®FAST universal dual control systems

Installation and Maintenance Guide for Right Hand Drive Vehicles

Automatic Transmission: Dual Brake
Manual Transmission: Clutch and Brake
Manual Transmission: Static Pedal Set
Optional Accelerator Set

Please read these instructions in full before fitting the dual control unit to the vehicle.

- Heavy duty cable system.
- Universal – designed to fit in any vehicle.
- Quick release pedals.
- Adjustable pedal height.
- Heavy duty cable control system suitable for any vehicle.
- Suitable for Manual and Automatic Transmission.
- Buy once, use again and again!

Manufactured in The Netherlands

Sole UK importers:
Grade Six Supplies Ltd.
60 Twentypence Road
Wilburton
Ely CB6 3PU

Tel/Fax: +44 1353 749807
www.g6s.co.uk

The purchase and fitting of car dual controls to driver training vehicles can be a major expense for instructors. The UK is exceptional in that the majority of dual controls fitted are of a vehicle-specific design and therefore have to be considered 'disposable' on sale of the vehicle. This is wasteful of instructors hard-earned cash and an environmentally unfriendly option when compared to universal cable systems.

FAST Cable-operated dual clutch and brake unit.

The FAST dual control system offers significant savings over vehicle-specific controls. The greatest advantage of using the system is that it can be fitted to any vehicle time and time again.

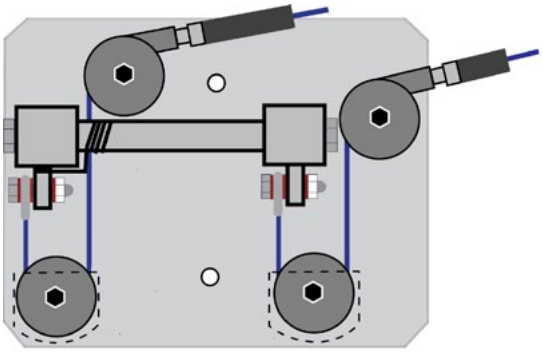
As with all cable controls, the system needs to be correctly installed and maintained to ensure trouble-free operation.

Before you start: Please read through these instructions fully and carefully before fitting the dual controls. Failure to follow the instructions could result in damage to the vehicle or the dual control unit and parts, invalidation of vehicle and dual control warranty or injury to yourself or others. Note that the manufacturer and UK agent can not accept responsibility for any accident, damage or injury resulting from failure to fit and maintain these controls correctly. Please refer to your supplier for advice and if you are in any doubt about your ability to fit the controls correctly we recommend you consult a competent dual control fitter.

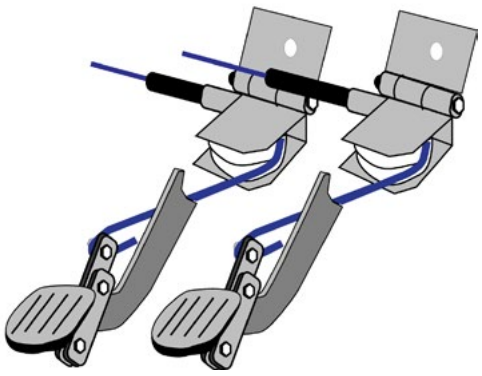
How they work:

The controls use a pulley system to connect the control unit to the drivers side pedals. The cables pass through a pulley mounted to the vehicle bulkhead on the driver side and are attached to the vehicle controls with a pedal clamp.

PASSENGER SIDE



DRIVER SIDE



FAST controls can be adapted to various configurations including automatic transmission (single wide pedal) and can be supplied with a dual accelerator made specifically for the UK driver training market.

CHECK ALL PARTS ON RECEIPT:

Manual Set (Brake and Clutch):

1 x Control Unit

2 x Standard Pedal Assembly

2 x Hinged Pulley Block

2 x Standard Pedal Clamp*

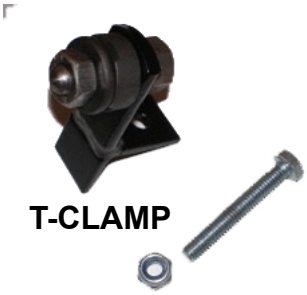
2 x Inner Cable

2 x Outer Cable

2 x Cable Crimp

2 x M8 BOLTS, NUTS & 4 x WASHERS

1 x M10 BOLT, NUT & 2 x WASHERS



T-CLAMP

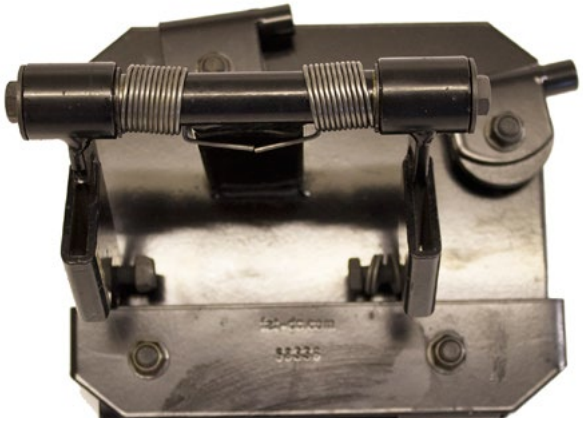
* Depending on vehicle type either or both pedal clamps may be replaced by a T-Clamp shown right.

