ASSEMBLY MANUAL FOR DUTTON SURF (Jimny based)

This manual – Jan 2017 - takes precedent over all earlier dated editions

Do not download until you have the kit in front of you as we continually upgrade the manual. You can print this manual from here or get it printed and wire bound in hard covers and posted direct to you from https://www.lulu.com/shop/search.ep?keyWords=dutton+surf&type=

TOOLS REQUIRED

Usual garage tools - hand tools, jack, axle stands, drill, files, measuring tape, mastic dispenser, WD40 anti fling chain wax, 3/16” lazy tong hand Pop rivet gun

We recommend using “proper” wire strippers and crimpers (these are approx £15 each):-

If there is anything that does not make sense please advise, we are always interested in any comments that might improve the build-up for the benefit of other builders

It is recommended that you fill in the following and keep this manual with the completed Surf; it will help with obtaining parts at a later date

DUTTON SURF CHASSIS # DUTTON4X4SURF_ _ _ _
SUZUKI JIMNY CHASSIS # (17 digit): -
SUZUKI REGISTRATION #: -
SUZUKI REGISTRATION YEAR: -

ITEMS THAT ARE SUPPLIED LOOSE (i.e. not pre-attached to the hull/deck)
ARE HIGHLIGHTED IN GREEN

Nomenclature: -

LHS = Left as viewed from sitting in car
RHS = Right as viewed from sitting in car
LHD = Left hand drive
RHD = Right hand drive
PS = passenger side
DS = drivers side
Wet side is any part of car that is contactable with water
Dry side is any part of car that does not come into contact with water

ss = stainless steel
Brk = bracket
Dia = diameter
# = Suzuki part number
i/d = inside diameter
o/d = outside diameter
IVA = Individual Vehicle Approval
ffm = full and free movement
GRP = Glassfibre reinforced plastic (FRP in some countries)
F = front
R = rear
m = male
f = female
Nylock = self locking nut
SVA = Single Vehicle Approval (now obsolete)
Plain washer = normal outside dia (2 x i/d)
Penny washer = oversize outside dia (3.5 x i/d)
MS = mild steel
1" (inch) = 25.4mm
cyl = cylinder
hex set = hexagonal headed fully threaded bolt
damper = what people incorrectly call a "shock absorber"
WD = WD40 anti fling motorbike chain wax (or equivalent)

READ THIS BEFORE BUILD-UP

To comply with IVA all pipes/hoses/wire/cables etc. must be supported minimum every 12" (300mm)

All cam locks (bonnet/sundeck/targa) are super glued to GRP, if removed they must be re-glued to avoid rotating - do not over tighten

All Non ss parts (axles/suspension etc) fitted to wet side must be properly cleaned, all loose rust removed and painted with zinc phosphate, marine undercoat and black marine top coat (Apart from braking surfaces and where for example the brake disc or prop-shaft etc mates to the axle)

When applying **mastic,** degrease all surfaces and surround bolt holes with a bead of approx ¼" (5mm) dia

A full list of nuts & bolts/hose clips/wire etc is supplied with the kit

All bare steel components inside the car need painting (pedal box etc)

EVERY HOLE THRU THE HULL MUST BE SEALED WITH MASTIC

NEVER USE A SELF TAPPING SCREW UNDER THE WATER LINE THAT BREAKS THRU THE HULL (it could eventually fall out) SIMILARLY ALL NUTS/BOLTS ON THE HULL THAT ARE UNDER THE WATER LINE MUST BE SELF LOCKING

THE JIMNY STRIP DOWN

Remove parts in order best suited to you bearing in mind your available space and who is there to help you. We suggest you take photos/sketch any items that you might forget how to re-assemble. Always remove items with as many parts attached as it saves time with the build-up.

A few important points:-

1/ before disconnecting battery:-
a) wipers in park position
b) electric windows in up position
c) With engine running set transfer box in 4H or 4L to lock front hubs (if this is not possible we will advise later how to manually lock front hubs)
2/ road wheels straight and remove steer wheel and black steer wiring ring (air bag/horn called a "squid") tape up ring and on NO ACCOUNT let it rotate
3/ unless you have hydraulic pullers you may find it impossible to remove the arm from steer box, in which case give us whole unit and we will remove it for you (do NOT heat or hit to remove)

4/These are common parts that customers forget to remove:-

a) 4 round rubber seats from road coil spring tops
b) 2 rear axle re-bound rubbers
c) Side door body top U section edging
d) Exhaust mount rubbers (2 required)
e) 2 Inner grab handles
f) rear door rubber

5/ Rip off the front re-bound rubbers from the chassis, it does not matter that the retaining tongue will tear off

COLOURS

All our pigments are Scott Bader EXCEPT yellow 2016 onwards

yellow BS10E53 up to 2016
dark admiralty grey no #
black RAL 9005
white BS 00E55
light admiralty grey BS 00A01
mid blue no #
dark blue BS105

THE BUILD-UP

REMOVE THE FOLLOWING FROM YOUR SURF: -

DOORS remove from hinge and note any spacers fitted

BONNET - knock out brass pins in hinges

REAR POUPE DECK OR SUN DECK

TRANSFER BOX COVER - NEVER STAND ON THE JET DRIVE SHAFT

TRANSFER BOX

This is always factory fitted and requires no further work. SUPPLIED DRY so fill with API GL-4 75W-90 oil

TICK when filled.....

STEERING BOX

Grind box flush to original machining face. Grind off all paint to ½"

Clean surface and face of steer box rubber shaft seal (replace if leaking), mastic face, it does not matter if you get mastic on the shaft

Lay GRP seal on top of mastic and press down

Smooth mastic on back face to ensure complete seal. Leave for 24 hours then paint

STEERING BOX

Paint front cross member, bolt steering box to cross member, then paint all bolts etc

Mastic GRP seal on steer box and area where it will contact the hull

Mastic 6 off M10 x 35 + 6 nylock + 6 penny washer and bolt up assembly with penny washers on underside

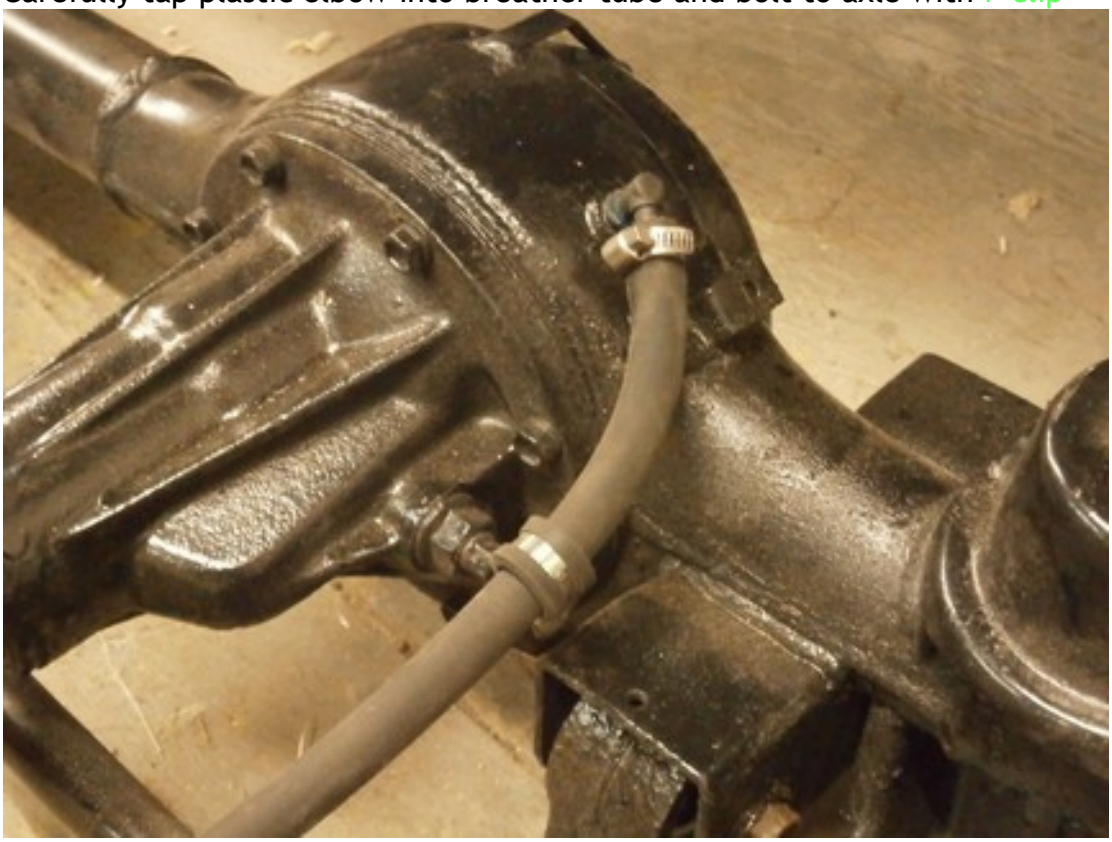
Bolt on ss tow eye use M12 bolt and cut it down bolt so it does not protrude into “rope” hole

FRONT AXLE

THIS MUST BE FULLY CLEANED AND PAINTED AS DESCRIBED ON 2nd PAGE

Remove axle vent cap and spring and grind down to 1/8”, mastic short end of 90 deg plastic elbow make sure the hole is not blocked, facing outwards towards RHS

Carefully tap plastic elbow into breather tube and bolt to axle with P clip



Remove both steel vacuum pipes and all rubber hoses, cut rubber hose to 7” and join both brass inserts in hub (upper hose in pic - lower hose is ABS)

Check that both front hubs are locked by holding them and attempting to rotate diff flange, if flange rotates hubs are not locked

To lock hubs remove both and set with centre gear proud, do not accidentally push back into 2WD position when re-fitting

split brake callipers and WD40 the slide bolt assembly

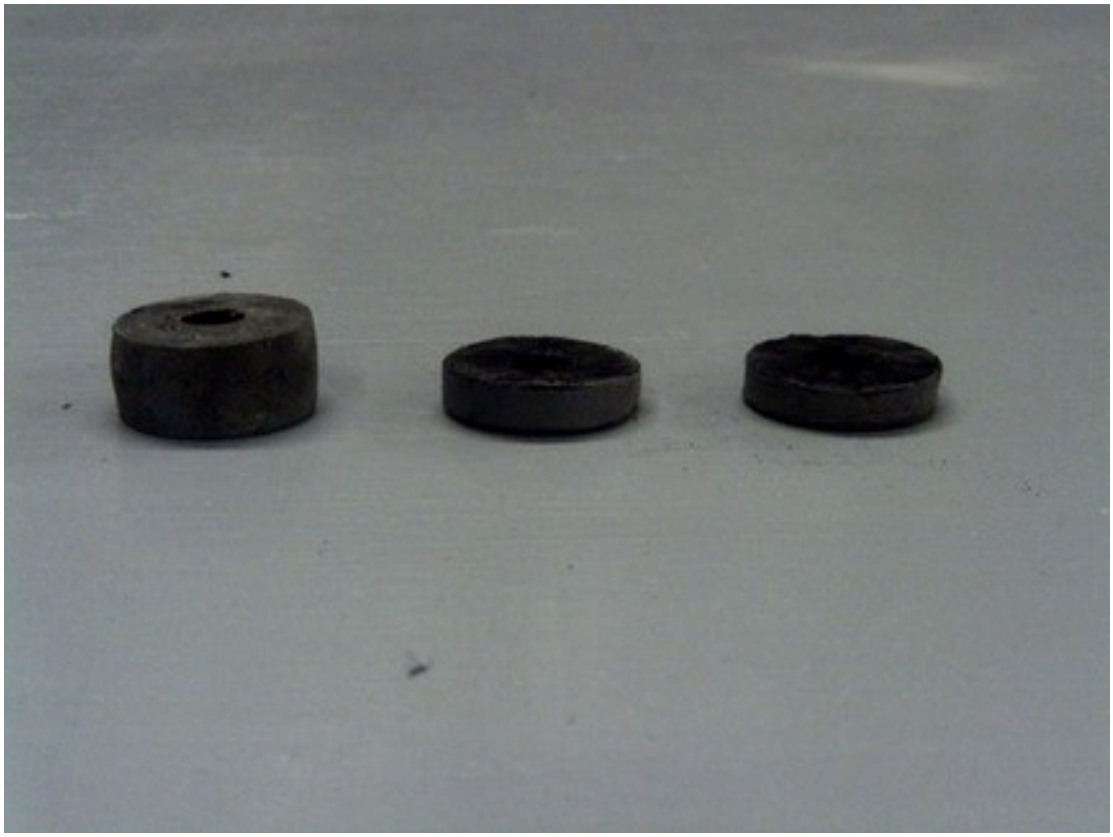
Un-locked hub with centre gear in 2WD position (held in position with magnet built into hub)

Locked hub with centre gear standing proud (with spring built into hub)

The axle spherical ends (challis) must be smooth, if they are rusty they WILL leak so remove the hub and remove all rust and re-paint, if required replace seals
Spherical axle ends (challis) must always be kept covered in copious amounts of grease

Check API GL-4 75W-90 oil level, TICK when filled……

Bolt up axle to ss brk on hull using original Suzuki nut and bolt and grease.



