mm lower, both front and rear. The new system has a limited adjustment range to allow corner heights to be adjusted to reach the recommended heights.

    The standard ride height for mainstream MGFs is aesthetically too high for most owners so the suggested height for the hydragas suspension replacement kit is 355mm front and 353mm rear, the Trophy 160 SE model maintains its normal heights. For areas where ground clearance is limited the ride height can be raised to the original 368/363mm by retaining the spacer removed in step 11. All models are then fine tuned in the same way.

    Note how far in error the ride heights are to your chosen measurements. Turn the hexagon adjusters an appropriate number of turns/flats to raise or lower the ride height to the desired measurements. A full turn of the hexagon adjuster alters the ride height by approx 6mm (approx 1mm per flat of the hexagon). The car will need to be raised (one wheel at a time) so the suspension is in full 'droop'. Adjust the hexagon by the calculated amount, then make a different mark on the front flat for reference, refit the wheel. Once the ride height is correctly set tighten the lock ring, using a flat bladed screw driver and a gentle tap with the palm of a hand. Repeat for the other suspension units and then go for another test drive and return to the measuring position, recheck the ride heights. If more than 10mm in error readjust, otherwise run the car for 100 miles and recheck.

    Note! These instructions assume the suspension is using standard MG components. The use of non standard lowering knuckles with the new suspension is NOT recommended as the resulting ride heights will be too low and too close to the damper compressed limit, you will not be able to adjust them to the new recommended ride heights.

Removal of the hydragas system pipes

The new suspension system removes the need for the hydragas system, we recommend that all the old unused pipework is removed, disconnected and cut where required to aid removal.

Note! Do not cut the brake pipes.

Note your MGF's ride height below:

VEHICLE	FRONT (+/- 10mm)	REAR (+/- 10mm)
Standard	368mm	363mm
Trophy 160SE	348mm	343mm
Standard Kit	355mm	353mm
Raised Kit	368mm	363mm
My car		
My car		
My car		
My car		
My car		
My car		