If ordered with the 'accelerator set' it is recommended that this is part assembled before the dual control unit is fitted in the vehicle (see page 13), but it can be fitted later when the dual brake and clutch have been installed and tested.

TOOLS REQUIRED: Sockets/spanners: 8mm 10mm 13mm 14mm 17mm. Steel drills 8.5mm and 10.5mm. Hammer and punch or pilot drill (2-3mm). Drill collar. Hacksaw or high tensile wire cutters. Crimping tool. Allen key 8mm, Stanley knife or similar, rule, grease, white correction fluid or marker pen. You will also find it helpful to have a pipe clamp or similar (string will do), to hold the pedals in the correct position for fitting cables.

Static Pedal Set (Brake and Clutch)

1 x Control Unit



2 x Standard Pedal Assembly

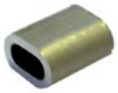
2 x Hinged Pulley Block

1 x Standard Pedal Clamp*

2 x Inner Cable

2 x Outer Cable

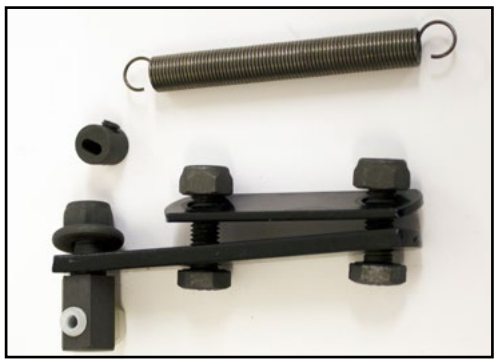
1 x Cable Crimp



2 x M8 BOLTS, NUTS & 4 x WASHERS

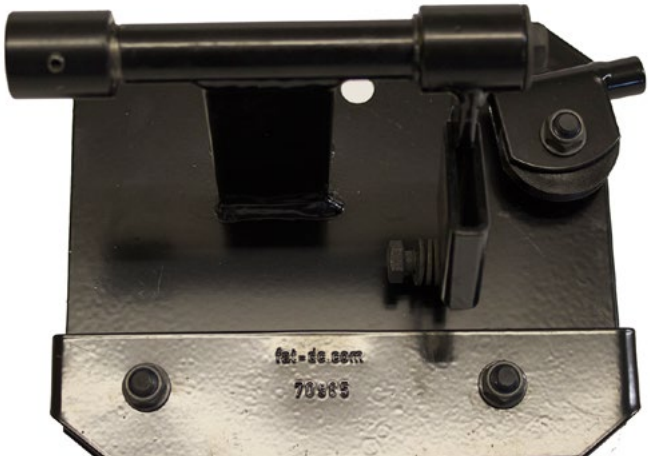
1 x M10 BOLT, NUT & 2 x WASHERS

1 x ‘Run Free’ Clutch Pedal Clamp Assembly



Automatic Set (Brake and Clutch):

1 x Control Unit with Wide Pedal Assembly



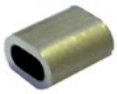
1 x Hinged Pulley Block

1 x Standard Pedal Clamp*

1 x Inner Cable

1 x Outer Cable

1 x Cable Crimp



1 x M8 BOLTS, NUTS & 42 x WASHERS

1 x M10 BOLT, NUT & 2 x WASHERS

T-CLAMP

* Depending on vehicle type the pedal clamp may be replaced by a T-Clamp shown right.

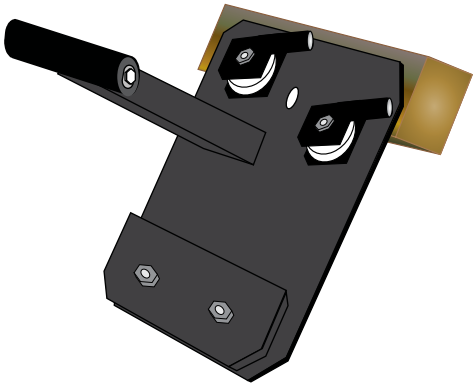
Throughout these instructions, if fitting to a vehicle with automatic transmission, you can ignore all instructions relating to fitting of the dual clutch.

FITTING THE STANDARD DUAL CONTROL UNIT

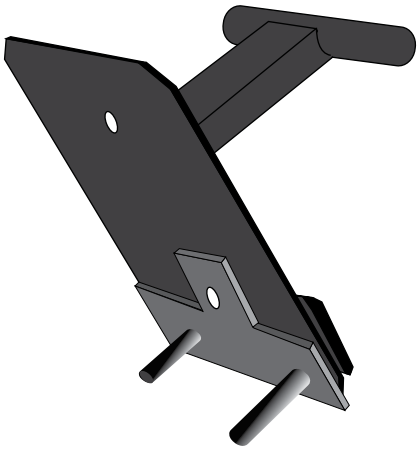
These instructions apply to fitting of a new control and to refitting on change of vehicle.
It is recommended that two people undertake fitting of the dual control unit.