Cut front damper rubber insulator for use on all 4 dampers

shows assembly sequence of all 4 damper tops

Fit rubber insulator to top of coil spring. The coil springs must not rest on the GRP hull. Front springs long, rear spring short

Bolt up front dampers, use lipped ss washers in following sequence: - Lipped ss washer – half width rubber insulator – fit thru hull – half width rubber block – lipped ss washer – self-locking nut or lock nut. Do not over tighten – just enough so damper is not loose or allows water to drip thru mounting

Bolt up panhard rod using Suzuki bolts and grease

Bolt red flexi brake hose facing forward

Bolt up 2 red front flexi brake hose, to hull use mastic. Attach using ss ½ nut

ABS cars only: - fit loom thru 22mm hole on wheel arch

Fit 29" breather hose (8mm i/d) thru 22mm hole near top RHS damper mount leave 3" protruding inside hull

Fit P clip 30mm to outside of wheel arch, check ffm, this holds breather hose and ABS (if fitted) add a couple of cable ties between P clip and axle. Apply mastic to seal where these hoses go thru the wheel arch

Fit front wheels, the threads must be covered in grease before fittings. If fitting locking wheel nuts DO NOT use key type - they will corrode. Check ffm and that nothing is likely to rub on the wheel/tyre

Type pressure front and rear 30 psi

STEERING BOX ARM

Grease spline and fit steering arm, check that lines stamped on end of shaft and arm line up, check ffm and bolt up

Grease ss ball joint and push into ss ball pre-welded to your arm and retain with ss wire clip

REAR AXLE

THIS MUST BE FULLY CLEANED AND PAINTED AS DESCRIBED ON 2nd PAGE

Remove axle vent cap, grind down tube to 1/8”, mastic short end of 90 deg plastic elbow make sure the hole is not blocked, facing outwards towards LHS

Disguard short solid brake pipe, grind off the brake pipe retaining brk on axle

Fit rubber insulator to top of coil spring. The coil spring must not rest on the GRP hull. Front axle springs long, rear axle springs short, if rear springs are different length fit longer spring on drivers side

See damper mounting arrangement on front axle photos

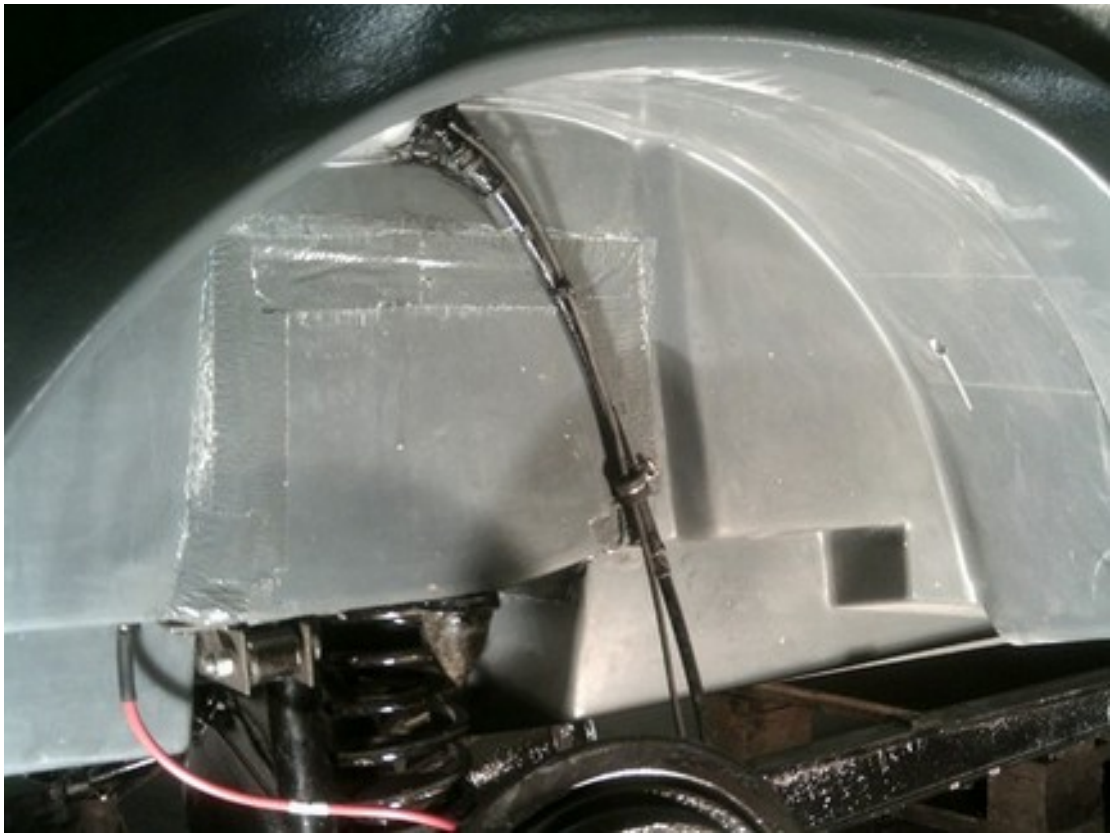
ABS wiring:- white socket RHS, blue socket LHS

Fit 52” solid brake pipe to axle and clamp to axle

Bolt up rear dampers, use lipped ss washers in following sequence: - Lipped ss washer – half width rubber insulator – fit thru hull – half width rubber block – lipped ss washer – self-locking nut or lock nut. Do not over tighten – just enough so damper is not loose or allows water to drip thru mounting

Bolt up panhard rod using Suzuki bolts and grease

Bolt up rear red flexi brake hose, solid end to hull use mastic. Attach using ss ½ nut



Fit 56” breather hose (8mm i/d) to 90 deg plastic elbow with 20mm ss hose clip, cable tie breather along and under solid brake pipe to back plate then up thru 25mm hole near top LHS wheel arch with 3” protruding into hull

Fit hand brake cables thru hull to 2 holes in top of wheel arch

P clip 16mm ss hose clip handbrake cable/ABS (if fitted) to RHS wheel arch
P clip 25mm ss hose clip handbrake cable/ABS (if fitted)/breather to LHS wheel arch

Bolt rear red flexi brake hose to lower tapping on wheel cylinder

Check API GL-5 hypoid 80W-90 oil level, TICK when filled…….

Strip down rear brake cylinders, if required carefully clean pistons and bore using 1200 wet or dry paper – clean and re-assemble, peel back rubber gaiters and pack with WD check that grease will not leak out onto the shoes

Mastic and bolt rebound rubbers thru hull, fill up internal nut recess with mastic

Type pressure front and rear 30 psi

Fit rear wheels, the threads must be covered in grease before fittings. If fitting locking wheel nuts DO NOT use key type - they will corrode. Check ffm and that nothing is likely to rub on the wheel/tyre

FRONT AXLE PROP SHAFT

Check that prop can close to at least ½" (12mm) shorter than distance between flanges to allow clearance when axles move, grease faces of flanges before fitting

Check condition of front spline rubber gaiter Suzuki # 27153-83001-000 and replace if damaged. Prop to transfer box bolts must be cut down to 3/4" (19mm) check spring washer is fitted before measuring

WD rubber boot and seal with cable ties at both ends to make watertight. Slide prop into splined part of prop that is factory fitted to transfer box and attach to F diff. Check knuckles are in phase.

REAR AXLE PROP SHAFT

Check that prop can close to at least ½" (12mm) shorter than distance between flanges to allow clearance when axles move, grease faces of flanges before fitting

Bolt rear prop with splined end to transfer box

MILESTONE # 1 that completes the major outside work

WIPER

Bolt up wiper motor using Suzuki fasteners and 6 ss penny washers.

Knock out retaining bolts, grind down white plastic wheelbox to clear deck moulding. Note outer arm is lengthened ¼" at factory

Bolt up both wheelbox 4 off M5 x 20 + 4 off nylock + 4 washer and attach link from motor to centre wheel box, temporally wire up motor – both lower terminals on connector block run motor, check ffm. The centre wheel box must swing thru an equal arc either side of central, if it does not then adjust the link to suit. ONLY after this link is adjusted correctly add outer wheelbox link and adjust so it swings thru an equal arc either side of central. Wiper motor must be earthed

Mastic around wheelbox and bolt to deck 4 off M5 X 25 c'sunk bolts

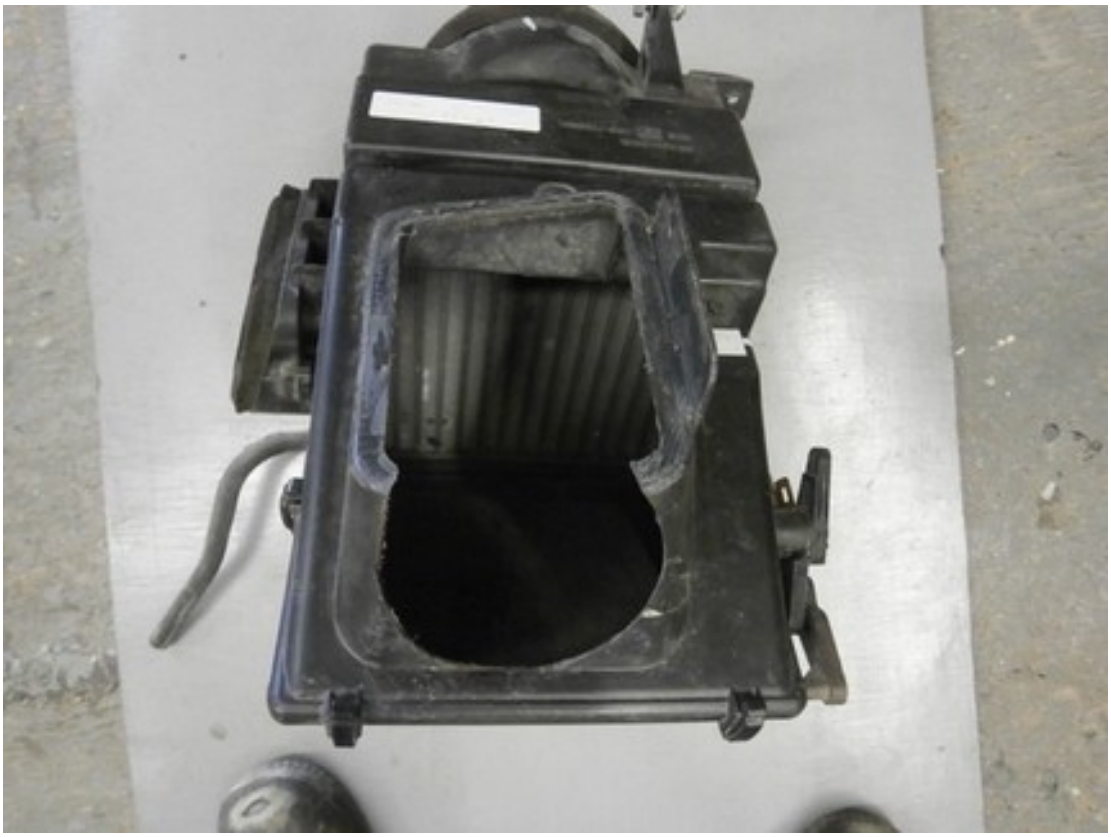
Push screen washer jet thru pre-drilled 10mm hole, attach washer hose, mastic washer hose to top of heater, washer hose exits to LHS

HEATER & SPEAKERS

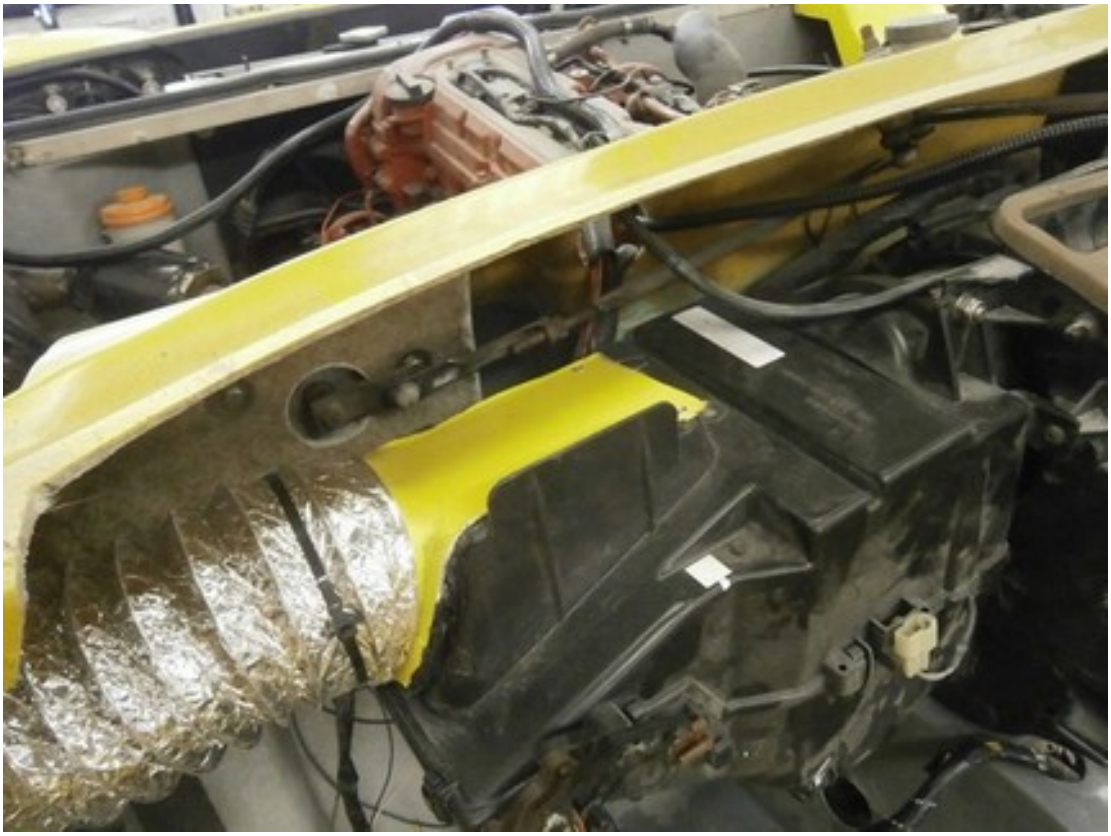
Mastic rubber water hose gaiter into pre-cut gearbox tunnel hole, remove protective tape on top of GRP gearbox tunnel, fit heater thru rubber gaiter, drill and bolt up 2 off M8 x 20 + 2 off M8 nylock + 4 off penny washer.