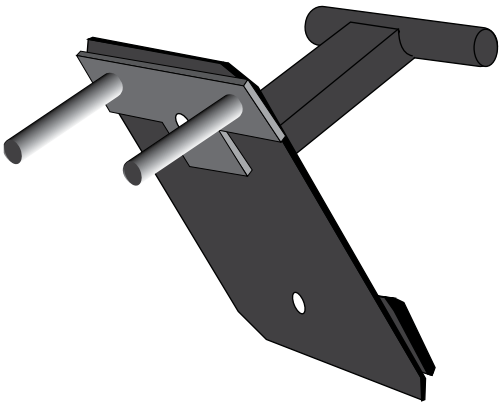
1) Check that the unit will fit in the vehicle. Ideally the base needs to be positioned centrally in the passenger footwell so that the base plate is between 30 and 45 degrees from horizontal. The dual control pedal should end up at about the same height and angle as the vehicle controls. Make sure there is room for pedal movement and that you are not restricted by air conditioning ducting, parcel shelves etc. that can't be easily removed. At this stage investigate possible positions for fixing the control unit to the vehicle floor and routing cables to the driver's side. If necessary you can make a packing support (wood) or metal bracket(s) to fx to the baseplate as shown below:

You can use a timber support (shaped if needed) to pack the DC unit to achieve the desired height/angle. Wood supports fited above the M10 bolt.

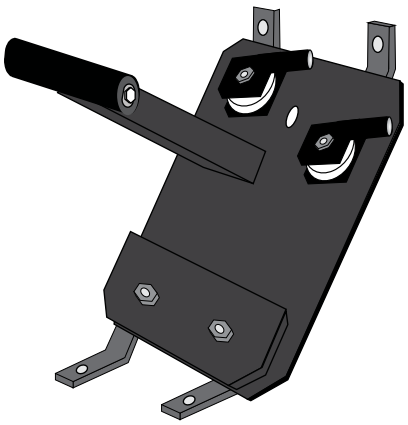


The same effect can be achieved with a metal bridge unit or welded bracket shaped to accomodate the shape of the bulkhead.

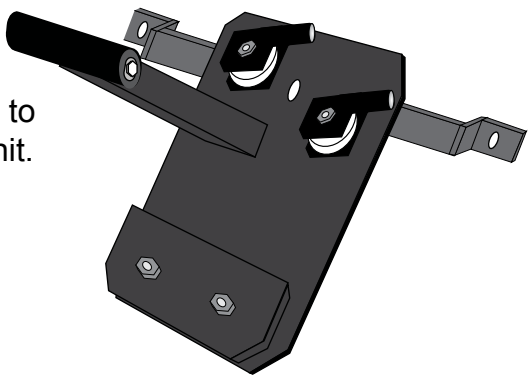




You may want to make a bracket or bridge unit to match convenient fixing points in the passenger footwell.



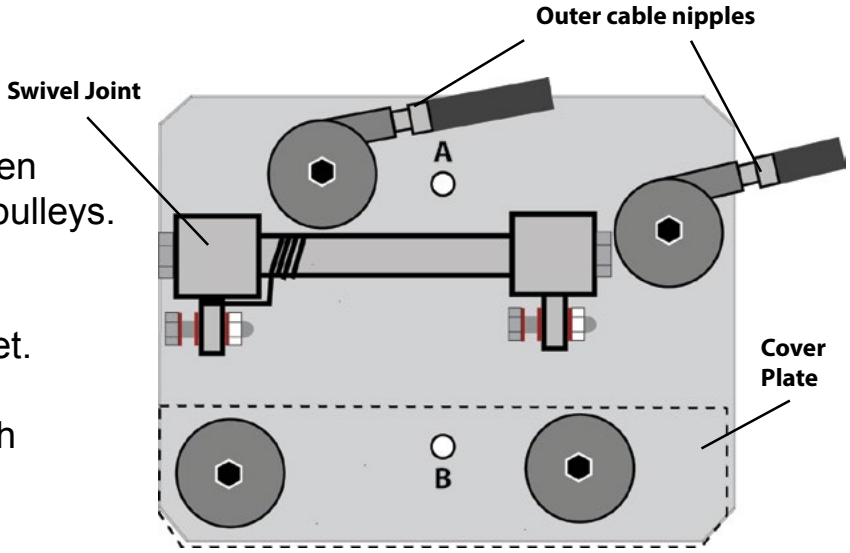
Metal brackets can be welded to the underside of the control unit.



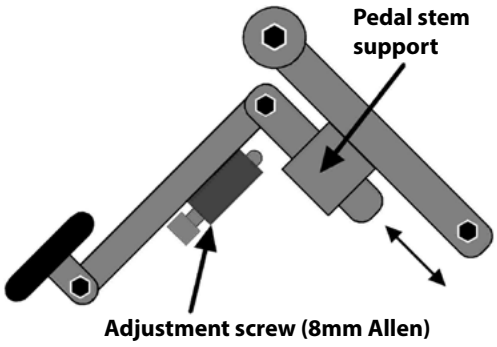
2) PREPARE the DC unit:
Remove cover plate and pulleys. Check 4 x pulley support bolts are secure - tighten if necessary and then replace pulleys. Tighten nuts on top pulleys.

DO NOT replace cover plate yet.

Lubricate swivel joints for clutch and brake pedals.



Check outer cable nipples fit into sockets smoothly. Clean off excess powder coat finish if needed. Rebore 10.5mm holes (A & B) if necessary to remove excess finish.



Make sure that pedal stem can be inserted and removed easily from the pedal stem support. If necessary, clean off excess finish and lubricate.

Lubricate adjustment screws on both pedals.

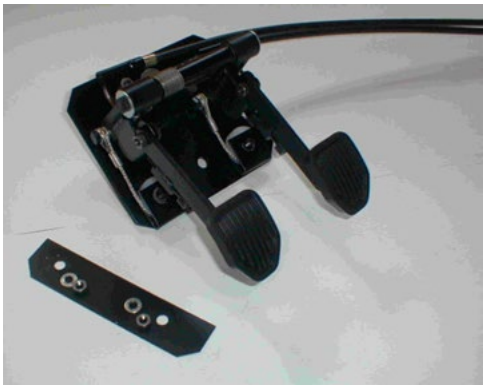
Lubricate all nuts and bolts for ease of fitting.

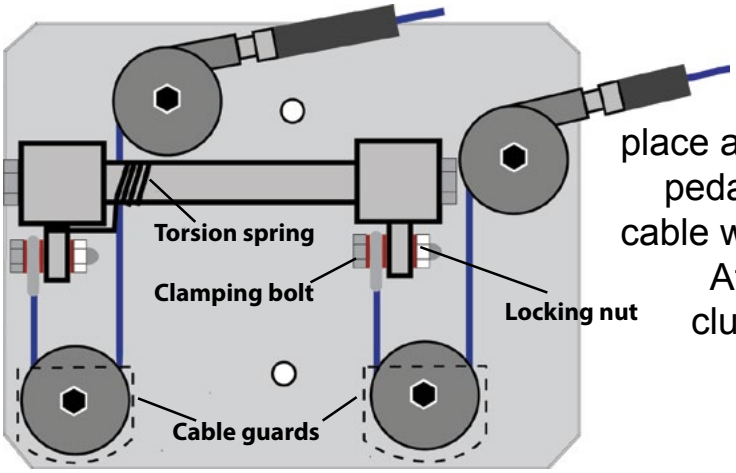
3) Part assemble accelerator unit if it is being fitted (see page 13).

4) PARTLY assemble the DC unit:

Remove clamping bolts. Fix inner cable eye to pedal support between two washers. Ensure that cable eye can move freely after tightening the locking nut.

Feed inner cables around both pulleys. Ensure that cable guards do not hinder free movement of cables. Replace cover plate and tighten nuts.





Rotate clutch torsion spring and fit to notch on clutch pedal support. This will place a small downward force on the DC clutch pedal and is necesary to take up slack in the cable when the vehicle clutch pedal is pressed. Attach DC pedals. If necessary tie the DC clutch pedal (or clamp/support) temporarily to the lower pulley bolt with string to overcome rotation of the torsion spring.

5) FIT THE DC UNIT:

Fold back carpet/trim and carefully remove any underlay as necessary to give clear access to chassis. (See note on page 9 regarding carpet).Position the DC unit under the dashboard so that the DC pedals will be at about the same height as the vehicle controls. It may be necessary to add a block of wood fixed through 10.5mm hole B (or weld a metal support) to support the DC unit at the correct height (see page 8). Make sure the DC unit is positioned so that:

The DC pedals can move freely and sufficiently to operate the vehicle controls.

There is enough foot space above the pedals.

The outer cables can be fitted with only ONE bend in their length. Note that there is a danger of friction and the cables snapping if the cable has an 'S' bend.

Mark the position of the 10.5mm hole A using white correction fluid or marker pen. Check behind the underlay for cables and that the position of the marked hole is suitable:

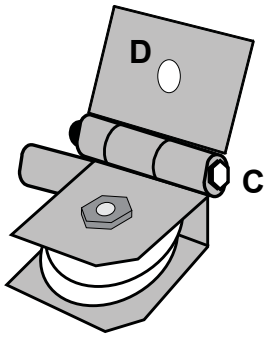
Check behind bulkhead for cables, pipes etc.

Check that the hole will be accessible to tighten the nut.

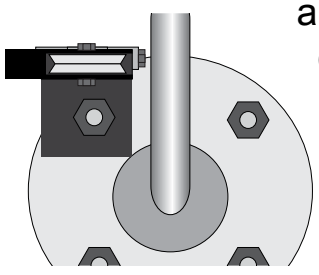
Use a punch or pilot drill to mark the hole and check position again behind bulkhead for pipes, cables etc. Drill hole to 10.5mm diameter using drill collar if necessary to avoid any potential damage behind bulkhead. Secure the DC unit with 10mm bolt, nut and washers.