This is RHD heater, LHD is the same except control flaps on other side

also shows 4” dia pre cut hole for speakers

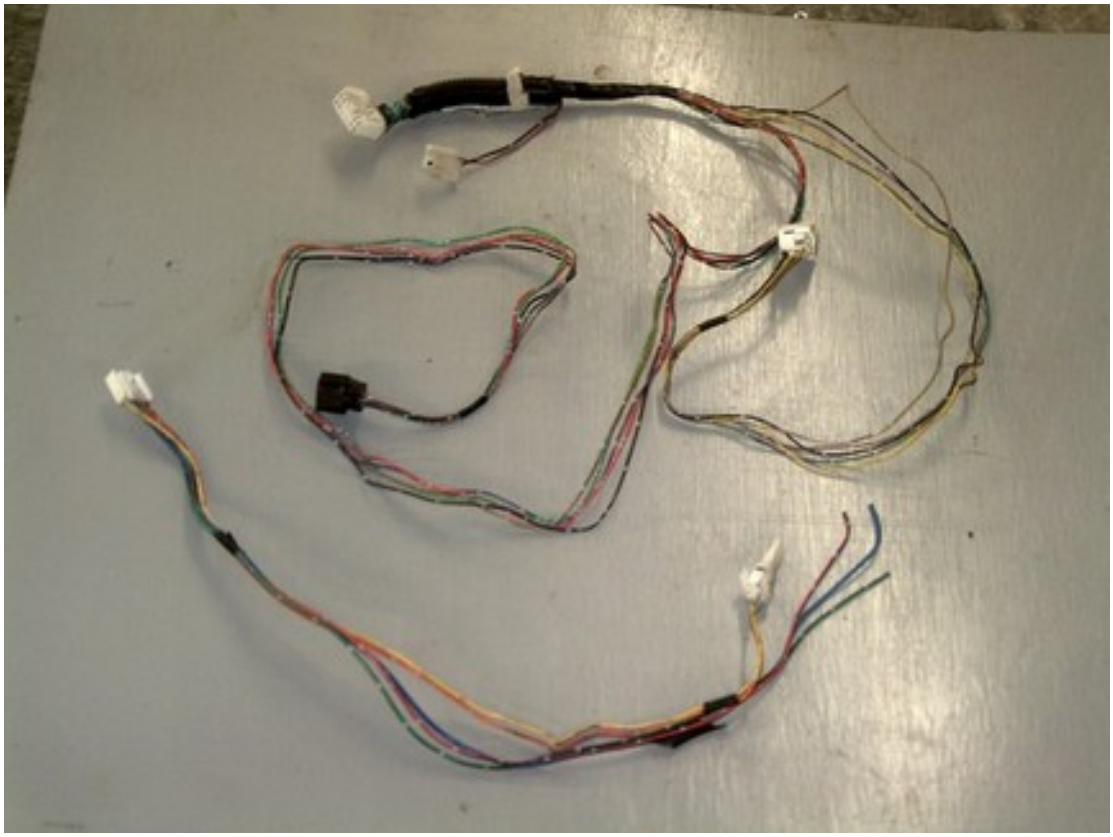


cut out recirc intake as shown



rivet GRP duct to recirc box, fit recirc box to heater body attach 4” dia duct using cable ties
DOOR LOOM

Cut off rubber gaiter and all retaining clips. Cut off window loom and disguard
Passenger side. Removed window loom is shown at base of photo
Drivers side. Removed window loom is shown at base of photo



ENGINE

LHS engine brk is factory fitted to hull, remove top ss rad crossbar in engine bay

If mileage is high (50,000 + miles) split engine and gearbox to check clutch and release bearing for wear, re-assemble. Drain out oil, refit sump drain plug and grind off the hexagonal part of plug, be careful not to generate too much heat if washer is fabric

Remove viscous fan and bin, re-fit nuts, cut 4 studs flush

De-grease engine and gearbox, mask electrical connections, inlet etc, remove oil filler cap plastic engine top and dip stick and spray to protect

Fit engine/gearbox as one unit. Grind off locating stud off both rubber insulators, steel shield fits on engine side of insulators, lower unit into hull and locate LHS engine mounting into brk fitted onto hull, bolt up.
Mastic and bolt up Suzuki RHS engine mount use 2 off M8 x 25, 2 off M8 nylock, 2 off penny, use penny washers on underside

Bolt up gearbox mount. Bolt up engine prop shaft, check ffm.

Fit oil sandwich plate so that both outlet fittings are facing down, fit new oil filter

ALUMINIUM WATER PIPES

Photos show water hoses fitted to all cars and “hot climate kit” oil heat exchanger only fitted for hot climates

This pipe to engine top hose. Fit 1 ¼” i/d X 4” rubber hose
Check that the machined grooves on heat exchanger ends are clean and free of mastic

32mm P clip to hull under rad panel

Trim top hose to suit

This pipe to rad top. Fit 1 ¼” i/d X 4” rubber hose
Check that the machined grooves on heat exchanger ends are clean and free of mastic

fit 2 off 32mm P clip to hull under rad panel 1 on each pipe

GEARBOX & ENGINE OIL

Check API GL-4 75W-90 gearbox oil level thru 2” rubber grommet on gearbox tunnel, TICK when filled……

Check engine for oil leaks, top up with 10W-50, TICK when filled……..

RADIATOR

Top hose: - rad top to heat exchanger. Lower hose:- engine top to heat exchanger

Clean rad then add ½” thick foam to rad sides and base
Bolt rad to rad panel use flanged M6 bolts make sure they do not screw into rad body when tightened, when rad is pushed back check that there is an air seal between rad and rad panel, if not add more foam

Fir lower hose using aluminium tube

RAD FAN

Slot s/h Ford Mondeo Mk 3 fan down behind rad until the top of fan body is level with the aluminium rad

Drill 6mm hole thru lower left hole in GRP rad panel and bolt up just tight enough to grip fan

Drill 6mm hole thru upper part of GRP rad panel and fan bolt up just tight enough to grip fan

Drill 6mm hole thru RHS top in GRP rad panel and fan, bolt up M6 X 25 hex set, 2 penny, nylock

Drill 6mm hole thru RHS base in GRP rad panel and fan, bolt up M6 X 25 hex set, 2 penny, nylock

WATER HOSES

Trim rad hose to suit

Fit heater hoses to suit

ENGINE WATER

Water cooling system will require a 1st use prime. Remove rad cap, disconnect top hose at thermostat housing and force water thru aluminium pipe using house mains pressure until water pours out of the open thermostat end. Fit rad cap. Once this has been done the rad can be topped up using the rad cap as normal

OIL SYSTEM

STANDARD SYSTEM

Oil hoses go straight from sandwich plate to oil cooler in any order

HOT CLIMATE SYSTEM

Couple up rubber hoses as described below, it is important that hoses are plumbed as shown so that hot oil goes thru heat exchanger before oil cooler

Fit enough ½" thick foam to 3 edges of oil cooler, bolt up 2 off 90 deg fitting - you must support the oil cooler using a spanner on final tightening of the fittings

Fit 49" ½"i/d rubber hose from oil cooler to inner heat exchanger use HIGRIP hose clips Check that the machined grooves on heat exchanger ends are clean and free of mastic

Fit 62" 1/2" i/d rubber hose from oil cooler to rear fitting on sandwich plate

Bolt ss cooler support to outer rad top sides

Bolt cooler to ss brk 2 off M6 x 25 hex set, nylock and cut down penny to fit inside cooler metal support

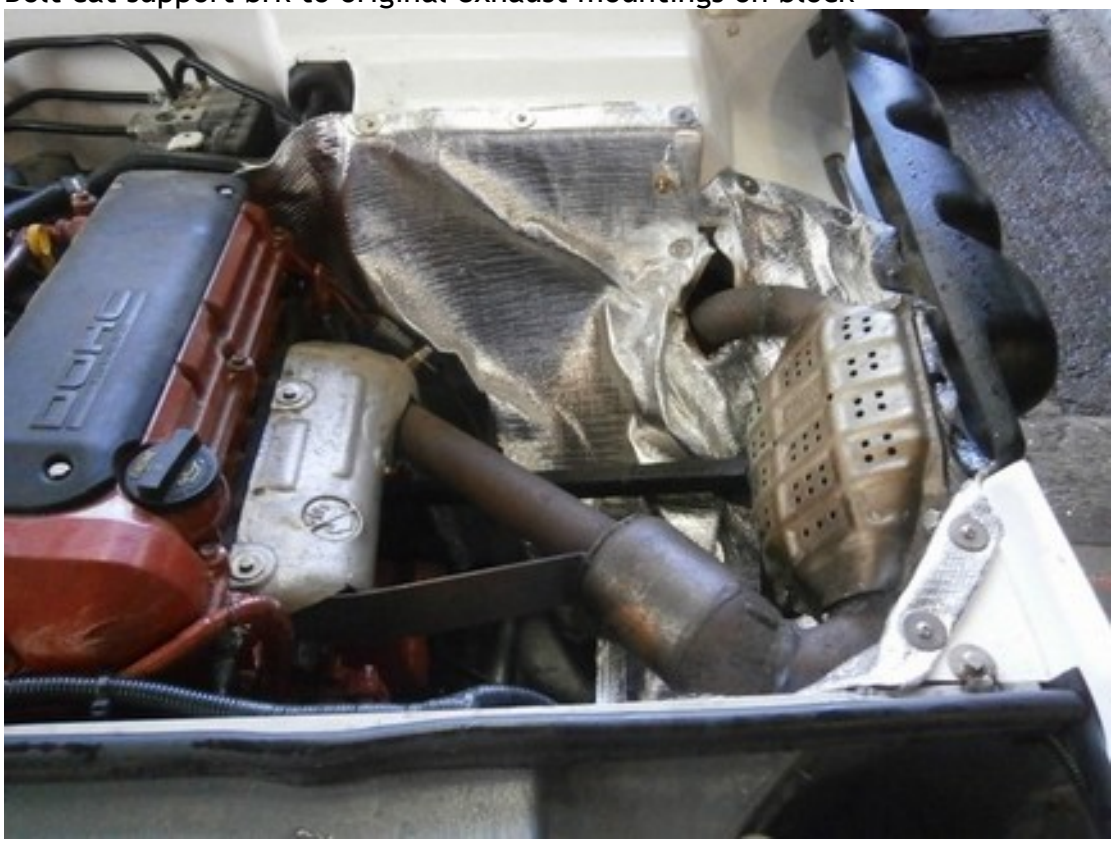
Feed oil hose thru rad panel and couple up to fittings use HIGRIP hose clips

pic shows hot climate oil cooler heat exchanger pipes (optional extra)

EXHAUST SYSTEM

Bolt modified exhaust manifold to engine using Suzuki gasket, short lambda to manifold long lambda to cat, manifold studs might need to be removed before fitting manifold. Refit studs or use 10M bolts

Bolt cat support brk to original exhaust mountings on block



Bolt cat support brk to underside of cat, if there is a gap do not force the gap closed either add washers to lower mount or washers to space out gap at cat

Slide exhaust system up to end of manifold under front wheel arch, check that spherical fabric seal is fitted to manifold and bolt up using Suzuki special bolts and springs

To keep the exhaust pipe from touching GRP sides ss plinths are welded onto the manifold and down pipe

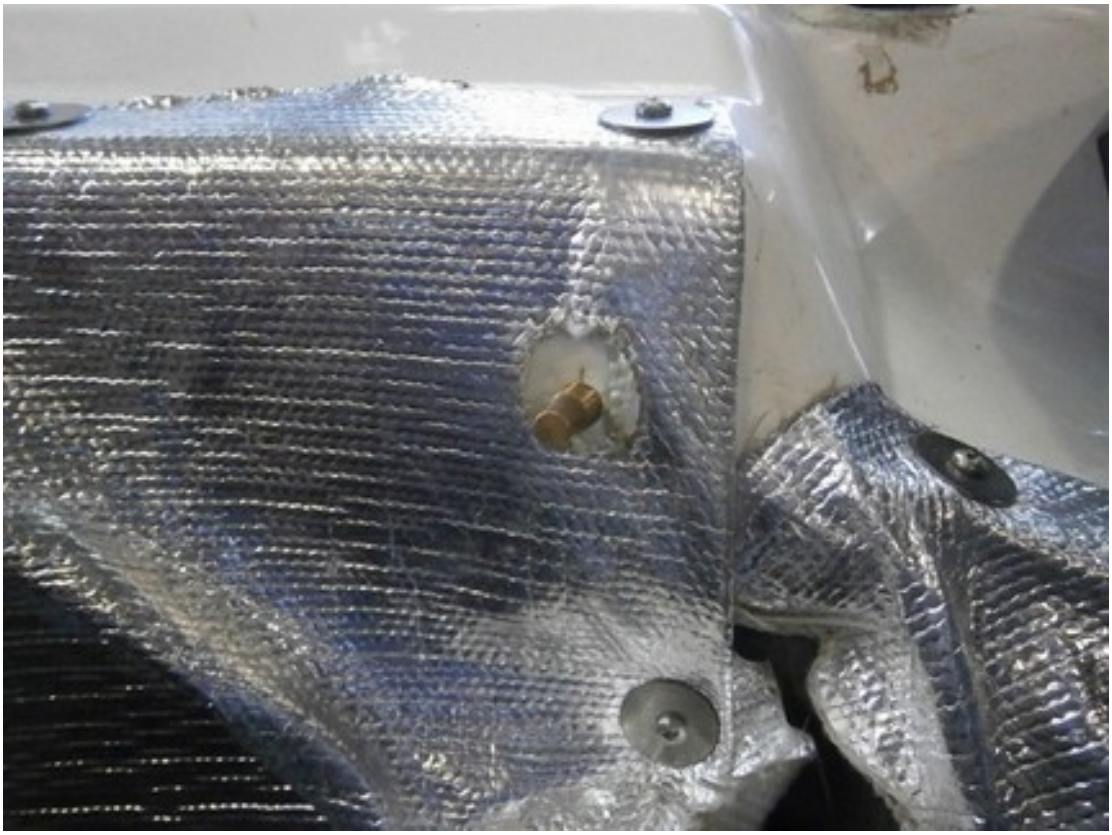
Manifold

Down pipe

Assemble joint, the plinth on the down pipe will need to be ground down until there is approx 1” side movement on the pipe in each direction to allow for engine movement, the exhaust must NOT touch the GRP

Fit 2 Suzuki exhaust rubber insulators to rear pre-fitted mount,

EXHAUST FABRIC



Line up rear fabric with temperature sensor

Line up side fabric with corner of GRP as shown, be careful when drilling not to damage the header tank on other side

If you want to reduce the heat transfer to the cockpit even further we suggest fitting more shield and wrapping the exhaust system

POWER STEER & HEADER TANK

Bolt power steering bottle to GRP rad panel and couple up 10mm I/d hose from pump to reservoir, couple up high pressure hose to steer box

Drill 6mm hole 1 ½" down from top thru header tank and fit M6 X 20mm hex set bolt and penny washer, drill GRP rad panel and fit

SCREEN WASHER

Bolt bottle to GRP rad panel, see wiring diagram at back of manual. Block rear pump hole with 17mm ss plug

MILESTONE # 2 that completes most of the engine bay

PEDAL BOX & ACCELERATOR

LEFT HAND DRIVE bend accel pedal to clear GRP

RIGHT HAND DRIVE bend accel pedal to clear GRP

RIGHT HAND DRIVE

LEFT HAND DRIVE

Mastic face of servo and fit thru hole cut in bulkhead and bolt up to pedal box, bolt top end of pedal box to top of deck 2 off M8 x 30 bolt + 2 off M8 nylock + 4 penny washer

Adjust brake push rod/clevis so rod is flush with rear face of clevis DO NOT UNSCREW BEYOND THIS FACE, adjust brake on/off switch

Offer accelerator pedal to GRP tunnel to suit your driving position, bend arm so end lines up with cable hole, bolt pedal on to GRP, mastic outer cable to deck. Couple up to engine

CLUTCH CABLE

Line up position for clutch cable thru pre-cut hole in GRP and metal pressing in pedal box. Couple up to engine. Mastic rubber grommet to deck