6) Fit driver's side pulleys:

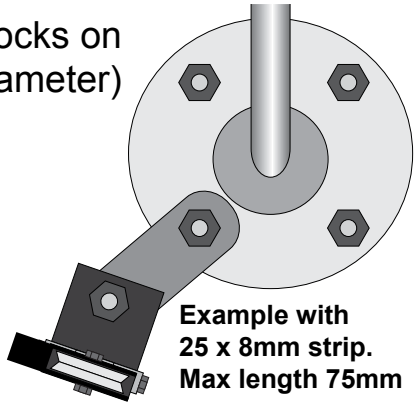
Fold down or remove carpet/underfelt behind vehicle controls. Decide on position of pedal clamps and pulleys. NOTE:



The cable locking ring MUST be on the left side of the pedal clamp and to the left of the vehicle control pedals.
The pedal clamps must NOT hinder the driver's feet.
The vehicle controls must be able to move fully and freely without interference from the pulleys or pedal clamps.
DO NOT FIT PULLEYS DIRECTLY BEHIND VEHICLE PEDALS!



It is often possible to locate the pulley blocks on an existing vehicle bolt (minimum 8mm diameter) or fashion a pulley support that can be attached to a convenient fixing point in the driver footwell.



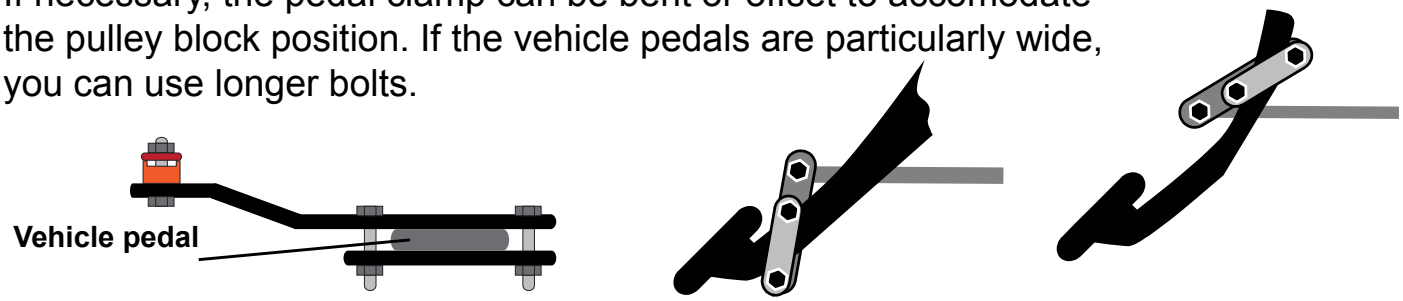
Example with 25 x 8mm strip. Max length 75mm

Loosen bolt and nylock nut **C** to adjust pulley to desired angle as follows. Push down vehicle clutch pedal and position the pulley so that the outer cable can enter the socket on the pulley without bending and so that the inner cable will run with minimum vertical displacement when vehicle control is operated. Mark hole **D** on the bulkhead. Check that it will be safe to drill, and drill with pilot hole/punch before drilling to 8.5mm. Tighten hinge and fix with M8 nut, bolt and washers provided.

Repeat the procedure for the brake pulley. {For ease of access it may be helpful to first connect the cable for the clutch and hold the vehicle clutch down by means of the DC unit whilst drilling for the brake pedal.}

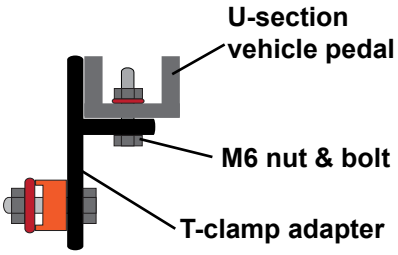
7) Fit the pedal clamps.

Standard pedal clamps can be fitted in a number of ways as shown:
If necessary, the pedal clamp can be bent or offset to accomodate the pulley block position. If the vehicle pedals are particularly wide, you can use longer bolts.



Some vehicles (e.g. some Fords and VWs) have 'U' section or plastic vehicle control pedals so standard pedal clamps do not fit. The optional T-clamp should be used in these circumstances - please contact your supplier if you did not order this part.

The clamp can then be fitted by drilling the vehicle pedal arm with a 6.5mm hole and fixing with an M6 bolt and nut to the pedal. {Some vehicles have a pre-existing hole}

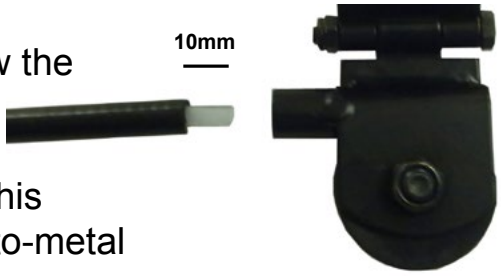


Alternatively, a standard pedal clamp can be modified with a right-angle bend and drilled with a 6.5mm hole to achieve the same fitting.

8) Fit the cables:

Fit the clutch outer cable nipple into the socket on the DC unit. Avoid bending the outer cable and mark correct length (including pulley block socket) with correction fluid. Remove outer cable from vehicle and **tie a loose knot** as shown below. Secure the knotted cable in a vice and cut to length, file any burr as necessary.

Untie the outer cable which will allow the inner nylon lining to project.



Cut the nylon projection to 10mm - this protects the inner cable from metal-to-metal contact in the pulley block.