DASHBOARD PREPARATION

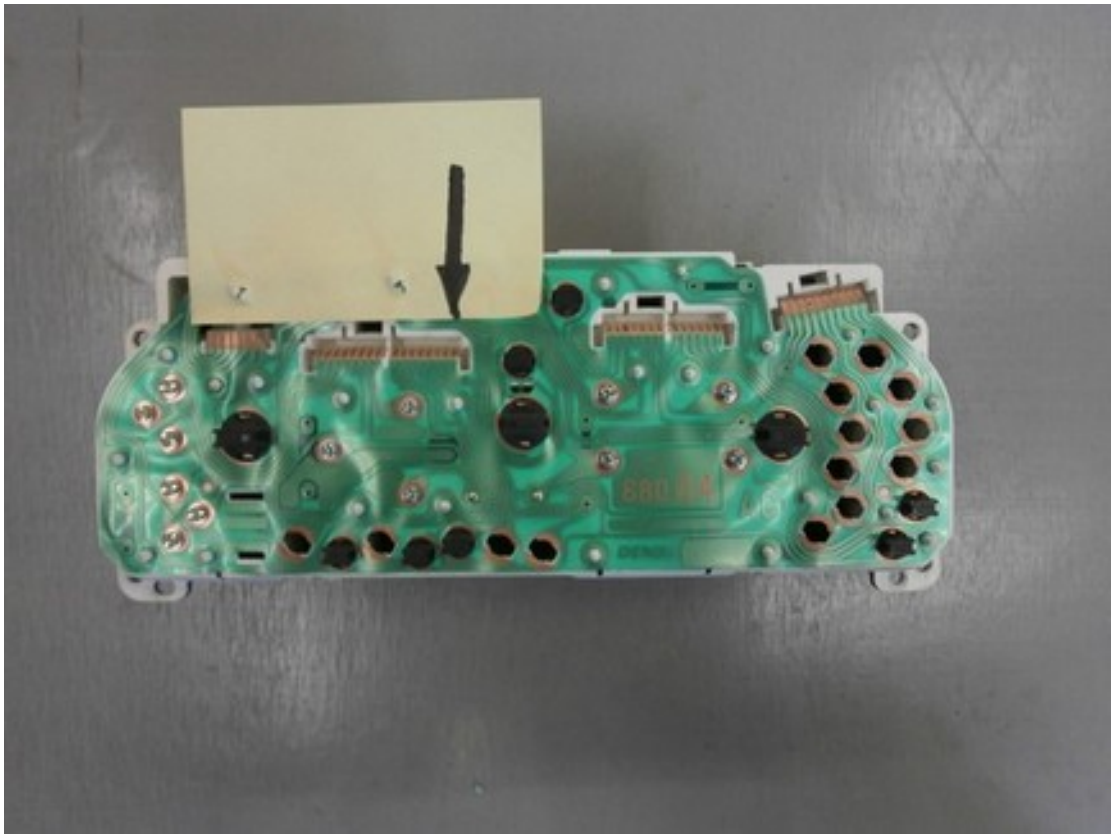
Cut off forward edge of dash (yellow template part is supplied with kit)

Bolt 2 off outer side support, note washer faces outwards and rearwards
use 4 off M8 x 20 MS bolt and 2 off M6 x 16 bolt + 2 nylock + 2 penny washer
remove passenger air bag/mounting panel. Remove ALL air bags labels

INSTRUMENT CLUSTER (electric transfer box post 2005)

Remove instrument cluster and cover air bag warning lamp. Unclip clear lens and black gauge surround, peel back instrument face and shine light thru panel to establish the correct lamp, tape over correct lamp then re-assemble and fit back into dashboard. DO NOT break the bulb

INSTRUMENT CLUSTER (manual transfer box pre 2006)



Remove air bag bulb

Locate larger socket on rear of panel, locate wire from further right socket terminal looking from back of instrument cluster. Cut wire on LOOM that lines up with this wire and run a wire from plug down to transfer box, locate reverse switch and join this wire to either switch terminal, wire other switch terminal direct to earth

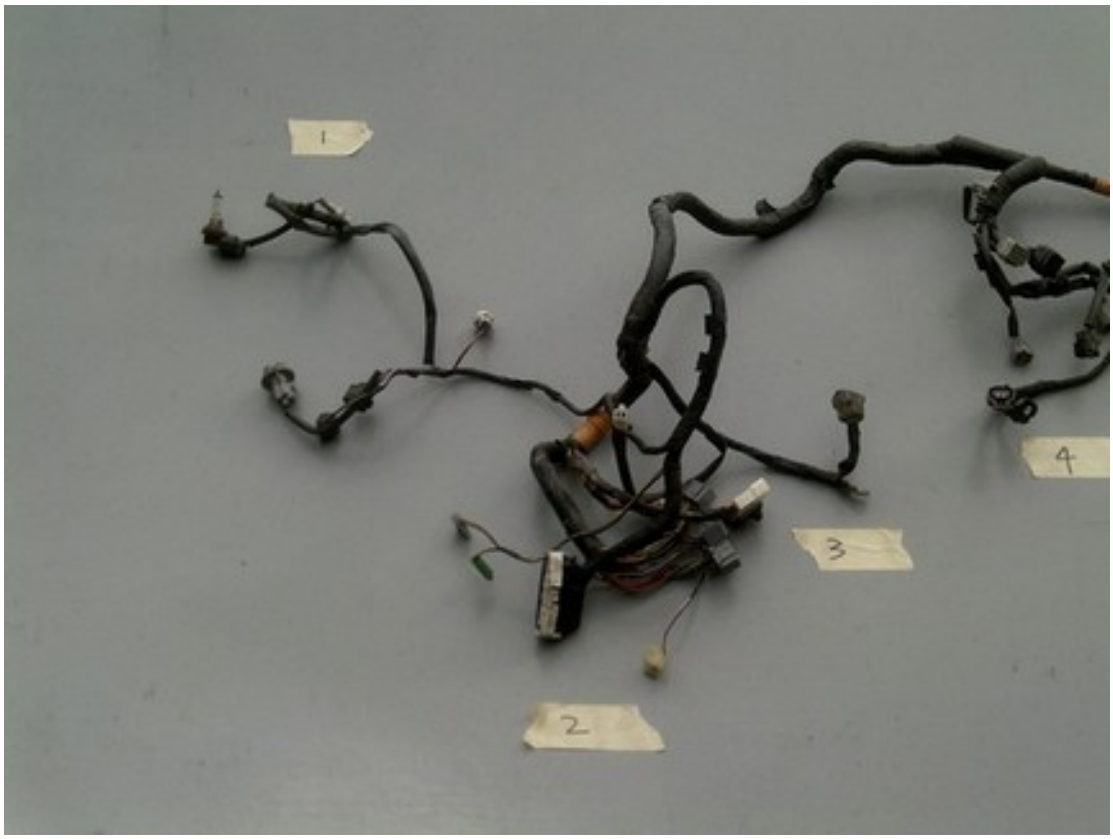
LATE ELECTRONIC TRANSFER BOX (post 2005 ½, factory converted to manual selection)

Mechanical conversion is done at factory for wiring see back pages, rough up surface of 3 unused dashboard switch and mastic DUTTON badge

TRANSFER BOX early manual (pre 2005 1/2)

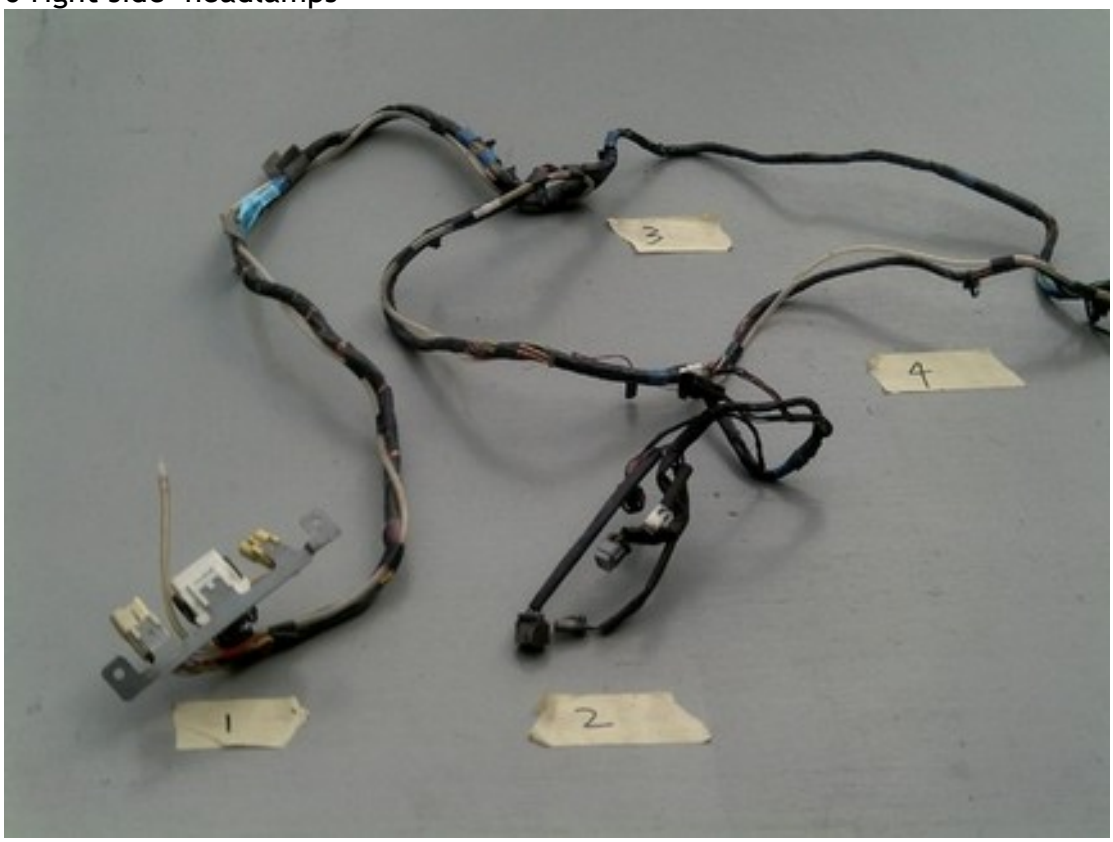
If you need to adjust the dog clutch to find the neutral position between 4H and 4L adjust detent screw. Top photo shows disengaged and lower photo shows lever in engaged position

MAIN WIRING LOOM



Identify main loom remove both large rubber gaiters-
1 left side headlamp
2 ABS (if fitted)
3 wiper

Identify maim loom:-
4 to engine
5 ECU and immobilizer
6 right side headlamps



Identify rear loom:-

1. to main loom and dash, remove steel bracket, trim off rear screen washer hose and all plastic attachment clips (on some Jimny there are 2 similar blue plugs/sockets make sure you connect them correctly by checking similarity of wire colours)
2. transfer box

Locate the 3 loom entry holes marked A B C

Lay fuse box in engine bay on RHS wheel arch, cut off and keep both large rubber grommets, cut off plastic cable tie holding loom to underside of fuse box. Feed entire loom thru 62mm hole marked “A” leaving fuse box/air switches/RHS lamp wires etc in engine bay.

Feed engine loom with injector plugs thru hole marked “B” and couple up all plugs to engine loom

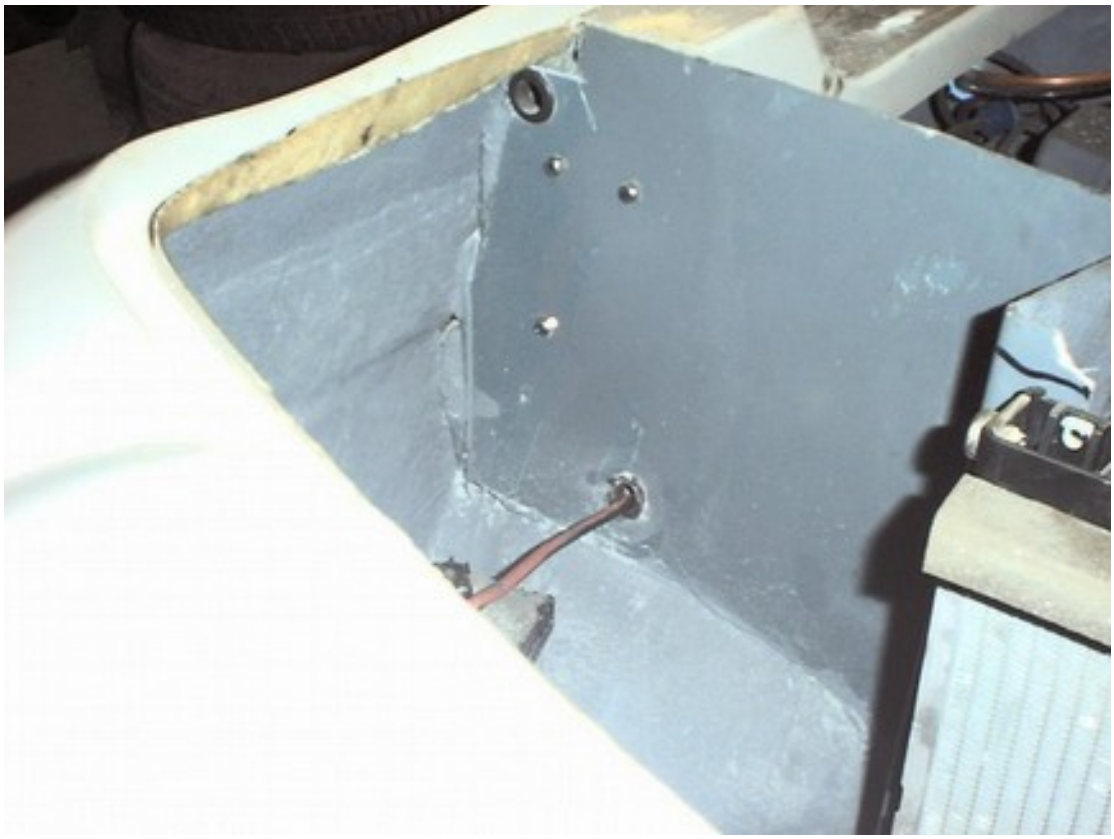
ABS (if fitting) feed socket thru 56mm hole marked “C” and on LHD cars couple up master cyl low fluid warning loom

Remove ECU from mounting plate and trim brk as shown leaving the 3 retaining tongues, drill 2 attachment holes, refit ECU so the entry sockets are facing down

BATTERY

Bolt battery onto GRP moulding RHS engine bay. Use Suzuki strap and screw clamps, drill attachment holes in GRP tongues to suit. Trim down tongue on outer retaining strap so it does not rub on face of hull

Remove battery earth from bellhousing and bolt onto adjuster strap on alternator, feed wire thru grommet on GRP rad panel and bolt to battery



WIRING

Consult back pages for non Suzuki wiring

Lay main loom between bulkhead and heater

To comply with IVA do not fit ANYTHING on the passenger side footwell that is lower than the bottom edge of the dashboard (approx 12” from floor) unless it has a radius on all corners of at least 3mm

LHD shown, on RHD cars wiper motor is on other side

Bolt up controller box and immobiliser box

LHD shown, RHD exactly the same but on other side

Couple up 2 sockets from engine loom to top of fuse box and ABS socket (if fitted). Bolt individual earths from main loom and loose earth from back of engine to bolt already holding 1 earth at back of inlet manifold

Now that all the major electrical components are fitted and the loom is in its final position couple up all components + earths (the pedal box is earthed by fitting (44) black from engine to master cyl)

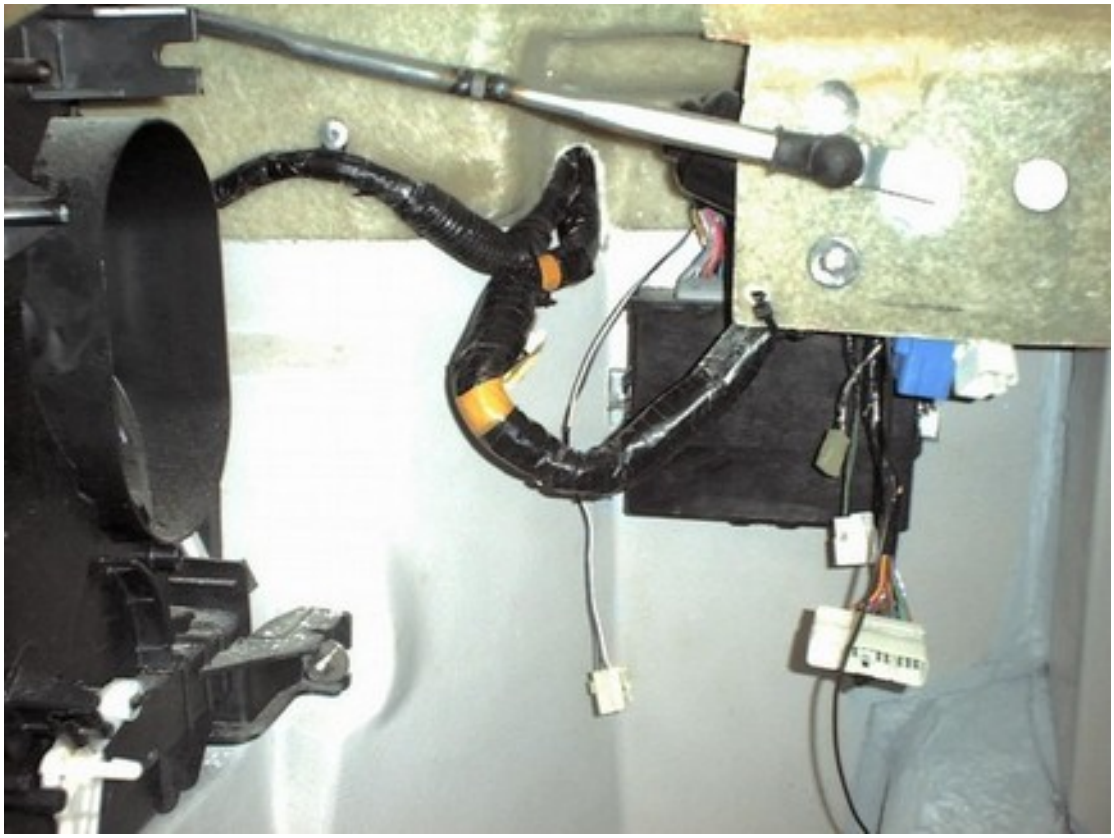
Earth engine bay temp sender attached to GRP bulkhead, do not over tighten as the thread is only tapped into GRP

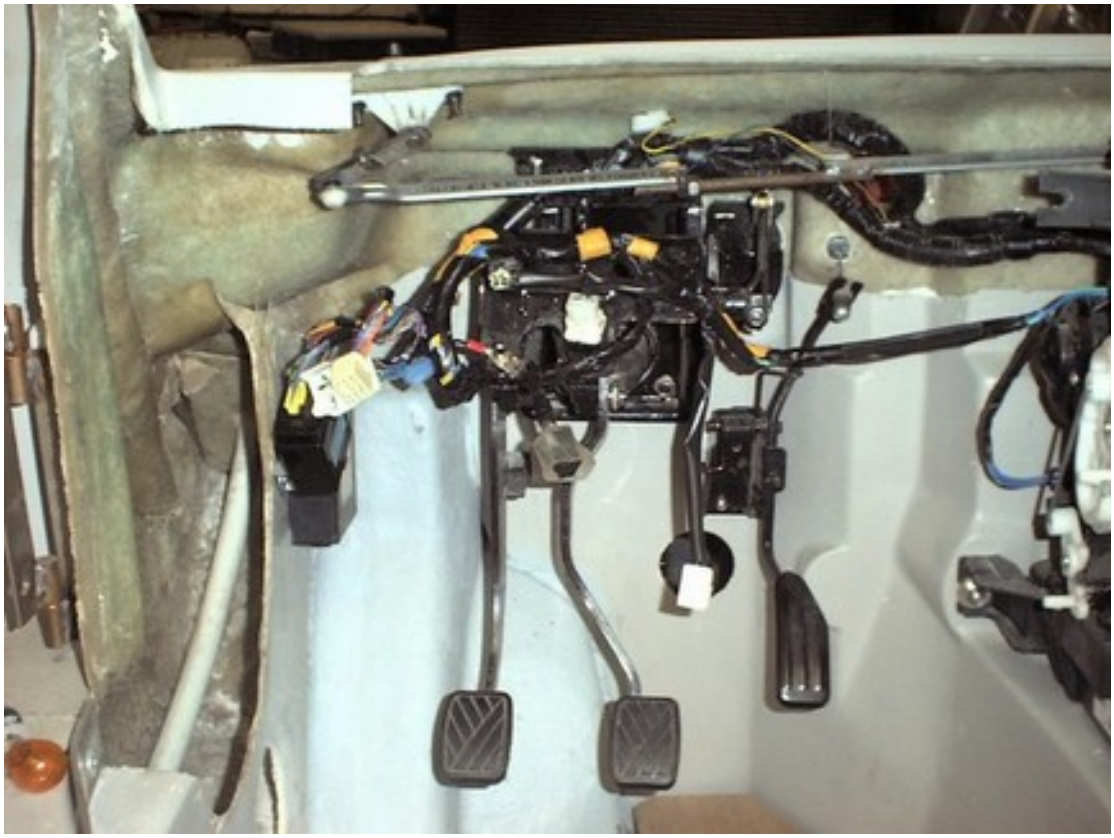
Extend both side repeaters to meet deck sides

Extend wiper loom (LHD only)

Ignore ALL yellow sockets/plugs (these were for the air bag system – now not used)

The loom must be supported by cable ties and P clips so there is no chance of any wires rubbing against moving parts – pedals/wiper links etc





Note all plugs hanging loose to attach to dashboard

DASHBOARD

Lay dash over deck, slide outer side supports inside inner GRP sills, push dash forward up to screen and centralize. Drill 10mm hole up thru 2 holes in deck. **BE CAREFUL NOT TO DRILL INTO THE WINDSCREEN,** it is recommended that you get someone to hold a sheet of steel or thick timber between dash and glass whilst drilling, drop bolt in hole to locate dash

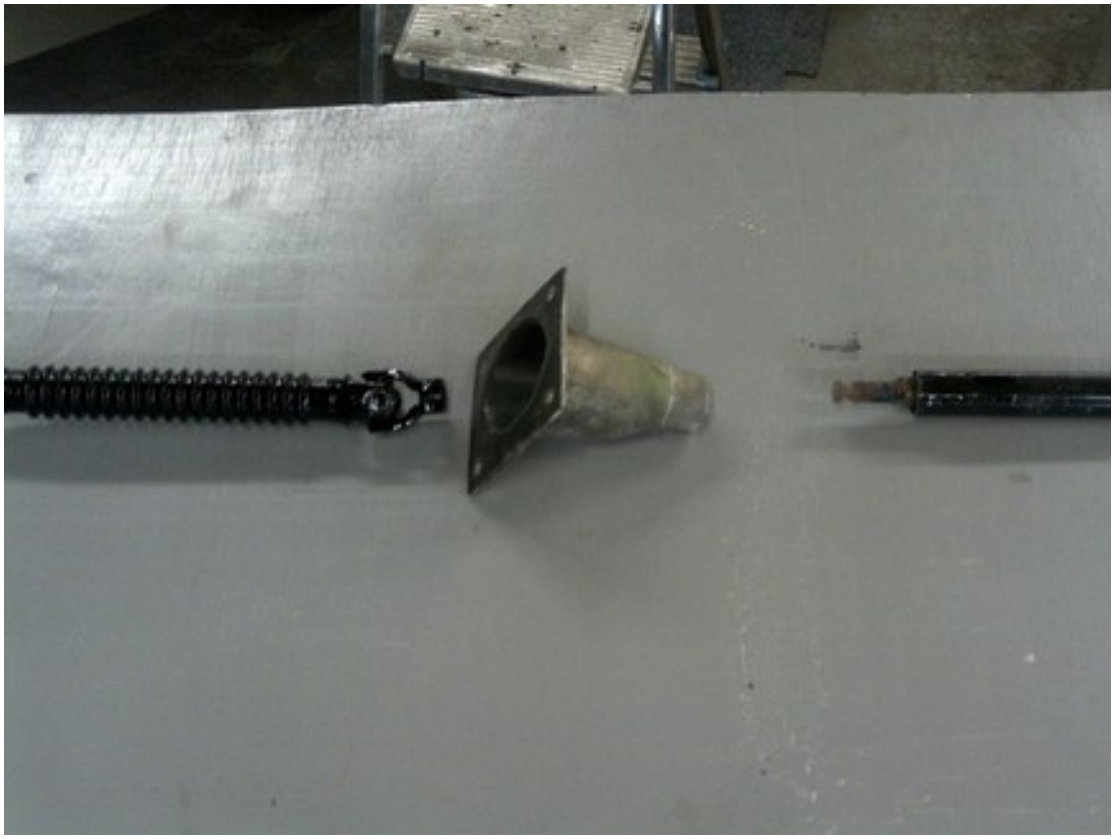
Level up dash and drill thru outer side supports , bolt up using 2 off M8 x 30 Allen headed button headed screws + 2 nylock + 2 penny washers. Couple up all electric sockets from main loom and rear loom including door loom

STEERING COLUMN

ON NO ACCOUNT rotate steering wheel – leave key in lock with wheel in straight ahead position. If you do rotate it the horn wiring (in steering wheel centre) will rip out and cost over £150 to replace

(4) M8 x 20 + (4) nylock + (4) washer + (4) penny
(2) M8 x 25 + (2) nylock + (4) washer

Grind flange off end of outer column, do not cut into round outer tube



Pic shows:-factory modified lower column + GRP tube + modified upper column

Slide GRP moulding over end of upper column, bolt on lower column with single U/J at top – in any position. Fit entire column assembly thru dashboard and 62mm hole already cut in forward face of gearbox tunnel

check it fits over the lip on spline on steer box, bolt up. Bolt assembly to dashboard cross member using original Suzuki fasteners and square aluminium blocks. Slide GRP moulding down to meet forward face of gearbox tunnel, line up so column is in centre of 62mm hole and bolt up 4 off M8 x 20, 4 off M8 nylock, 8 off penny washer seal with mastic. Check ffm

With wheels straight ahead re fit steer wiring ring and steer wheel, leave nut loose until suspension is aligned later

On NO ACCOUNT retain the original steering wheel centre if it indicates that it had an air bag (some Jimny are supplied without an air bag system) if you have a steer wheel centre marked “air bag” replace with black GRP centre with horn button, couple up horn then temporally tape centre to wheel – do not fit permanently as the wheel will have to be lined up when Dutton is driven on the road

Couple up main loom sockets to steering column

FRONT LAMPS

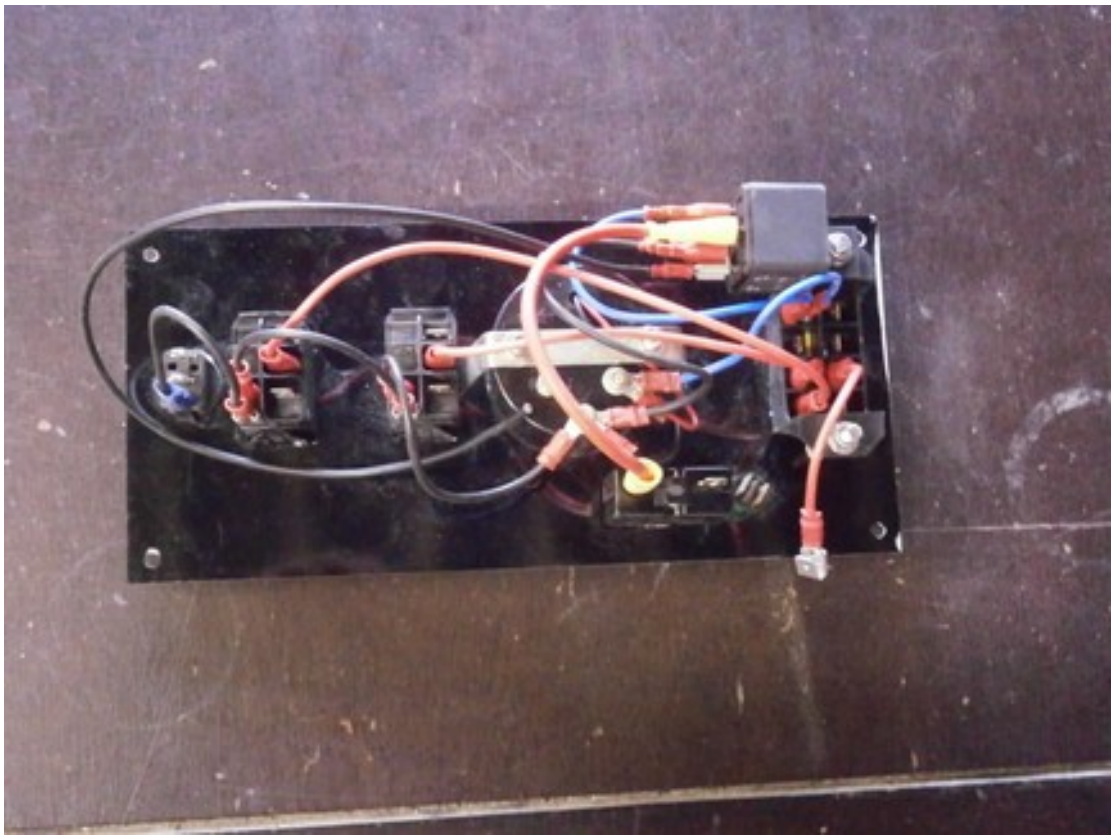
Pre- fitted at factory for wiring see back pages

REAR LAMPS

Fit bulbs into rear lamps and Suzuki # plate lamp to black GRP lamp panel, (and registration # if already registered) for wiring see back pages

ENGRAVED DASH PANEL

This is pre wired, wire interior lamp and navigation lamp. For wiring see back pages



Remove passenger air bag

Mastic internally at 4 corners to secure

AIR FILTER

Attach sender to front face of air box and fit air box into corner with forward mount resting on moulding on GRP rad panel. Outer mounting bolts to pre-drilled hole on engine bay side

FUEL TANK

Lay tank on top of GRP support panel drill thru and bolt up 3 off M8 x 25, 3 off M8 nylock, 3 off penny washer.