Reposition the outer cable on the DC unit and feed the inner cable through it and through the pulley block. Slide a cable crimp onto the inner cable. Then pass the inner cable through the cable locking assembly on the pedal clamp.

Secure the cable to the locking ring as follows:

Push the cable through the groove on the locking ring (towards rear of vehicle). Push vehicle control down slightly and pull cable tight. Tighten the locking nut enough to hold the cable but do not fully tighten yet.

Untie string from DC unit. Make sure the vehicle control returns to full height then pass cable back through locking ring (to front of vehicle) and tighten fully.

Repeat the procedure for the brake cables.

DO NOT CUT INNER CABLES TO LENGTH UNTIL VEHICLE CONTROLS AND DC UNIT FULLY TESTED.

Adjust height of pedals on the dual control unit as necessary using the 8mm Allan key.

9) System Test. Recommended procedure before vehicle handover.
i) STATIC TEST BRAKE PEDAL: With the DC unit fully installed and vehicle ignition on, press the DC brake pedal and release. Then check that the brake lights are not illuminated with the DC brake released. If the brake lights do not go out, check that cables are operating smoothly and that nothing (e.g. pedal clamp position, DC pedal height) is preventing the vehicle brake from returning to datum. If there is no obvious cause, try lifting the vehicle brake pedal up to extinguish the brake lights. If this works you know that the weight of the clamp and pulley on the vehicle control is preventing the vehicle brake pedal from returning to its normal position. This happens very rarely but can be solved by using a helper spring. Drill a small hole through the vehicle pedal arm and attach a spring to this and a suitable solid fixing under the facia.

ii) STATIC TEST CLUTCH PEDAL: With the DC unit fully installed and vehicle engine running press the DC clutch pedal and check that gears can be selected as normal and that the bite point can be found using the DC clutch pedal.

iii) MOVING TEST CLUTCH AND BRAKE: With assistance of a driver, operate the clutch from the passenger side to make a controlled ‘move off’, gear change and controlled stop. If vehicle has cruise control check that it functions with the DC fitted - some systems have sensors on the vehicle pedals which will only allow cruise control to work when the vehicle brake pedal has returned to datum.

If adjustments are required after road test, complete these and repeat the tests.

When satisfied that the DC system is working properly, cut inner cables to length and tighten crimp.

Make sure that the vehicle user understands how the controls operate and show how to loosen the pedal height adjustment screw if needed to adjust the height or remove the pedals when the vehicle is not being used for tuition purposes. The user MUST be instructed on how to ensure the torsion spring is correctly placed when the dual control clutch pedal is being put back after temorary removal.

Recommend that the system is brought back for inspection annually or at 12000 miles (20000 km) whichever is sooner.

FITTING THE STATIC PEDAL DUAL BRAKE AND CLUTCH UNIT
These instructions apply to fitting of a new control and to refitting on change of vehicle.
It is recommended that two people undertake fitting of the dual control unit.

Fitting the Static Pedal Set is the same as described from page 6-9 except for the following:

a) The two springs on the dual control unit should be set to cause UPWARD pressure on the pedals so that they do not fall under gravity when the vehicle controls are operated.

b) TO FIT THE RUN FREE PEDAL CLAMP:
Correctly position the run free clamp on the vehicle clutch pedal. It will allow the cable to run through the nylon nolt so that the instructor's pedal on the DC unit will not move when the vehicle clutch is pressed down. Feed the inner cable from the pulley through the clamp ring (with the Allen bolt) and then back again to form a small loop. Check inner cable length is such that with the vehicle clutch pedal up, the clamp ring rests just above the nylon bolt. Firmly tighten the Allen bolt and trim inner cable to length.

Attach the pull spring to the cable loop and locate or make a suitable attachment point under the dashboard. When correctly installed the cable and spring should not be in the way of the driver's feet and operating the clutch pedal should not cause excessive movement of the tensioned cable. Choose a fixing point under the dashboard accordingly.

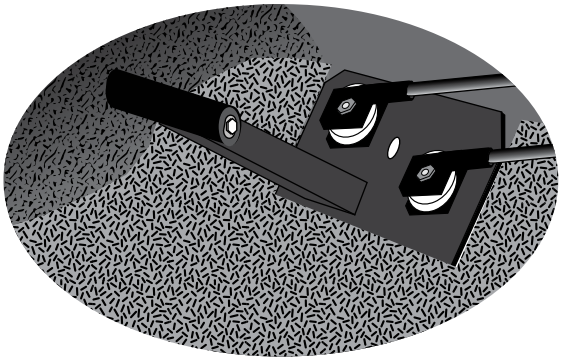
Maintenance and vehicle swapover:

The vehicle operator should make regular checks (weekly) for signs of wear, excessive pedal play, cables sticking, correct vehicle pedal return etc and adjust/lubricate/seek qualified assistance as necessary.

If a cable snaps it will most likely be the clutch cable (the most used and with greatest pedal travel). It has not been known for a brake cable to fail. Cables snap due to metal-to-metal contact caused by incorrect fitting or damage to the outer bowden cable.