FUEL CAP & BREATHER

Modification 1 - cut down pipe, leave 2nd flange on
Modification 2 - bend up breather pipe 2”

Modification 3 - grind off top and bottom of mounting plate

Line up filler pipe in centre of 60mm hole in deck and drill thru mounting plate, use 2 long rivet to attach and include cap strap in lower right rivet

WARNING
FUEL SPRAY MAY
CAUSE INJURY
H20

30” breather pipe (not swaged) must rise higher than the lower edge of the filler pipe and exit under right wheel arch 4” behind handbrake cable hole

FUEL LINES

Tank sender, keep the original “push in” Suzuki fuel line couplings and cut off black plastic hoses. Centre hose lower left is main and hose to right is return. Blank off breather (top hose) with 6mm ss blanking plug

Fit both fuel lines (8mm and 6mm diameter) and rear brake pipe along right side of hull thru pre-cut holes, the copper pipes must not rub against each other so fit black spiral cable wrap where they are clamped with P clips, mastic where 3 pipe goes thru timber stringers. All fuel pipes MUST have swaged ends.

Main feed hose exiting to left
return exiting to bottom
breather exiting to top

To allow for engine movement rubber hoses between engine and solid fuel lines must be approx 6” long. ALL rubber fuel lines must be marked ISO7840 on no account use automotive hose

BRAKE PIPES NON ABS

Rear brake pipe runs with fuel line under floor RHS

Disguard ALL balance valve/rear proportioning valves in the brake system

Fit brake pipes: -

Front master cyl to front wheel m/f 24”
Side master cyl to rear axle m/f 165”
Rear master cyl to right front wheel m/f 57”
rear axle m/m 52”
To comply with IVA all brake pipes must be supported every 300mm (or in the poly tube)

BRAKE PIPES ABS

Trim ABS mounting as shown, assemble onto ABS module

Rear brake pipe runs with fuel line under floor

Disguard ALL balance valve/rear proportioning valves in the brake system apart from the ABS unit. Bolt ABS to GRP lip on deck moulding, check clearance with engine

Fit brake pies:-

Master cylinder to ABS 29” m/m
Master cylinder to ABS 29” m/m
LH front wheel to ABS 45” m/f
RH front wheel to ABS 53” m/f
Rear axle to ABS 145” m/f
Rear axle 52” m/m

To comply with IVA all brake pipes must be supported every 300mm

BONNET SEAL

Loosen 2 off top attachment bolts on top of ss rad crossbar. Fit balloon rubber seal to top edge to make a seal with bonnet. Retighten 2 attachment bolts

Fit Jimny rear door rubber to front edge of deck and rear edge of bonnet
Refit bonnet, tap in brass pins

DOORS

Refit doors using supplied bolts and any washer, adjust so door is level in deck. Fit Jimny side door body edging on door parcel area

DOOR MIRROR

We have available black plastic outer covers to fit later mirrors if damaged

Early type (zinc brk) grind off plug retaining section as shown

Cut off lower corner

Lower corner removed to clear GRP door moulding

Bolt to door, early type 6 off M6 button head with penny washer, late type is tapped at factory to 6 off M8 button head with penny washer

DOOR LOCK

Lock parts are colour coded:-

lock barrel plastic clip:- white LHS, Purple RHS
rods:- gold LHS, silver RHS

Cut off lower metal pressing on door lock flush with plastic moulding
Discard passenger lock barrel, link rod and clip.

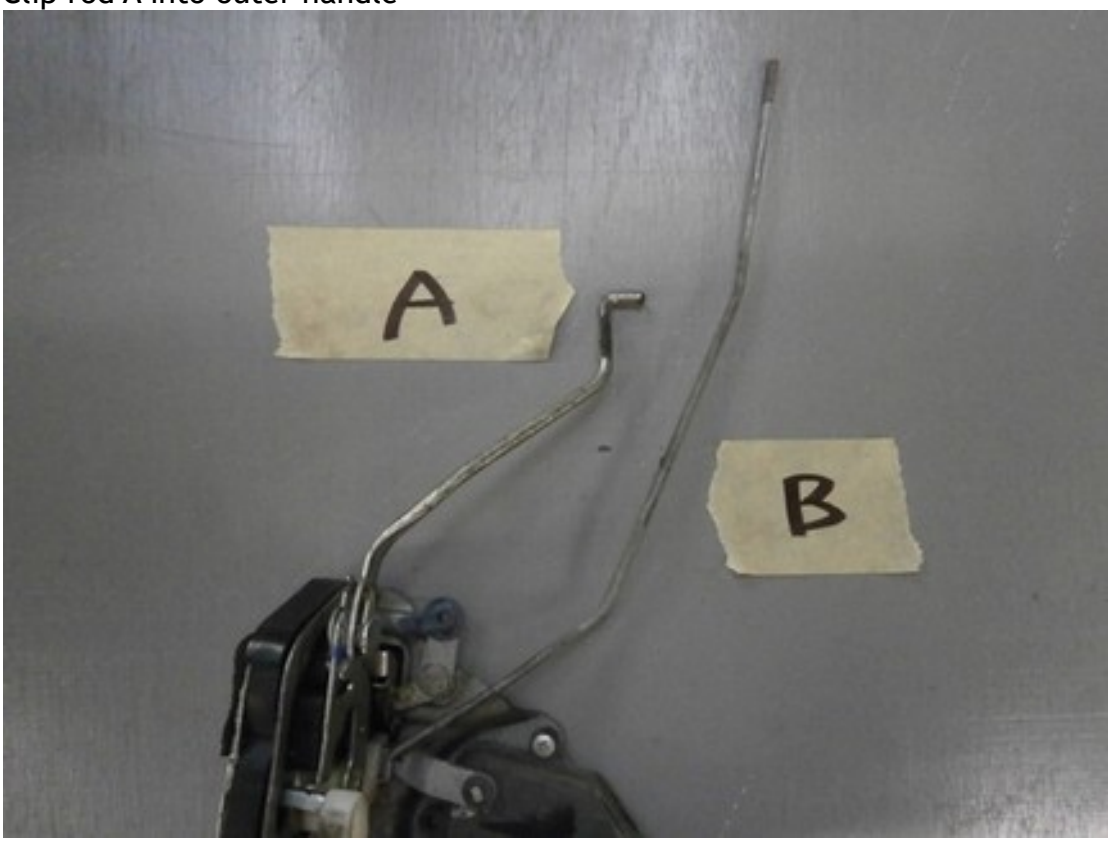
Bend rod A to drawing on next page

Cut 3” off top of rod B this will be trimmed up to correct length later

Bolt outer handle to door

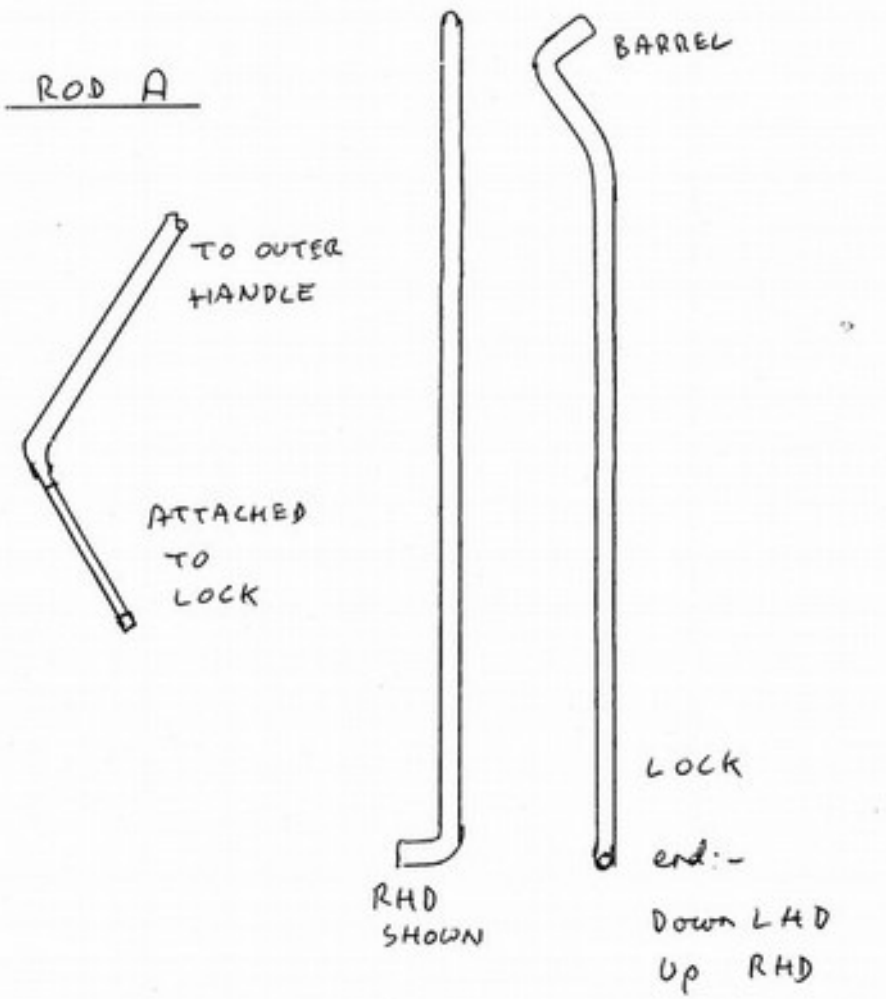
Bolt lock to door using M6 c’sunk screws check that rod B is fitted thru the button hole on inner door

Clip rod A into outer handle



Shorten inner handle link rod to 15 7/8” o/l and fit to Suzuki inner handle, clip to lock and bolt Suzuki inner handle to door

DOOR RODS Oct 2015



Lift rod B up to un-lock position and cut 1/2” above door moulding, press plastic know down onto rod, check it operates in correct position, trim rod if required. If correct remove knob and super glue back on

De-grease drivers side lock barrel and around door and mastic barrel to door so the key slot is vertical and the arm is facing backwards. Bend rod C to drawing on next page, after mastic has set hard (24 hrs) couple up to lock using rod C

INNER FLOOR PANELS

Before fitting GRP panel over transfer box re- tighten the 5” dia hose clips on the plastic between transfer box and hull

Detent lever dis-engaged

On pre 2005 Jimny the detent lever will need final adjustment to “find” the neutral between 4H and 4L by adjusting the screw

Detent lever engaged so screw stops transfer box gear lever between 4H and 4L

HANDBRAKE LEVER/CABLE

Remove timber rear seat panel, fit Suzuki handbrake lever to brk and attach extended handbrake cable. Fit both handbrake cables to brk fitted to front face of rear bulkhead. Couple up steel brake rod to compensator and handbrake lever, adjust to suit. Refit timber seat base

Bolt 5mm P clip to top rear face of drive shaft cover to retain handbrake rod

CARPET

pair side panel
rear panel
pair dashboard sides
pair rear glove box
pair door inners

the foam backing on carpet needs to be removed (use wire brush) before glueing

Glue carpet along top edge, trim flush with timber

Glue top edge of carpet parallel to both aluminium plates (door lip and glove box)

Cut slot for front seat belt.

REAR LOOM

Couple rear loom to main loom, extend as required. Add wires for rear bilge pump. Locate hole LHS of gearbox tunnel behind heater and feed rear loom into 25mm dia x 30" conduit and fit this thru the hole and along side of gearbox towards back of car, cable tie conduit to rear gearbox mount to clear prop shaft

REAR PERSPEX

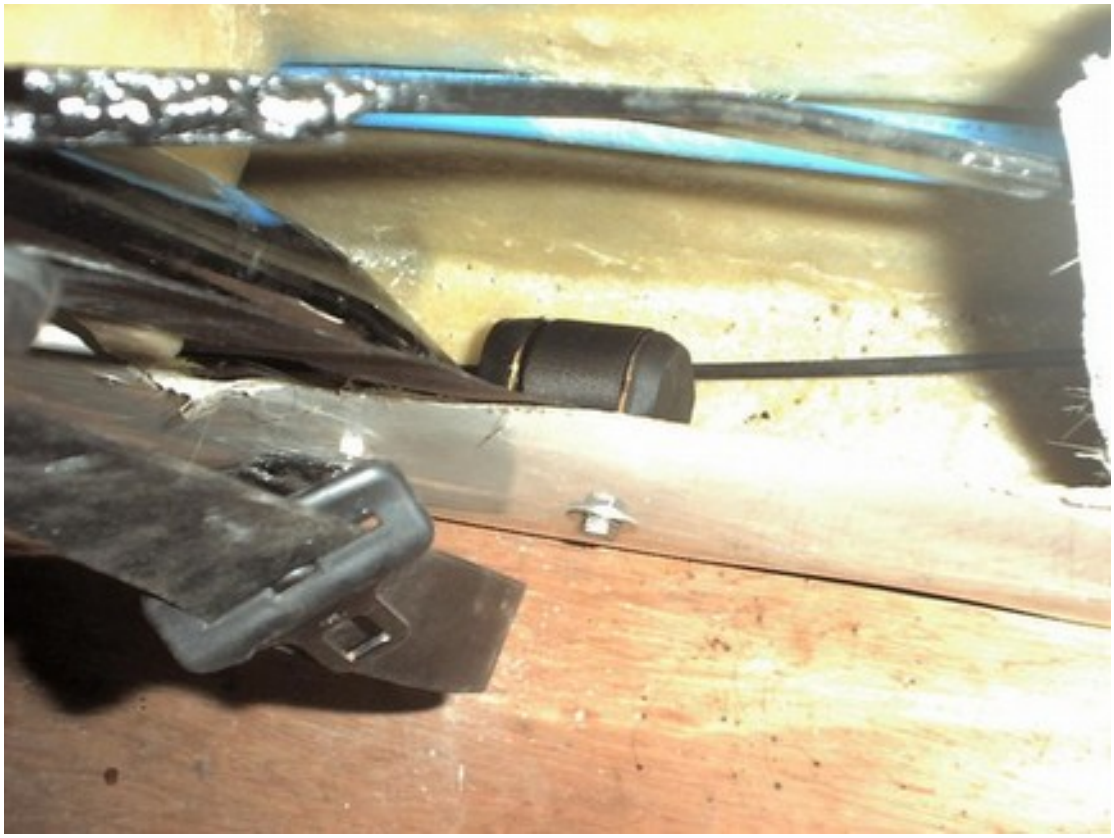
Do not over tighten – just enough to stop it moving

Use (14) wire to extend rear loom

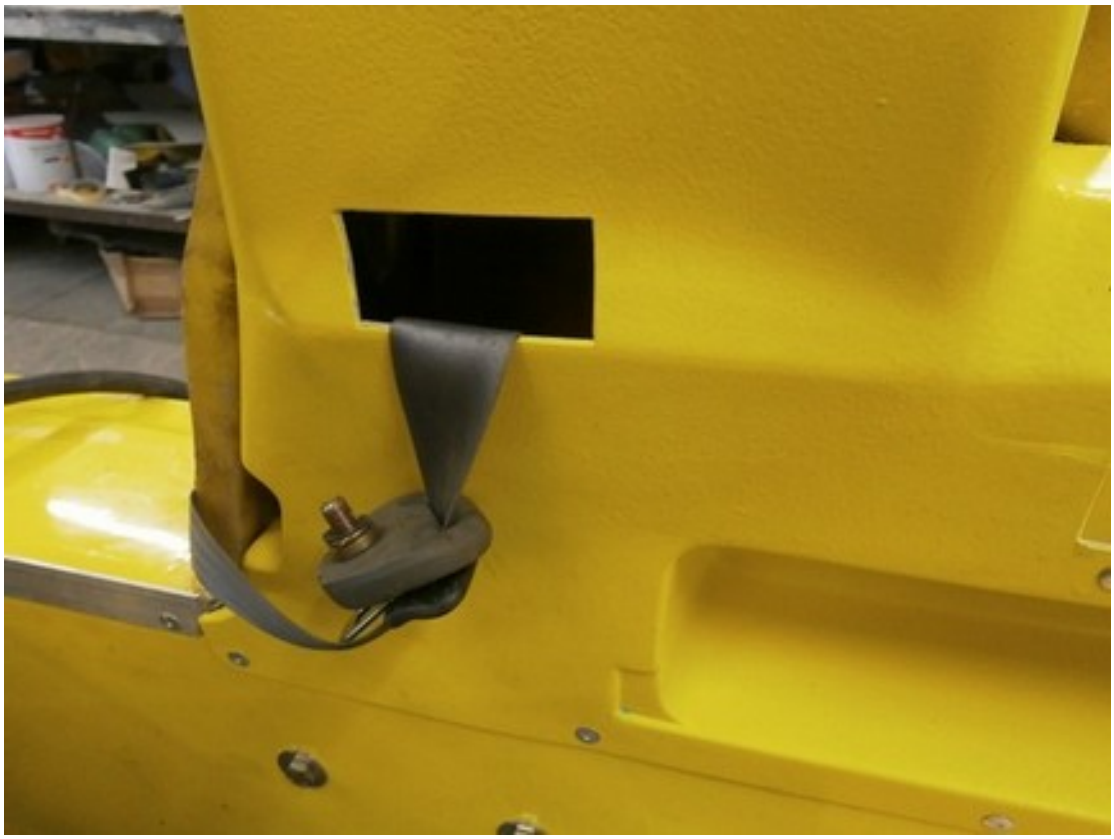
FRONT SEATBELTS

Use Jimny seat belts

Lay belt reel inside sill and bolt to rear mounting at base of roll-over bar



The reel has to be rotated so the belt exits perpendicular to the reel otherwise the belt will not retract correctly



Slide other end of belt thru GRP inner panel and attach to top mounting on roll bar

This pic is shown for clarity without the inner panel fitted, in the final assembly the GRP inner panel would be fitted before the top mount is bolted on

Remove M12 bolt and fit open end of belt with brk horizontal

REAR SEAT BELTS

Use Jimny seat belts.

Drill outer belt to 12mm. Bolt to rear wheel arch with steel plate facing upwards, refit plastic nut cover

Fit reel. NOTE these are handed. The reel has to be rotated so the belt exits perpendicular to the reel otherwise the belt will not retract correctly

Fit plastic nut cover

INNER PANELS

These are pre trimmed at factory and have to be fitted at the same time as the front seat belts as the belt has to be fitted thru the rectangular slot. Always fit RHS first then LHS. Use 3/16” rivets. Fit 1 rivet either side at top thru roll bar

fit fabric 10” X 6” to cover join

Side glove box supplied as standard, if you require the BSS then fit fire extinguishers in recess

ALIGN STEERING FOR ROAD USE

Track front axle to 1/8” toe in

Turn steering from one side to the other noting maximum angle of turn of each wheel. If required adjust drop link from steering box so that each wheel turns to the same angle of turn in both directions

When driving straight on road adjust steering wheel to correct position

JET

When new this is a very tight fit in the GRP hull, to free up select 1st gear and neutral - start engine and slowly release clutch and accelerate, if jet rotates then increase speed until it runs in 3rd gear at 2000 rpm (this will be noisy and there will be a smell of hot plastic as the impellor cuts into the Hull) Because of splinters DO NOT PUT FACE NEAR BACK OF JET WHEN RUNNING

If impellor locks up then put gearbox into reverse, then into forward until impellor is free.

Until jet had run for a few hours it will sound very loud (as the hull acts like a large loudspeaker)

If you are bringing down your Surf to the factory for it's free check-up then we can do this running in for you

RUDDER

After aligning steering wheel and steering drop links during road trials the rudder will need to be adjusted to run straight in water, straighten steering wheel, undo M8 nut on top of rudder and adjust to be slightly offset approx 1/8" to the right when looking forward, for maximum efficiency the steering wheel MUST be straight ahead when going straight in the water re-adjust if required (adjust the rudder not the steering wheel)

POUPE DECK PANEL (if ordered instead of standard pre-fitted sun deck)

Fit 1" x ¼" foam to all edges of panel, for maximum sound deadening it is important that there are NO gaps when the panel is screwed down. Do not over tighten.

FRONT SEATS

Lay both floor mats if ordered. Lay GRP seat slots

Grind locating dowels off both front seats

Lay seats in position, all locating holes are pre drilled use mastic where bolts go thru hull and use M10 X 35 ss bolts and penny washers

Check bolts don't touch exhaust system

RHS inner front mount with ss rectangular tube

LHS inner front mount with ss round spacer

REAR SEATS

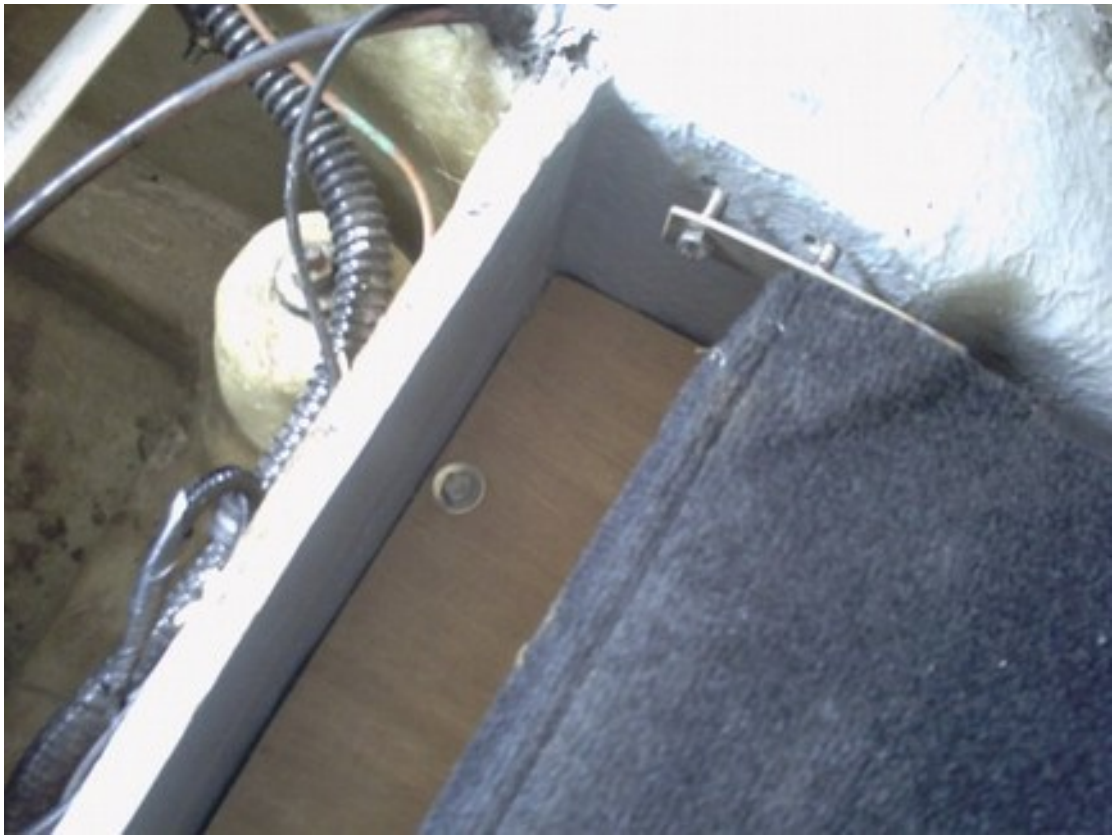
Individual base seats :- bolt to timber using pre-fitted bolts (note slot in carpet to gain access)

One piece base seat:- self tap spring loaded front clips onto timber and clip in place

Seat backs: -

Bolt centre hinge to pre-fitted mounting

Check seat backs are level and drill and bolt ss outer hinge brk to rear wheel arch 4 off M8 x 25, 4 off M8 nylock, 4 off penny washer



DOORS

Re-bolt door to hinge using any spacers originally fitted, grind striker plate as shown and push into lock, close door, mark out striker plate 3/4” (19mm)

out from GRP lip, drill 10mm, adjust for correct height so door does not rub on sill, bolt using ss c'sunk screws

Mastic along entire length of aluminium lower door lip to seal then fit balloon rubber door seal to deck. Fit balloon rubber door seal to rear of GRP roll over bar surround

PREPARING FOR IVA

IVA application form from: -
VOSA
91 The Strand
Swansea
SA1 2DH

01792 458888

Or search: - IVA application form VOSA

Design axle weights: -
Front axle 750kg
Rear axle 740kg
Gross 1490kg

If you have any problems filling in the form have it in front of you and phone us

Once you have passed IVA, contact DVLA for V55/5 and V627/1 forms (do not ask for these until you need them because they keep updating them and will return an "old" type form if sent in)

Obtain insurance cover note, this will quote the chassis # until car is registered. For a list of UK insurance companies please email us

As long as you can supply the Jimny V5C You DO NOT get a Q plate with a Surf built from one donor vehicle, the registration # you get will have the same year identifier as your donor vehicle but with different letters/numbers – and you can put a cherished # on a Surf

Prior to IVA test Leave off the following: -
Nav lamp (supplied)
Targa top (if supplied)
ss lifting straps (if supplied)
Outboard brk (if supplied)

AFTER IVA

Mastic all holes between engine bay and cockpit
Fit nav lamp
Add any extras supplied

SERVICING

We offer full servicing facilities for all Amphibious Duttons

Tim Dutton Amphibious Cars
Arun Shipyard
Littlehampton
West Sussex
BN17 5DH
ENGLAND

Tel 01903 713313
factory@timdutton.com
timdutton.com

SURF SPECIFIC WIRING DIAGRAMS

Wire supplied is referred to by the number of copper strands (x) and colour and is rated as: -

Strands	Amp	Typical use (see Haynes manual)
(14)	8	All lighting and most other systems
(28)	17	Rear earth
(44)	27	Main earth/charging circuit
(65)	35	Engine fan

Colours: -

B	black (earth)
Br	brown
Bl	blue
R	red
Y	yellow
P	purple
W	white
G	green

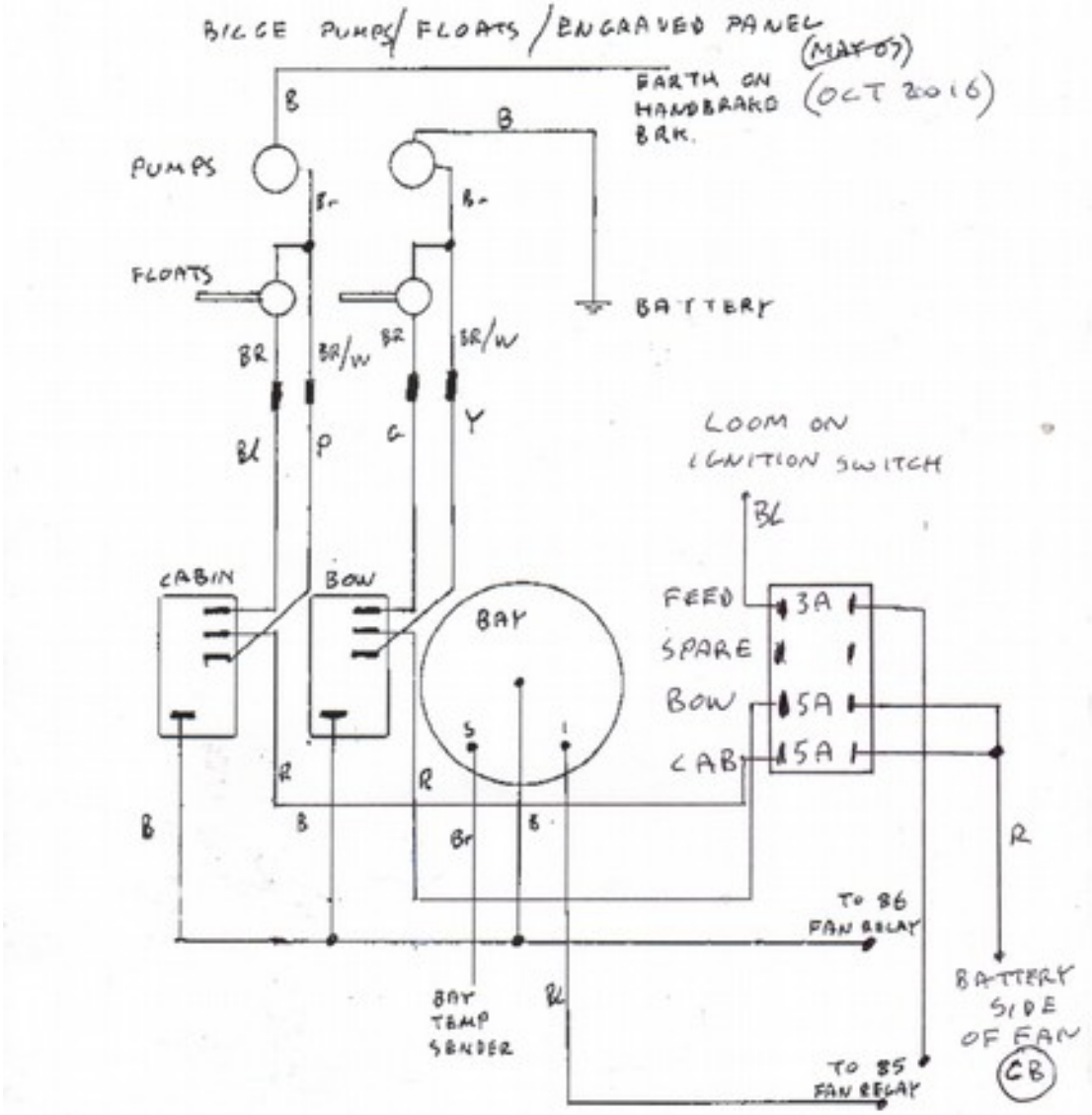
All Surf wiring unless otherwise stated is (14)