It is recommended that all inner brake and clutch cables are replaced annually or after 12000 miles (20000 km) whichever is sooner. Inner and outer cables should be replaced when the DC unit is transferred to another vehicle (even the same make and model as it is unlikely you will get exactly the same fixing points for the control unit/pulleys/pedal clamps and when the inner cable is fully fixed at the pedal clamp, you will cause a permanent bend which will prevent you running the cable smoothly through the nylon lining).

Carpets:

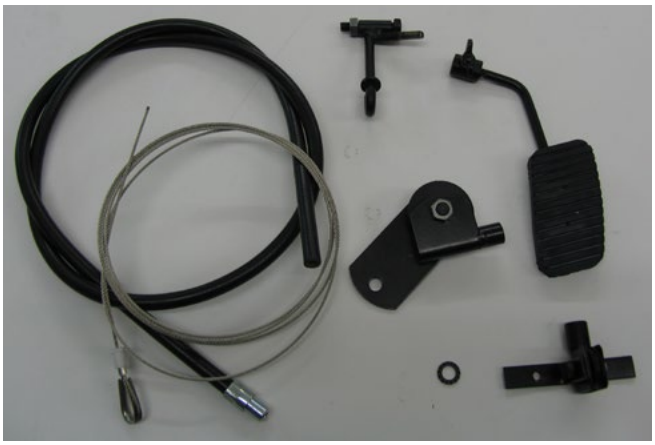


NOTE: The DC unit can be fitted over the carpet if you use a X cut to allow the fixing bolt to go through. However, you can also make two horizontal slits in the carpet and fold the flap under so that the bottom pulleys and cover plate are concealed with only the pedal support stem showing.
In this way, with the pedals removed the DC unit can be hidden from sight when the vehicle is not being used for tuition purposes.

The same effect can be achieved using the X cut in the main carpet, and fitting a car mat around the control unit. Make sure the pedal stem/arm will clear the carpet.

Fitting the optional DUAL ACCELERATOR

THESE INSTRUCTIONS MUST BE FOLLOWED CAREFULLY!
Please read in full before fitting. The dual accelerator kit may be bought separately from the main DC unit.



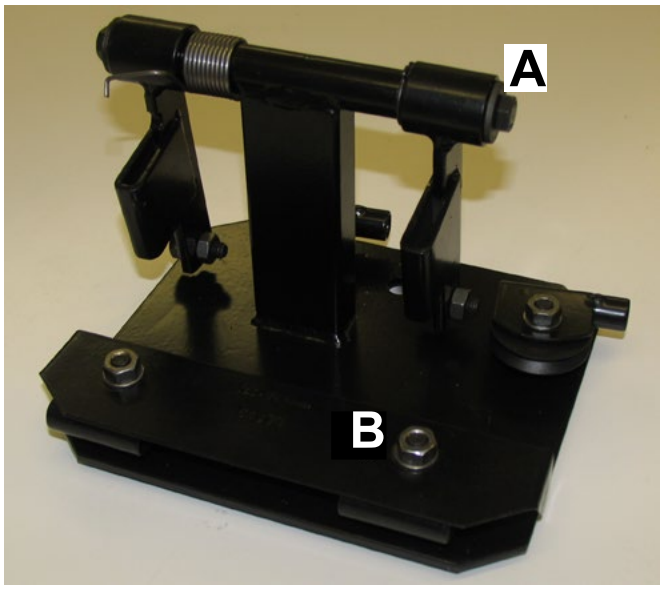
ON ARRIVAL CHECK ALL PARTS:

1 x PEDAL ASSEMBLY:
(Pedal with wing nut and cable hook)
1 x DUAL CONTROL PULLEY ASSEMBLY
1 x MINIATURE PULLEY ASSEMBLY
1 x OUTER CABLE
1 x INNER 2mm CABLE
or at
Note the 2mm cable is not suitable for brake or clutch.

PLEASE CONTACT YOUR SUPPLIER IF ANY PART IS MISSING.

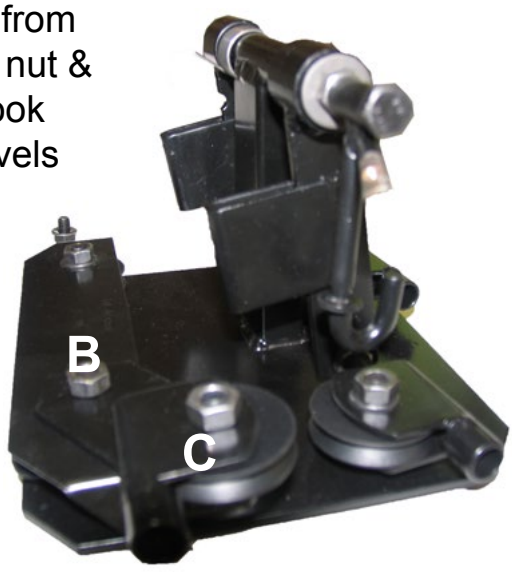
You will need the following items to fit the unit: 10mm Sockets/spanner, Small flat head screwdriver. Stanley knife or similar, hacksaw, 3mm steel drill. Accelerator unit may be fully fitted AFTER DC unit is installed in car, or PART-ASSEMBLED prior to fitting DC unit to car. You will also need a nut/bolt or self tapping screw suitable for your vehicle to attach the miniature pulley support.