CB = circuit breaker

Wires on diagrams that cross over each other are NOT connected unless shown with a large dot at the point of intersection

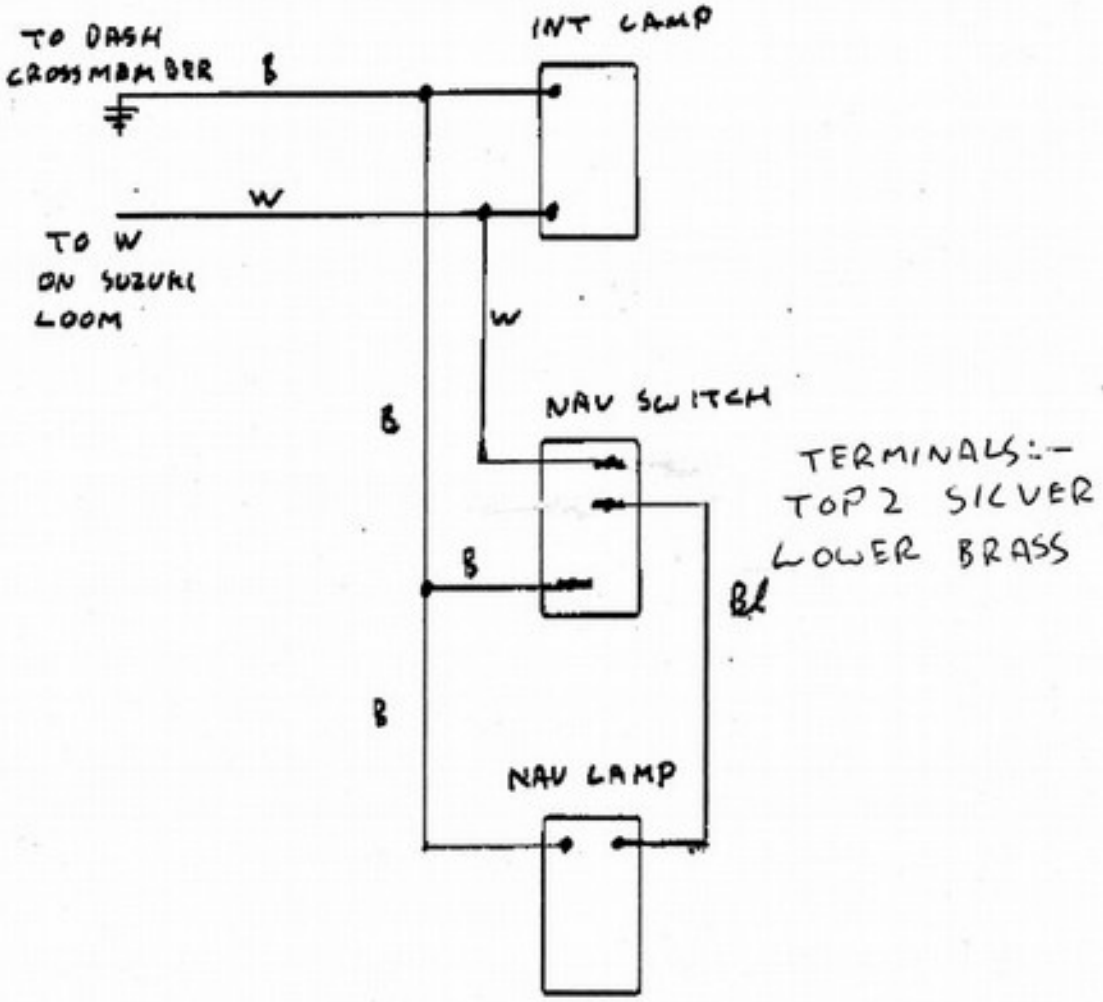
Switches, relays and gauges are viewed from the back

Check rotation of rad fan, if required swap - and + wires to reverse rotation

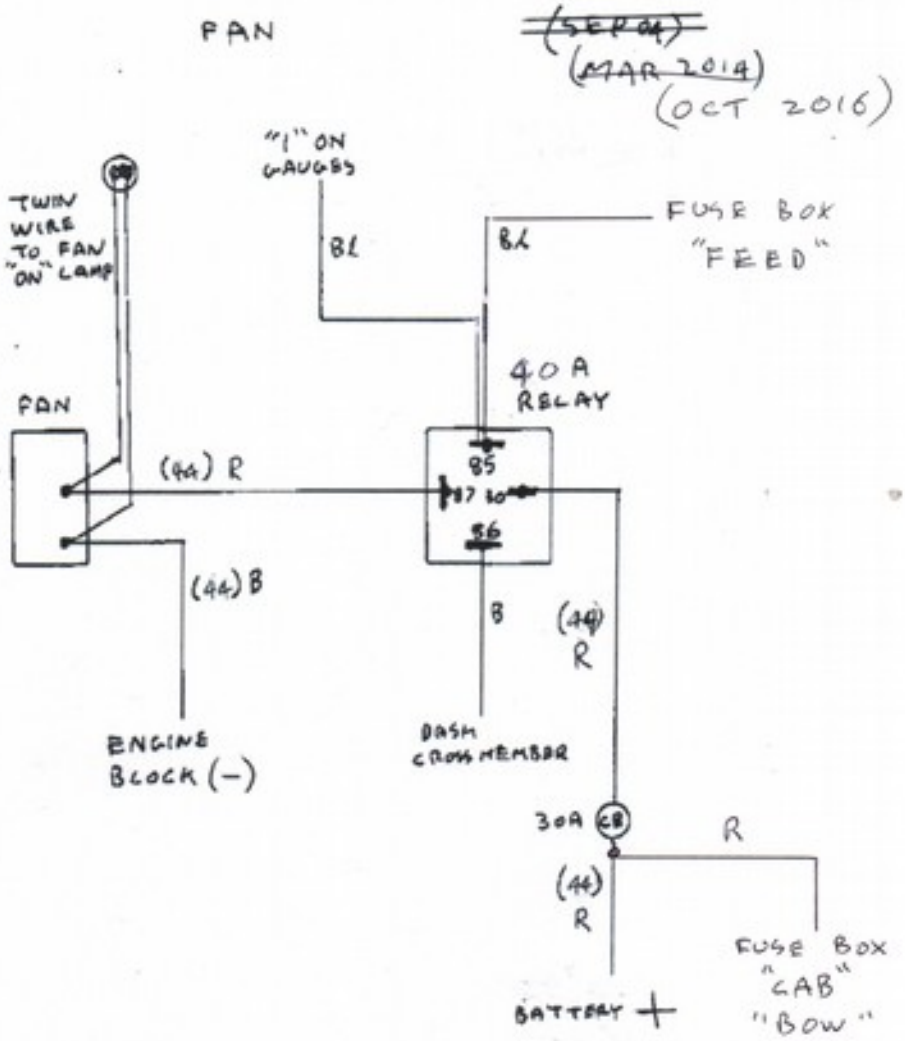

BILGE PUMPS / FLOATS / ENGRAVED PANEL
(MAY 07)
(OCT 2016)
EARTH ON HANDBRAKE BRK.
PUMPS
FLOATS
BATTERY
B
Br
BR
BR/W
Bl
P
G
Y
LOOM ON IGNITION SWITCH
CABIN
BOW
BAY
FEED
SPARE
BOW
CAB
3A
5A
5A
R
TO 86 FAN RELAY
BAY TEMP SENDER
TO 85 FAN RELAY
BATTERY SIDE OF FAN
CB

NAV / INT LAMPS ~~(SEPOA)~~

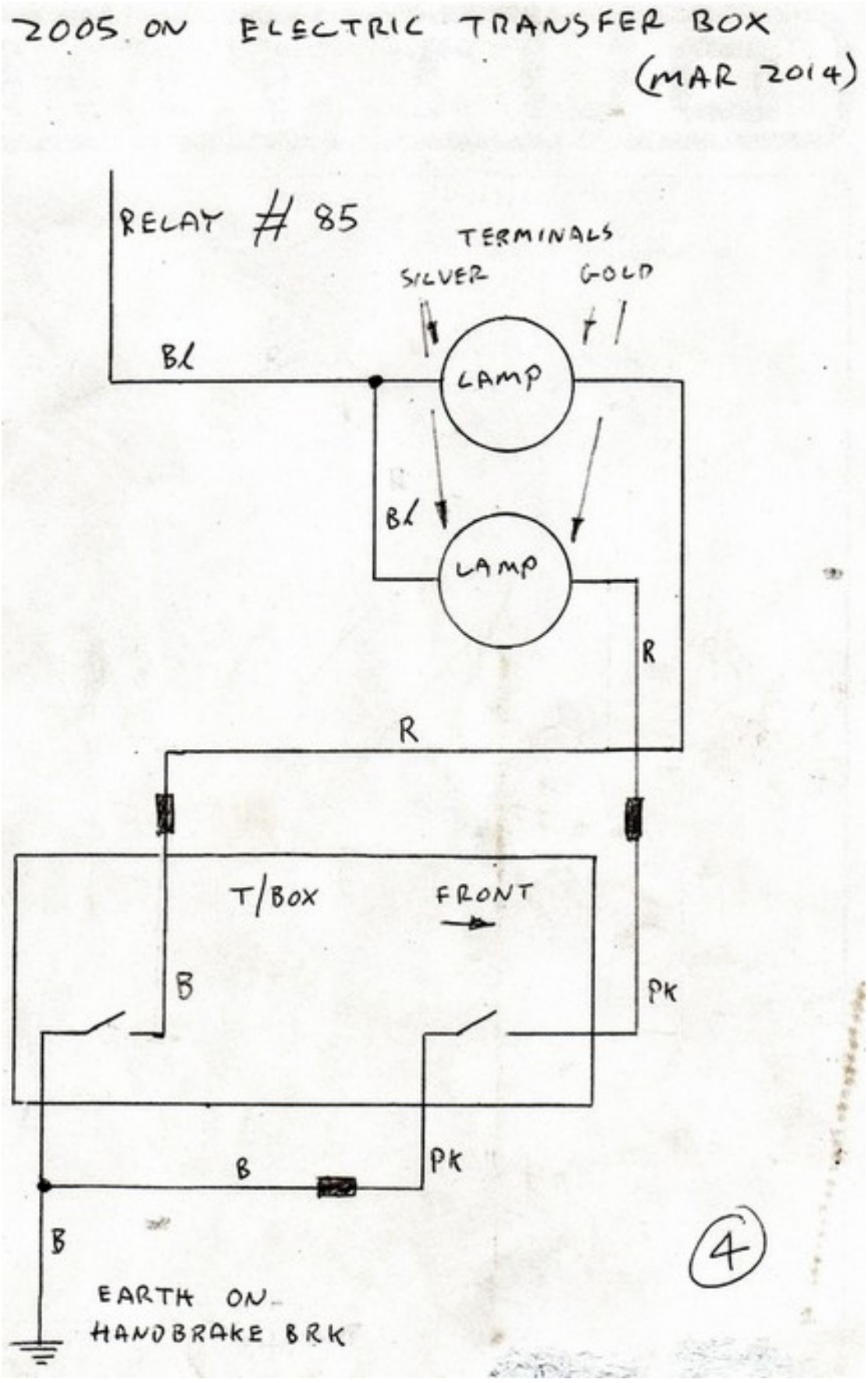
(MAR 2014)



(2)


FAN
~~(SEP 04)~~
~~(MAR 2014)~~
(OCT 2016)
"I" ON GAUGES
TWIN WIRE TO FAN "ON" LAMP
BL
BL
FUSE BOX "FEED"
40A RELAY
FAN
(44) R
85
87
86
(44) B
B
(44) R
ENGINE BLOCK (-)
DASH CROSS MEMBER
30A
CB
R
(44) R
FUSE BOX "CAB" "BOW"
BATTERY +

10


2005 ON ELECTRIC TRANSFER BOX
(MAR 2014)
RELAY # 85
TERMINALS
SILVER
GOLD
BL
LAMP
BL
LAMP
R
R
T/BOX
FRONT
B
PK
B
PK
B
EARTH ON
HANDBRAKE BRK
4

HEADLAMP

Uses a factory modified VW Golf Mk4 headlamp (spot not used). If replacing VW Golf 1998 to 2004 headlamp modify internally:-

locate brown wire from indicator to headlamp and cut off at headlamp plug. Locate brown wire from micro plug (headlamp lifter) and joint to brown from indicator

MAIN LOOM	EXTEND COLOUR	H/L TERMINAL
Headlamp RED	RED	5
RED/WHITE	WHITE	4
WHITE/BLUE (LHS)	BLUE	9 (link to 7)
WHITE/RED (RHS)	BLUE	9 (link to 7)
Indicator GREEN/RED (LHS)	GREEN	8
GREEN/YELLOW (RHS)	GREEN	8
BLACK (join to Sidelamp)	BLACK	2
Sidelamp RED/YELLOW	YELLOW	10
BLACK (join to indicator)		

IGNORE terminals 1,3,6 and 3 pin Jimny headlamp lift loom

Terminals viewed from back of headlamp use 2mm spade connects

1 2 3 4 5

6 7 8 9 10

SCREEN WASH

Keep front washer, loom colours b/bl and b (or y/b on later Jimny) remove rear screen washer pump and fit 17mm plastic plug

REAR LAMP

MAIN LOOM	LAMP LOOM
Side RED/YELLOW	RED
Earth BLACK	BLACK
Rear fog GREEN /BLACK	GREEN (take green from drivers side to passenger side lamp)
Indicator GREEN/RED (LHS) GREEN/YELLOW (RHS)	YELLOW YELLOW
Reverse RED	WHITE (take white from passenger side to drivers side lamp)
Brake GREEN/WHITE	BLUE