1) Remove bolt A & nut B from the Dual Control unit. Retain washer at A.



2) Loosely attach Dual Control pulley assembly at B.

Attach cable hook at A using washer from step 1. Adjust nut & bolt so that hook assembly swivels freely.



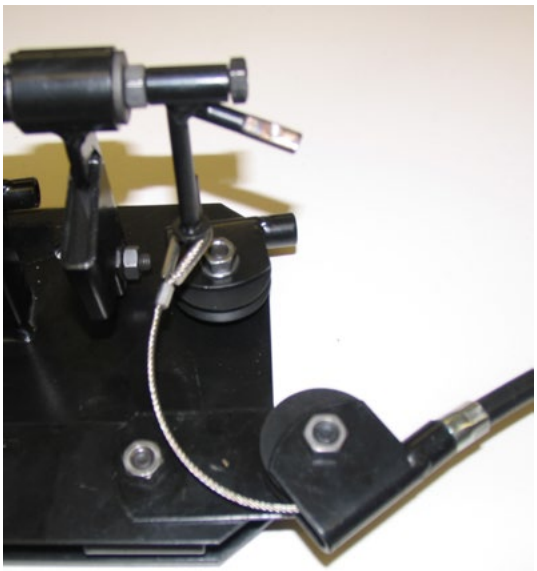
3) If NOT already fitted, proceed with fitting DC unit to vehicle.

4) Position miniature pulley assembly to one side of the driver's accelerator pedal. The pulley support may be fitted under the carpet as shown. Attach to floor pan with suitable fixing (not supplie

5) Route outer cable from DC unit to the miniature pulley in a smooth curve. When positioned correctly, tighten nuts at B and C.

6) Mark and cut outer cable to length.

7) Attach dual accelerator pedal ensuring wing nut fastens securely into notch on cable hook assembly.



8) Feed inner cable through to driver side and attach to hook as shown.

9) For convenience when removing the inner cable (see note below) you may want to attach the outer cable to the carpet with cable ties or similar.

10) Drill a 3mm hole in the accelerator pedal rubber as shown above, or through a convenient point on the pedal arm about half way up the height of the pedal

11) Support the dual accelerator pedal at the appropriate height on the DC unit and then feed the inner cable through the miniature pulley. Slide the aluminium terminal block onto the cable. Feed the cable through the 3mm hole in the vehicle accelerator pedal and loop back through the terminal block. Using the screwdriver, fasten the cable with the terminal block.

12) Remove the support from the DC accelerator pedal and check operation. Ensure that the weight of the assembly does not cause the vehicle accelerator to be pulled down. The return spring on the vehicle accelerator should be strong enough to prevent this - if it doesn't you may need to add a stronger spring. TEST with engine running.

NOTE: FOR UK DRIVING TEST PURPOSES: It is a legal requirement that any dual accelerator is removed fom the vehicle. This is to ensure that there is no possibilty that an examiner could accidently operate the accelerator. TO REMOVE THE DUAL ACCELERATOR FOR TEST PURPOSES: Loosen the wing nut and REMOVE THE DUAL ACCELERATOR PEDAL. Loosen the terminal block screw and REMOVE THE INNER CABLE.

Grade Six Supplies Ltd.
The Annexe
60 Twenty pence Road
Wilburton / Ely
CB 6 3 PU England

Certificate of Conformity

We declare,

That in the following documents specified dual controls manufactured by F.A.T. dc are conform all the CE and NE norms as far as applicable.

This equipment is Universal and can/may be fitted in all vehicles, is evaluated and tested by the State Road and Traffic Organization “R.D.W.” in the Netherlands and tested and approved by TÜV Nord in Germany.

RDW-SPE-0452
TÜV 8106589095
Patent/Brevet OBPI 1179395

F.A.T. dc
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02-01-2011
G. Tierolf

This document is accompanied by a total of,6 pages. It is a file in PDF when in doubt of its origin contact F.A.T. dc

KIEBOOM - WERKENDAM
SCHEEPS- EN AANNEMERSMATERIALEN
Biesboschhaven Zuid 20 4251 NN Werkendam 0183-503300

FAT
Brugsteeg 4
3582 AZ
Utrecht

testnr: INT087

Datum van beproeving:
28/08/2008

Testverklaring Staaldraden

Hierbij verklaren wij voor u te hebben getest:

2 x Staalkabel rvs 7x19 2mm	(testitem 1 en 2)	Breuklast testitem 1 = 005,0 Kn Breuklast testitem 2 = 004,4 Kn
2 x Staalkabel rvs 7x19 3mm	(testitem 3 en 4)	Breuklast testitem 3 = 008,7 Kn Breuklast testitem 4 = 008,4 Kn

Constructie : 7x19
Materiaal : Stainless steel
Fabrikant : Onbekend

De door U aangeleverde staalkabels overtreffen de breuklast voor de zover bij ons bekende breukwaarden.

Bijlage : Diagrammen van de breukproeven 1 t/m 4

Naam keuringsinstantie:

Kieboom-Werkendam B.V.
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4251 NN Werkendam

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Uitgevoerd door:

P.H. v/d Heuvel

Handtekening: