Safety Features, Inc.

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Retract-A-Trike ™

USER GUIDE
AND
INSTALLATION INSTRUCTIONS
FOR HONDA GL1500

GHOST WHEELS
RETRACT-A-TRIKE

1-888-452-2552 651-462-2552

Retract-A-Trike ™

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Safety Features, Inc.

Retract-A-Trike™

Users Guide

1. Introduction

A. Before operating or demonstrating your new **Retract-A-Trike™** please read these instructions in their entirety.

B. The **Retract-A-Trike™** Electronics package is designed to allow the operator to have complete, but safe control over the action of **Retract-A-Trike™**

The safety circuit is designed to sound an alarm and flash a wheel position light if the control switch position in relation to the wheel position is different. The operation of the control device requires the motorcycle to be in motion, either forward or backward in order for wheel activation. The set point for this activation is above 0 mph (slightest front wheel movement) for the wheels to go up and below 18 mph for the wheels to come down.

2. Operation

A. With the motorcycle key in the off or accessory position, the electronic control box does **not receive any power.**

B. The electronic control box **only receives power** when the **key is in the ignition position.**

C. As **an added safety precaution and before** turning the ignition switch on, always make sure the switch is in the same position as the wheels **(wheels down - switch down-, wheels up-switch up).**

D. When you hear the **alarm** and/or, see the **flashing wheel position lights,** you must determine the wheel position and correct the switch position accordingly.

E. The safety controller reads magnetic wheel pulses from the factory-installed electronics. These magnetic wheel pulses are used by the motorcycle to sense speed and use this information in various functions including **Retract-A-Trike™.**

F. In order to activate **Retract-A-Trike™** only a slight movement of the motorcycle, in either direction is needed. This feature is also used as a safety measure to prevent the wheels from coming down above approximately 18 MPH.

G. If the switch is in the wrong position, the **audible** and light warning signals are continuous and can only be **deactivated** by performing one of the following actions.

1. Move the control switch to the correct position (to match the wheel position).
2. Reduce the speed of the motorcycle below the set point approximately18mph).

IMPORTANT NOTE:

If the motorcycle is traveling above the set speed (18 mph) with the wheels up, and the control switch is moved to the wheels down position, the alarm will sound and the lights will flash until the control switch is either moved to match the wheel position, or the speed of the motorcycle is reduced below the set speed, which is approximately 18 mph. If you allow the motorcycle to slow down through this set speed, the wheels will come down.
Safety features inc. Does NOT recommend using the Retract-A-Trike[tm] in this automatic mode.

H. If the operator accelerates from a stop with the control switch in the down position, and the wheels down, the **red light** will remain on (but not flashing). As the bike accelerates the driver should raise the wheels by switching the control switch to the up position. If the operator intends to go faster than the safety set speed of 18 MPH with the wheels down the red light will remain on **and there will be a continuing warning alarm.** As the motorcycle's speed exceeds the safety set speed of 18 MPH, **the bike will become difficult to control.** The operator should either raise the wheels or slow to a safe speed well below the safety set speed of 18 MPH.

I. If you just want the wheels to be activated (either up or down) while the bike remains stopped, do the following: (a) Straddle the bike with both feet firmly on the ground. (b) Turn on the ignition and start the bike. (c) Put the control switch in the up position. (d) Put the bike in gear and slowly move either forward or backword, Retract-A-Trike [TM] will respond and the wheels will come up or go down accordingly.

J. The same wheel pulse that will cause **Retract-A-Trike[TM]** to come up, will also not allow the wheels to come down above the safety set speed. This is only approximate because of several factors, including the accuracy of your speedometer. However, **the safety set speed will remain constant for your bike.**

K. If the bike is parked with the wheels down and the ignition off but the switch is up, as soon as the ignition is turned on, **the alarm will sound and the lights will flash until the switch is placed in the down position.** In this mode and as long as the alarm is sounding, the system is locked out and nothing will operate until the switch position agrees with the wheel position, except the situation as explained on page 2 in the **IMPORTANT NOTE.**

3. Safety

A. The new owner/owners should practice using **Retract-A-Trike[TM]** for several hours in a very safe location **such as an empty shopping mall parking lot,** before using **Retract-A-Trike[TM]** in an actual road situation. Each individual is different, but the most important task is to learn that when the wheels are down, **you must steer the bike.** The bike will always lean and **move to the low side** and try to control you. You must **steer** it to where you want it to go. You control the bike.
B. In contrast to "A" above, when you flip the switch for the wheels to come up, **you are now in control** of the bike and balance is important, especially if you are leaning because of the road surface. In this case you must gain control of your balance as soon as the wheels clear the ground.

NOTE:
At first you should use the **Retract-A-Trike[TM]** wheels as much as you can. The more you use them the more confidence you will have, and the easier it will be for you to negotiate different road conditions.
C. If you use **Retract-A-Trike[TM]** as a kickstand, or a center stand, make sure that both of the wheels are down and in the mechanically locked position. If not, the hydraulics will bleed back to the up position **and the bike will slowly tip to the side.**

D. **Warning** Operating **Retract-A-Trike™** with the wheels in the down position at a speed over the safety set speed of 18 MPH is **extremely dangerous.** Doing so **will void any warranty expressed or implied.**

E. The slightest movement of the front wheel can cause an impulse reading and the **Retract-A-Trike™** wheels will move in the direction of the control switch.

NOTE:

If you plan to demonstrate the **Retract-A-Trike™** features, make sure you straddle the bike and have the kick stand down.

4. Setting Up Your Suspension

A. The **Retract-A-Trike™** wheels will always be off the ground without the weight of a rider. They are designed for "0" pressure in the shock and for an individual weighing about 160 pounds. With such an individual sitting on the bike, the wheels should touch the ground. The **Retract-A-Trike™** system is not designed to pick up your 900-pound Goldwing and its passengers. Therefore, the pressure in the shock must be adjusted for driver, passenger and any additional loads i.e. trailers, saddlebag contents etc.

B. To adjust the pressure in your shock, the **Retract-A-Trike™** wheels should be down, with the bike on level surface, and driver's feet should be on the ground. Leaving your feet on the ground, put the bike into first gear and put as much of your weight as possible on the bike without losing control. Now, put the switch in the up position and slowly release the clutch to move the bike slowly forward. This movement will cause the wheels to come up. If the bike drops down dramatically as the wheels clear the ground, because of your weight, you must increase the pressure and re-test until the bike only drops slightly. Once adjusted with your weight put the bike on the kick stand and get off. Now check to see what the shock setting is with just the weight of the bike. (Without your weight). This allows you to set the shock without too much trouble each time. You will need to adjust the shock system each time the load changes.

C. To adjust the shock to include a passenger and other added loads. Place the driver, passenger and added load on the bike and adjust by repeating step B.

With the wheels down, your Retract-A-Trike™ is designed to stabilize the bike at slow speeds. If not adjusted properly for the weight of the riders and the additional load the bike will either drop **(too little pressure in shock)** and force the hydraulic system to labor in trying to pick up the bike, load and riders, or it will rock from side to side **(too much pressure in shock),** which means the bike is not stable.

D. If the shock is not adjusted properly, it will cause the hydraulic pump to overheat and time out the circuit board. This will shut the whole system down. If this happens turn the bike off wait a few seconds and turn it back on. Re-adjust the shock for the additional weight (see Step 4 B&C. above)

5. Emergency Operation

A. The **Retract-A-Trike™** control box is located in the trunk. It is equipped with two led's, one is steady and indicates power is getting to the circuit board. The other flashes a slow steady flash that indicates everything is normal. If the led flashes faster or has a pattern, that indicates something is wrong. The quicker flash means the system timed out, either due to the micro switches out of adjustment or something was keeping the wheels form going down all the way. If it times out then turn the bike off and wait a little, then turn it back on and it should be fine.

B. If the flash has a pattern, two quick and a pause, there is something wrong such as a short or a bad component. This would require some investigation to track down the problem. Turn the bike off and wait a little and turn it back on and see if the problem reoccurs. If it does contact **Safety Features, Inc.**

C. In case the **Retract-A-Trike™** wheels cannot be raised or lowered by using the control switch, it is possible to bypass the entire system by connecting power to the square four prong plug in the right saddlebag. You will need a power and ground wire. The brown and white wire controls opening the solenoid valve, it doesn't matter which is power or ground. The green and yellow wires control the pump, the polarity controls whether the pump raises or lowers the wheels. Power to yellow and ground to green should raise the wheels. If you use this method to raise the wheels remember the pump will run as long as you apply power. Once the wheels are up disconnect the power before damaging the pump. With the wheels in the up position - make sure they are above the lean angle before driving.

D. If the wheels fail in the down position and can not be moved, perform the following procedure.

1 First turn the bike off, wait, then turn it back on. If it still doesn't work then continue with the following steps.

2 Put the kick stand down, or put the bike on the center stand. The center stand is the preferred method. When using the kick stand, make sure the bike will come to rest on the kick stand (when the wheels go up) before performing the next steps.

3 Open the right saddlebag and disconnect the square 4-pin connector. The solenoid assembly is the piece with the wires going to the solenoid and to the pump. We are going to bypass the main harness and put power to the solenoid assembly. On the square connector for the solenoid assembly, the female pin is the white wire, the opposite corner is the brown wire. These two wires control the solenoid valve. Power to these two wires will open the solenoid valve. The polarity doesn't matter. The two wires left are the yellow and green, these wires control the pump.

4 If you can get a square trailer connector, you can make an emergency cable. Connect the white and green together, then connect the brown and yellow together. Connect a long wire (long enough to get to power, either battery or aux power) to each end of combined wires. You will end up with a four wire into two wire configuration. If you connect to an aux. plug you will have to put a couple of torpedo plugs in to be able to reverse the polarity. If you can't find a square connector you will have to rig up something that will provide power to two of the pins and ground to the other two pins at the same time.

5 Before doing the next step close the saddlebag. The wheels coming up will scratch the saddlebag.

6 Touch one wire to ground, touch the other wire to a 12 volt power source. If the pump runs but wheels don't move reverse the wires. This method bypasses the wiring harness and control box, so don't leave the power connected any longer than is necessary.

7 If the pump doesn't run, then check your wires and make sure there is power. If everything checks out ok then the pump may be bad.

8 You may now operate your bike without the **Retract-A-Trike™** feature.

F. If the wheels fail in the up position and you wish to get them down, follow the above procedure if you can get into the saddlebag, except in this case you touch the opposite wires until the wheels are in the down and locked position. See warning on the next page!

WARNING:

DO NOT OPERATE THE MOTORCYCLE AT SPEEDS ABOVE 18 MPH OR TRAVEL FOR LONG DISTANCES WITH THE WHEELS IN THE DOWN POSITION.

6. Riding

Learning To Ride With Your New Retract-A-Trike™

1. Start out by getting used to riding with the **Retract-A-Trike™** wheels in a down position. By doing this you will become accustomed to the positive steer you will experience when going from a two wheel (wheels up) ride to a trike (wheels down) ride.

2. Never raise the wheels in a corner! The bike will swerve uncontrollably due to the change in equilibrium.

3. Keep **plenty of room** between you and the traffic ahead, to allow time for the **Retract-A-Trike™** wheels to come down in case the traffic comes to a sudden stop.

4. When you are waiting for a traffic signal or stopping for a stop sign, and you are planning to make a turn, start moving and bring the **Retract-A-Trike™** wheels up as soon as you have **balance** and **before** you make your turn (just like raising your foot). Never raise the wheels in a corner!

5. We recommend not using the **Retract-A-Trike™** wheels over 10 MPH unless you are in heavy, slow moving traffic and on a straight and level road. We use them instead of our feet, we like to minimize the time the bike is in trike mode.

6. If you have stopped on a road with a large crown, with **wheels down),** it is best to ride on the **Retract-A-Trike™** wheels until you get to a level place before raising them.

7. If the motorcycle is leaning to the right or left when the **Retract-A-Trike™** wheels are down and you are moving, when you raise them up the motorcycle will automatically go toward the low side for a short distance, until you regain balance.

7. When you put the **Retract-A-Trike™** wheels down on a crowned road, the motorcycle will go toward the low side as soon as they touch the ground. You will have to steer like a trike to stay on the road. You are in control of where you go. When the wheels are down leaning will not work, the handlebars must be turned. You must steer as you would steer a trike.

AT THIS POINT YOU MUST GO FROM A BALANCED RIDE TO A POSITIVE STEER RIDE LIKE RIDING A THREE WHEELER THUS MAKING PRACTICE IN THE WHEELS DOWN POSITION VERY IMPORTANT.

You are always in control of your bike, it will go where you allow it to go.

The **Retract-A-Trike™** is designed to be used on smooth surfaces including off road surfaces such as fairgrounds and parking lots. If the surface is uneven, just **slow down** until you feel comfortable. The **Retract-A-Trike™** will withstand a variety of surfaces at slow speeds. You must be the judge.

Practice builds confidence so the more you practice the quicker you will be riding with Retract-A-TrikeTM and enjoying all the convenience and stability it was designed for.

Remember, if your Gold Wing has a reverse, the Retract-A-TrikeTM is great for backing into a parking spot or into your garage. You will never need to put you foot down from the time you leave home until you return.

General Maintenance

There are three major components to the **Retract-A-Trike™** system: Hardware, Electrical and Hydraulics. The primary goal in the development of **Retract-A-Trike™** was to have it maintenance free. However, in any system with moving parts, it is always prudent to lubricate periodically. The suggestions below will optimize your system.

HARDWARE

The hardware has self lubricating bearings all in high stress and wear areas, but you may lubricate these areas at three month intervals. The wheels have sealed bearings; however, we recommend that the shafts be greased periodically. The 4-ply tires should be maintained at approximately 35-40 PSI.

ELECTRICAL

The electrical components and interconnects are moisture sealed and require no maintenance. Check periodically to make sure the connections are solid and not rubbing or fraying.

HYDRAULIC

The hydraulic system is a self contained closed system and should not require any maintenance. In the unlikely event that you notice any fluid leakage from the pump, solenoid, cylinders or other connections, we ask that you call **Safety Features. Inc**. on the toll free number.

REAR WHEEL REMOVAL

The cage that holds the hydraulic cylinders which activates your Retract-A-Trike™ is located in such a way that it will interfere with the normal rear wheel removal as described in your Honda Owners Manual. Please follow the change in procedure, as described below, which will allow for easy wheel removal.
Follow the procedure as described in your manual up to the point where you have rotated the muffler out of the way of the wheel shaft. At this point you will not be able to remove the wheel shaft as suggested in your manual until you perform the following.

1. Place a brace under the rear wheel to support it during the next step so it won't drop suddenly.
2. Remove the bolts at the bottom of each of the two shocks.
3. Carefully remove the brace that you placed under the wheel and lower the wheel assembly until the wheel shaft clears the hydraulic cylinder cage.

You may now return to your manual instructions to complete the wheel removal.
To re-install the wheel, simply reverse the above procedure.

Installation Instructions

Step 1 Motorcycle Preparation

If required refer to the appropriate Honda manual for the following instructions.

1. Position motorcycle on its center stand.
2. Clean all areas that have bolts that will be removed to prevent dirt from getting into threaded bolt holes.
3. Remove or loosen the following parts

- Seat
- Passenger Footrests
- Chrome crash bars
- Rear Side Covers (left and right)
- Footrest Holder Covers (left and right)
- Chamber Protectors (left and right)
- Left Fairing Pocket
- Trunk Lower Cover
- Loosen Saddle Bags (left and right) do not need to remove
- Rear Fender Cover
  - It is necessary to remove the light panel on each side of the rear fender cover before the rear fender cover can be removed. Slide or remove the chrome piece at the joints in order to access the screw (4 total).
- **Disconnect The Positive (+) Terminal Of The Battery.**

A low battery may burn out the control box, check the battery and charge if necessary so it's ready to go when installation is complete.

Control box failure due to low battery voltage is not covered under the warranty.

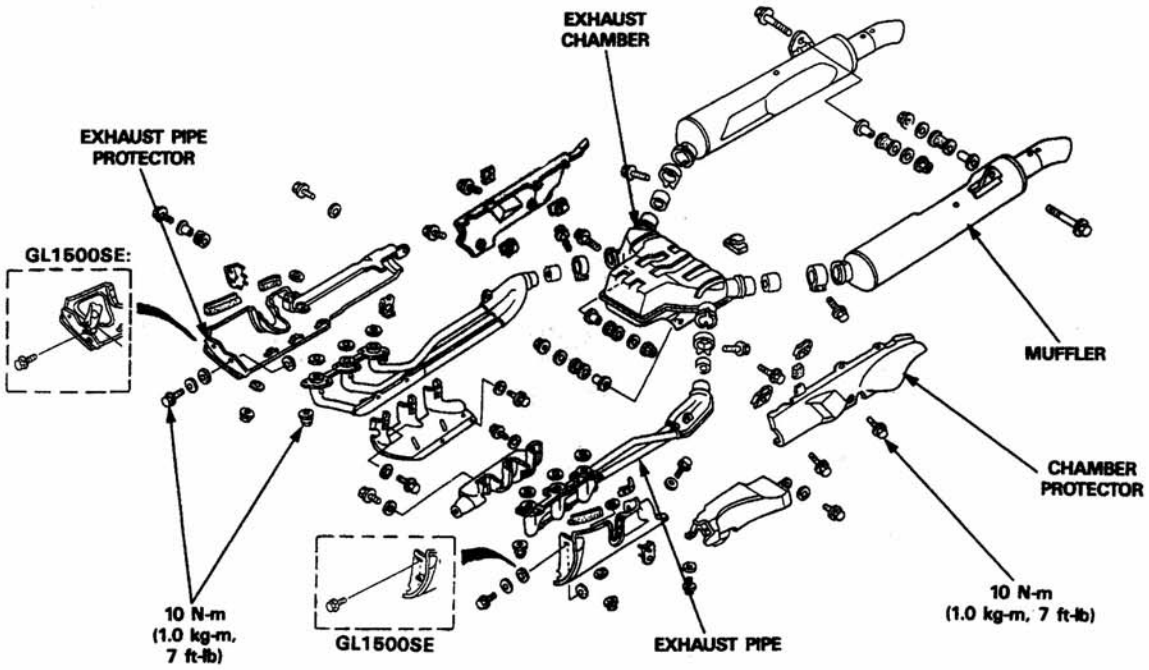
See following pages for body panel locations, these pages are from the Honda Service Manual, not all figures are included only the figures that might be used for the Retract-A-Trike installation.

Not all figures are used for the installation.

Do not remove anything unless told to do so in the instructions.

Cylinder Head/Exhaust System

Exhaust Pipe/Muffler

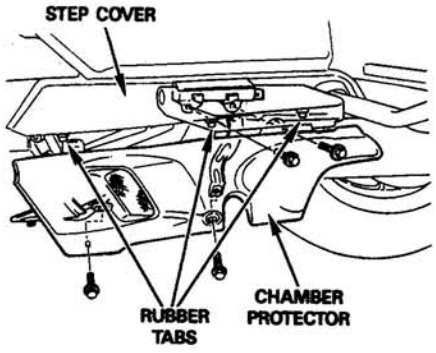


Chamber Protector

Remove the two step cover bolts.

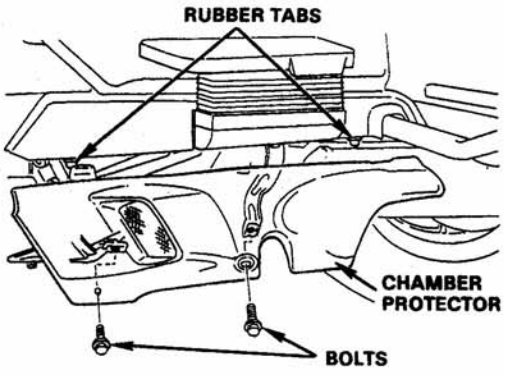
Remove the step cover by releasing its rubber tabs from the chamber protector holes.

Remove two bolts and chamber protector.



GL1500SE:

Remove the two bolts, release the rubber tabs and remove the chamber protector.



Exhaust Pipe Protectors

A model:

Remove the fairing front cover and the under cover (see page 13-11).

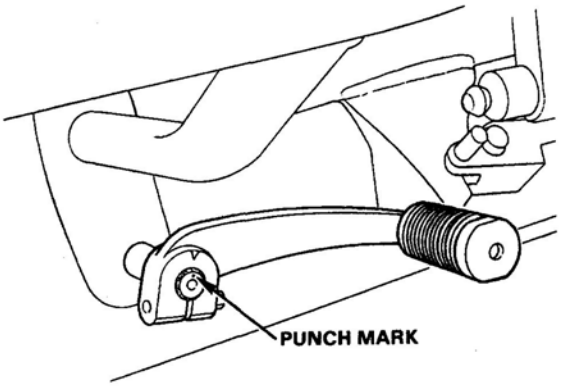
Remove the chamber protector (page 7-28).

Left Side – Front:

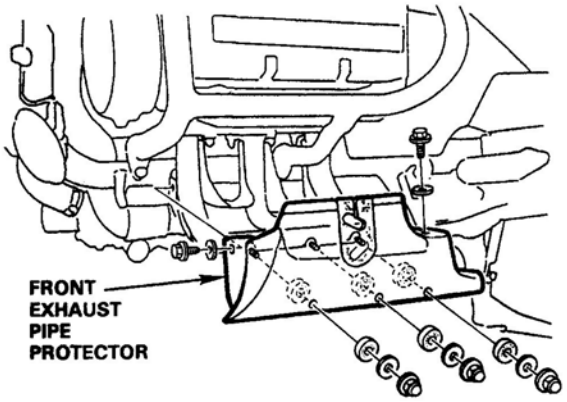
Remove the gearshift pedal.

NOTE

- When installing the gearshift pedal, align the pedal slot with the punch mark on the gearshift shaft.



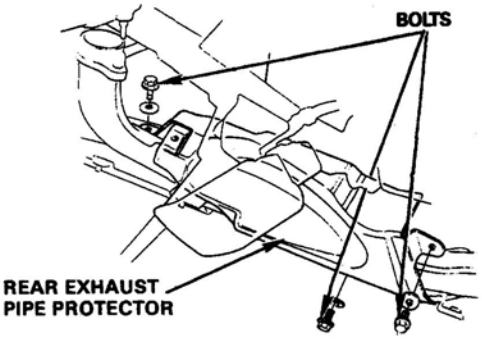
Remove two bolts and three nuts and the front exhaust pipe protector.



Left Side – Rear:

Remove the exhaust pipe (see page 7-32).

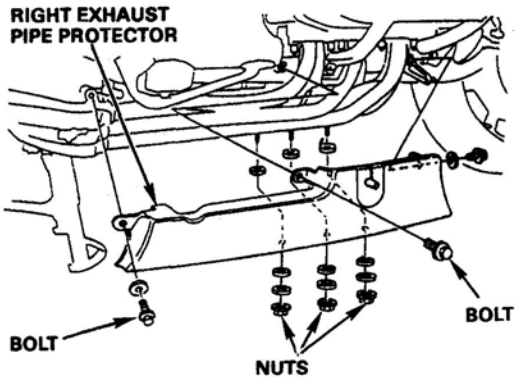
Remove three bolts and the rear exhaust pipe protector.



Right Side:

Remove the chamber protector (page 7-28).

Remove three bolts and nuts and the right exhaust pipe protector.



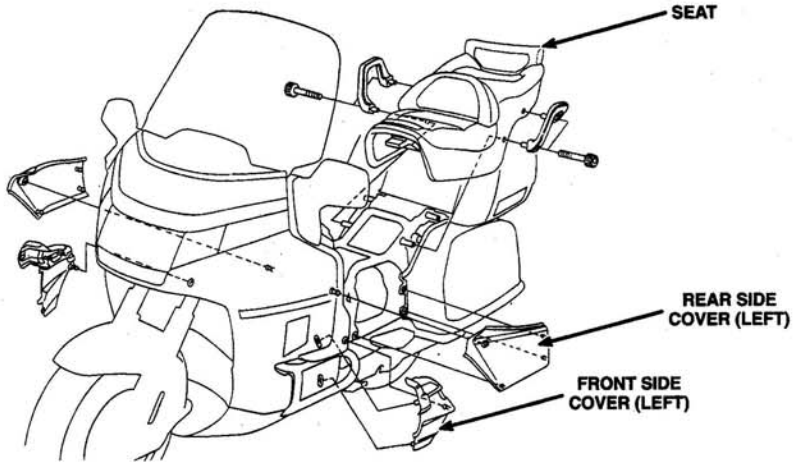
Fairing/Body Components

Fairing

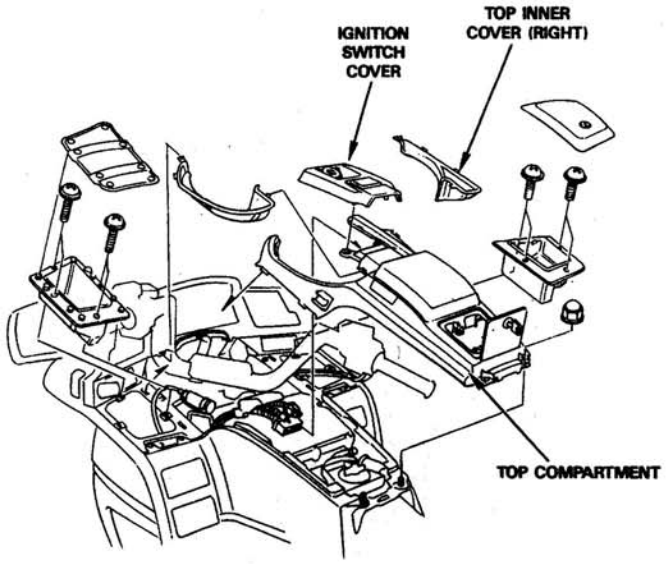
NOTE

- Remove the fairing following steps 1 through 4. For detailed instructions, see pages 13-8 through 13-12.

Step 1:



Step 2:



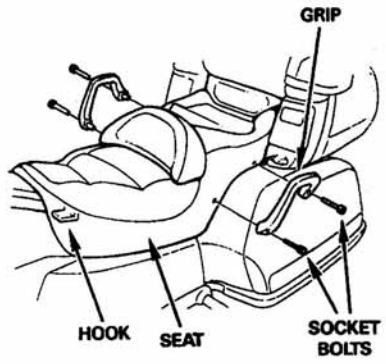
Fairing/Body Components

Fairing (cont'd)

Seat

Remove the four bolt caps, socket bolts, and grips.

Lift up on the rear of the seat to release the hook from under the top compartment bracket. Remove the seat.

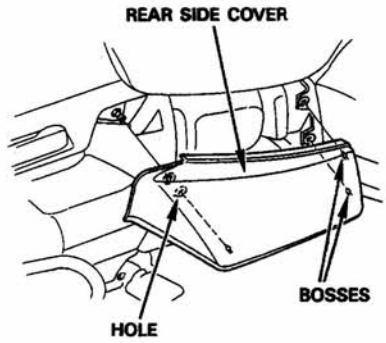


Rear Side Cover

Release the cover's three bosses from the three rubber holes on the frame.

Free the rubber hole from the top compartment bracket bolt.

Remove the rear side cover.

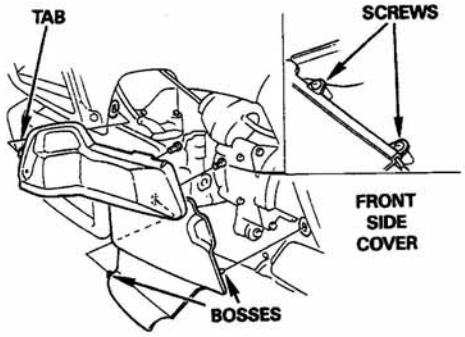


Front Side Cover

Release the cover's two bosses from the frame rubber holes. Release the cover front tab from the fairing inner cover groove.

Remove the front side cover.

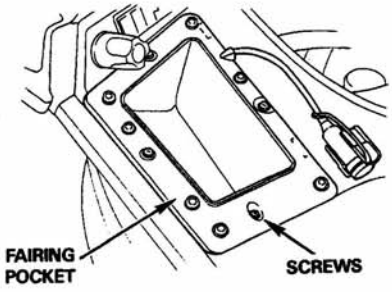
Remove two screws and separate the cover.



Left Fairing Pocket

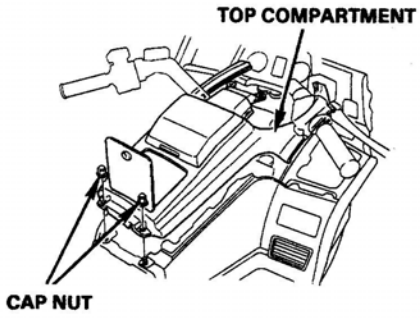
Remove four screws.

Remove the left fairing pocket.

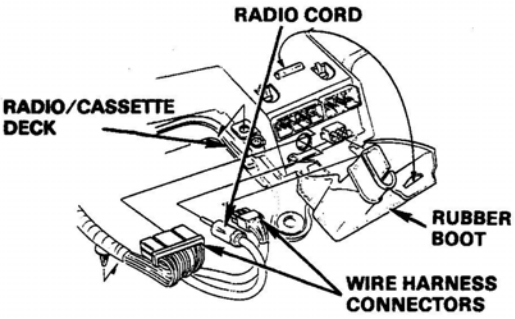


Fairing (cont'd)

Remove the cap nuts and top compartment.

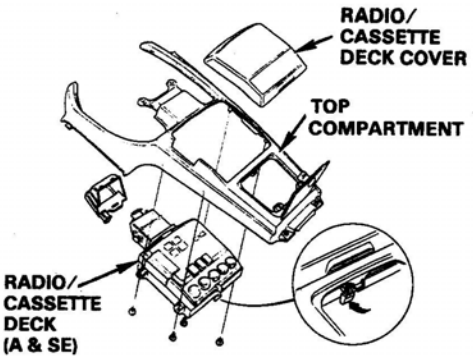


Pull the rubber boot back enough to allow disconnecting the radio/cassette deck wire harness connectors and radio cord from the radio/cassette deck.



Push the lever and remove the radio/cassette deck cover from the top compartment.

Remove the four screws and radio/cassette deck from the top compartment.

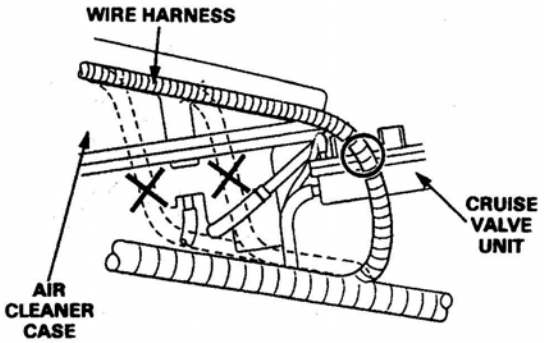


CAUTION

- **Route the radio/cassette deck wire harness properly as shown.**

⚠ WARNING

- **Do not block the air inlet hole during installation, or the cruise control will not disengage.**



Fairing/Body Components

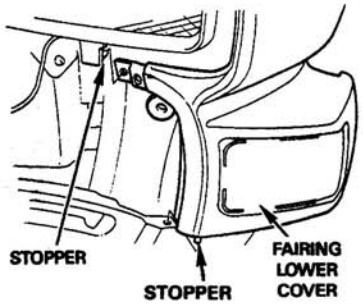
Fairing (cont'd)

Fairing Lower Cover

Remove the fairing front cover (see page 13-11).

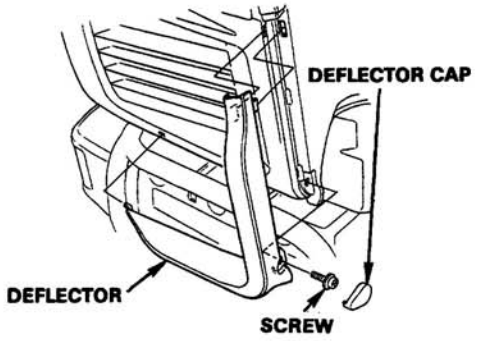
Release the stopper of the cover from the under cover hole.

Release the stopper of the radiator shroud from the cover hole.



Remove the deflector cap.

Remove the screw and deflector.

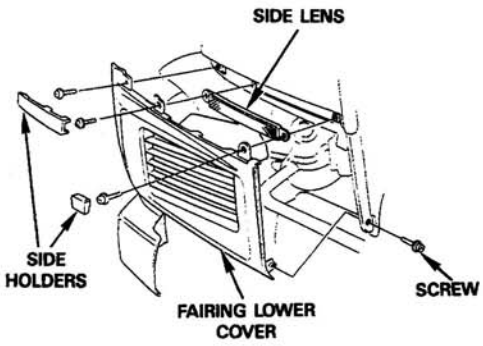


Remove the side holders.

Remove three screws, the fairing lower cover, and the side lens.

SE:

- Disconnect the cornering light wire connector.



Fairing Inner Covers

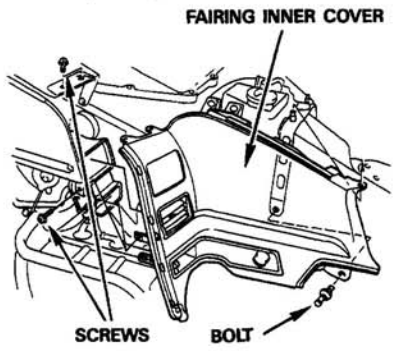
Remove the following:

- seat (see page 13-8).
- fairing pockets (see pages 13-8, 9).
- ignition switch cover (see page 13-9).
- top inner covers (see page 13-9).
- top compartment (see page 13-9).
- fairing lower cover (see above).
- reverse lever, to allow removal of left fairing inner cover (see page 18-30).

SE only: Disconnect the CB transceiver connector and ground wire connector to allow removal of the left fairing inner cover.

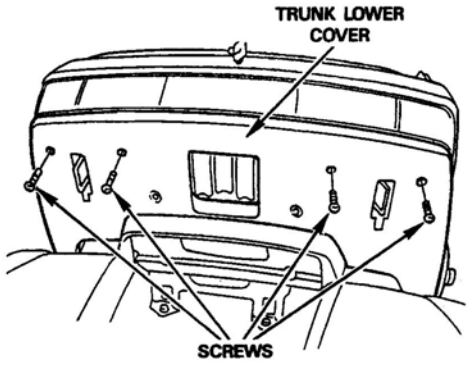
Remove three screws and one bolt. Remove the fairing inner cover.

Torque: Special bolt 10 N-m (1.0 kg-m, 7 ft-lb)



Trunk Lower Cover

Remove four screws as shown.

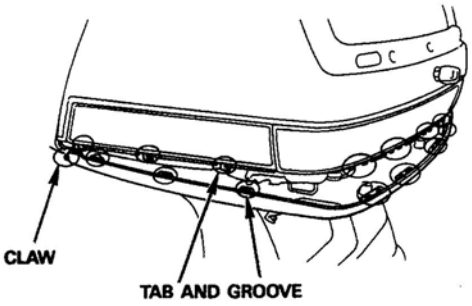


Release the cover grooves from the trunk tabs.

Remove the trunk lower cover.

NOTE

- When installing the trunk lower cover, install the front claw of the cover into the trunk first, then align the trunk tabs with the lower cover grooves securely.

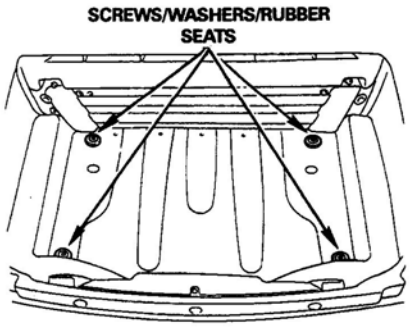


Trunk

A model:

Remove the trunk lower cover (above).

Open the saddlebags and disconnect the opener cables from the cable stoppers (see page 13-16).



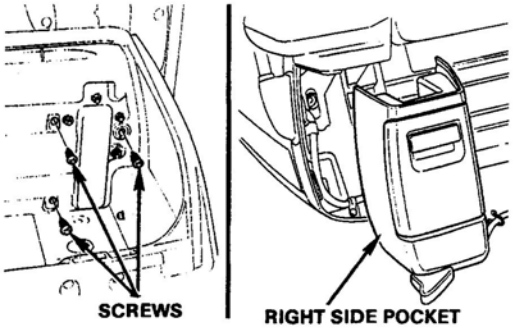
SE model:

Remove the trunk lower cover (see above).

Remove the seat (see page 13-8).

Open the trunk lid.

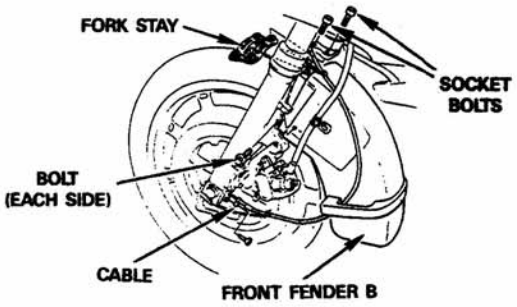
Remove the three screws and the right side pocket from the trunk.



Disconnect the speedometer cable.

Remove two socket bolts and flange bolts.

Remove front fender B and the fork stay.

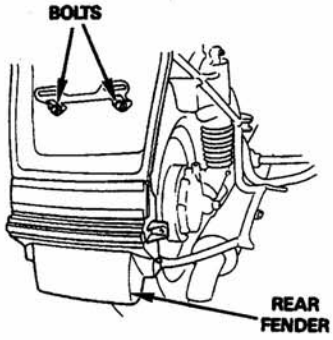


Rear Fender

Remove the following:

- trunk (see page 13-15).
- saddlebags (see page 13-17).

Remove the bolts and rear fender A.

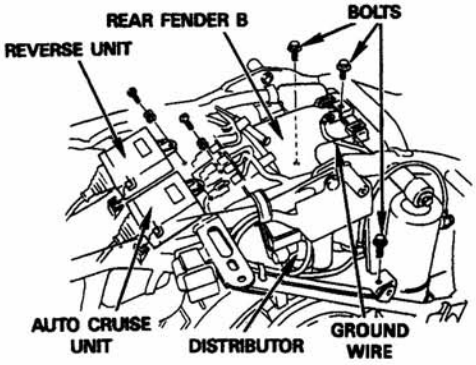


Remove the screws. Remove the reverse control unit and auto cruise control unit from rear fender B by releasing the unit tabs from the fender grooves.

Release the air distributor from rear fender B without disconnecting the air hose (see page 12-33).

Remove the upper bolt and disconnect the ground wire from the frame.

Remove two bolts and rear fender B.



Fairing/Body Components

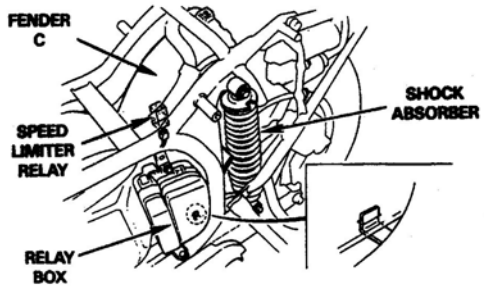
Rear Fender (cont'd)

Remove the following:

- left shock absorber (see page 12-20).
- relay and fuse box (by removing two bolts).
- speed limiter relay.

Release the frame tab from the rear fender C groove.

Remove rear fender C.



Adjustable Passenger Footrests (SE only)

Footrest

Remove the front side cover (see page 13-8).

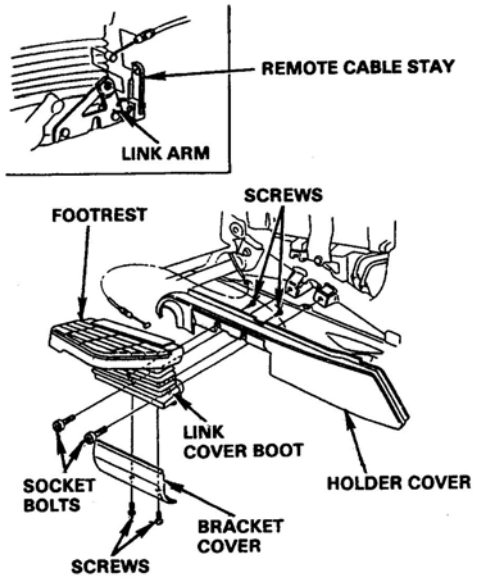
Remove the two screws and the footrest bracket cover.

Slide the link cover boot upward, and remove the two socket bolts, footrest and step holder cover assembly.

Remove the screws and holder cover.

Remove the footrest remote cable from the stay and disconnect the cable from the link arm.

Install the removed parts in the reverse order of removal and check the operation of the adjustable footrests.



Step 2 Mount Left Side Assembly

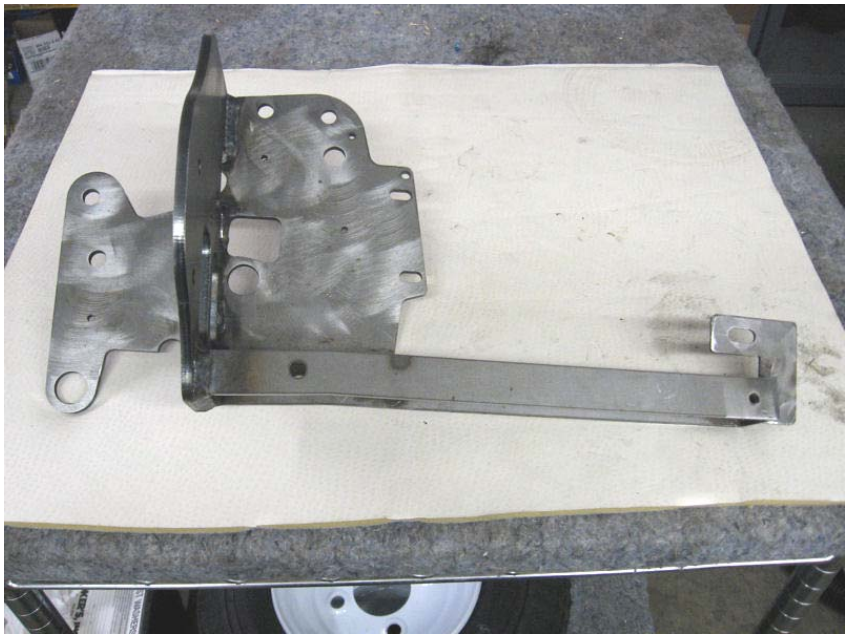
Frame Plate Installation

Parts required:

(2) Frame plates- right hand side and left hand side. See picture below.
(4) U bolt clamps w/nuts
(4) Plastic Support spacers
(4) sub-frame clamps
(4) ¼ -20 x 5/8 hex hd cap screw
(8) ¼ -20 nylock nuts
(8) ¼ flat washers

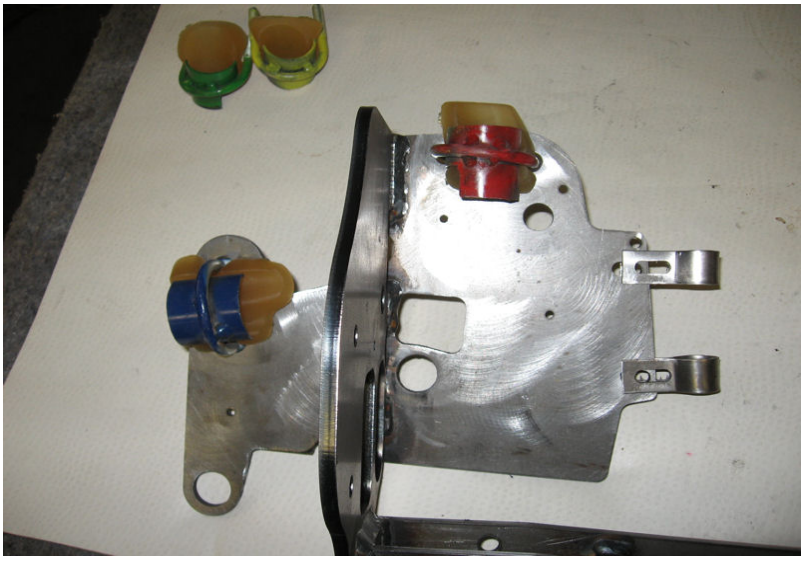
Note: The terms nearside and farside are used in many parts of these installation instructions. **Nearside** refers to the work surface facing the installer. **Farside** is the area behind the work surface facing the installer. For example if you are to insert a bolt into a hole from the farside, you will need to reach around the area facing you and insert the bolt into a hole from behind.

The following procedure describes installation of the left side frame plate. All steps must be repeated for the right side frame plate.



CAUTION: All bolts should be started with fingers. The bolts are of stainless steel and the bike frame is steel. This condition makes it easy to cross-thread a hole.

NOTE: Be sure to clean any dirt or paint from the threads in the frame before inserting the bolts.



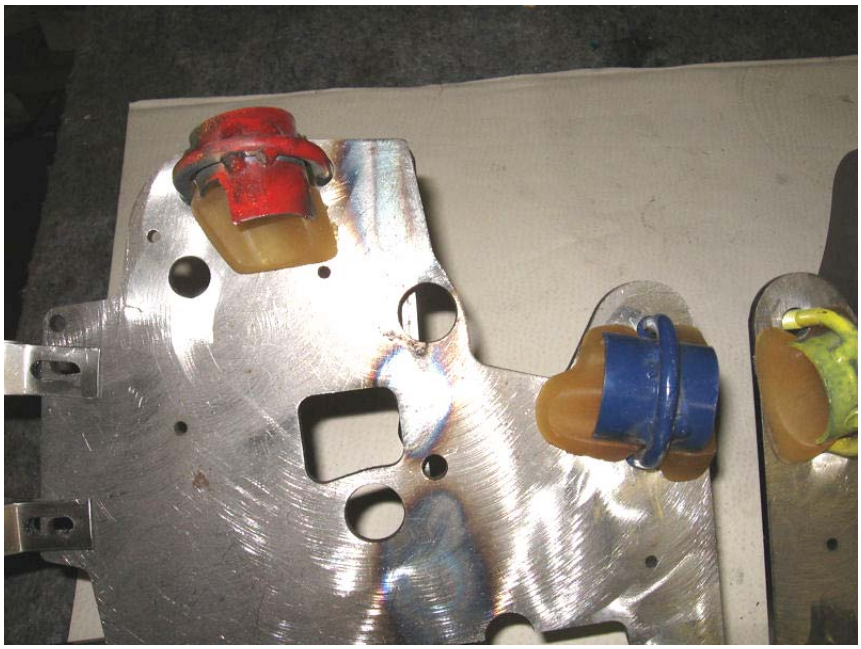
1. The picture above shows the location of the bolting points for the left side frame plate. Note the u-bolt clamps are shown nearside for information but will be on the farside when installed, only the nuts will show from the nearside. The u-bolt clamps clamp around the bike frame itself. The sub-frame clamps are the two pieces on the right side of the frame plate. The u-bolt clamps no longer have the metal around them as shown above, so the u-bolts are all the same.
2. The u-bolt clamps will be used with the plastic spacers according to the following chart:

Blue	Left Front
Red	Left Rear
Yellow	Right Front
Green	Right Rear

The plastic spacers have the color written in marker.

3. Hold the frame plate up to the bike frame and note where the u-bolt clamps will go. Place the u-bolts around the frame so the threads are towards you. Slide the matching plastic piece over the u-bolt so the flat side is facing out.
4. Remove the bolt going through the saddlebag frame into the muffler bracket (see picture below) and insert the original bolt through the hydraulic cylinder frame mounting bracket and into the muffler frame lug. With some adjustment this should align properly. Finger tighten, do not wrench tighten yet.

5. Rotate the assembly up and insert the u-bolts through the plate. Put the nuts on loosely. The picture below shows the u-bolt clamps from the farside. Note, the u-bolts aren't colored on the newer units, the color refers to the plastic spacers.



6. Install the sub-frame clamps.
7. Check how everything fits together, the plastic pieces should fit flat against the plate, the grooves in the plastic pieces should follow the frame,
8. Tighten the sub-frame clamps, tighten the forward u-bolt clamp, tighten the upper u-bolt clamp. Check the alignment of the hydraulic cylinder frame mounting bracket, if it is too far away from the saddlebag frame bracket, the forward u-bolt clamp might be too tight. The distance from the hydraulic cylinder frame mounting bracket to the saddlebag frame should be less than 1/4". Once the distance is ok then tighten the bolt at the hydraulic cylinder frame mounting bracket.

Step 3 Mount Right Side Assembly

Refer to step 2 for the right side assembly.

Step 4 Install Crossover Bar

Crossover Bar Installation

Parts required:

(1)	cross over bar
(2)	crossover arm linkage (one assembled to crossover bar)
(2)	7/8” flanged plastic bushings (1 per side) (installed at factory)
(2)	linkage links (1 per side)
(4)	Shoulder bolts (2 per side)
(4)	thin nylock nuts (2 per side)
(2)	¼” roll pin

1. Insert the flanged plastic bushing (flange face on the outside) into the 1” hole in the frame plate in the lower front quadrant. Repeat for right side frame plate, (may be installed at the factory).
2. From the right side of motorcycle, insert crossover bar through front 7/8” bushing (step 1) in right side frame plate, under the motorcycle, and into 7/8” bushing of left side frame plate.

   NOTE: The manufacturer installs the exhaust system with some degree of difference in the position of the exhaust manifold. If this causes interference with the insertion of the crossover shaft it will be necessary to lower the manifold. This situation is very rare but possible. The best method is to loosen all of the nuts and bolts that align the exhaust system. There will be a total of ten, 5 per side. First loosen the bolt that holds the manifold in position, one per side. Then the three bolts that hold the extension from the manifold to the muffler, (two at the manifold end and one at the muffler end). Do this on both sides. The last one is at the back of the sub-frame where you connected the hydraulic cylinder frame to the muffler connection. (loosen these on both sides) The next step is to get two wooden wedges approximately 8” long cut at a 30 degree angle. Now with the two 7/8” flange bushings removed, insert the crossover shaft into position as described above. If the manifold interferes merely push down on the front of the muffler and force the shaft through. Using the two wedges, one on each side, insert them between the manifold and the crossover shaft and tap with a hammer until you feel you have sufficient clearance. Before you remove the wedges, tighten all of the nuts and bolts that you loosened above. You may now remove the wedges and the crossover shaft, replace the 7/8” flange bushing and continue with step 2 above.

3. Now install the linkage on the right end of the crossover shaft. Position the linkage on to the shaft as shown in Figure 3 (pg 25) & figure 4 (pg 26) To install the roll pin, you must locate the hole in the shaft through the hole provided in the linkage collar. Use a probe on the opposite side to locate this position and tap the roll pin flush to the collar surface.
4. With the wheel lifting arms in the down and over locked position, align one end of a link with the crossover arm on the bar. You must now determine if the linkage link will be best aligned in the inside or the outside of the actuating link welded on the wheel lifting arm. It is best to check all combinations (both sides) so the final installation of the linkage link is as parallel as possible to the overlock linkage assembly. Now insert a 3/8" x 1/2" Shoulder bolt. Thread a thin nylock nut onto bolt and tighten nut snug to link. (Snug only-do not over tighten)

THE BOLT MUST ROTATE.

9. Align the other end of this link with the synchronizing linkage that you installed in step 4 above and insert a 3/8” x 1/2” shoulder bolt from the outside in. Thread a thin nylock nut onto bolt and tighten nut snug to link. (Snug only do not over tighten)

THE BOLT MUST ROTATE.

10. For left side linkage installation, repeat steps 3 - 5 above, using the second roll pin.

11. With the assembly complete, you must now check both sides for clearance through the main frame. Release both the left & right side overlock positions and SLOWLY move the wheel lifting arms up & down several times to make sure the bolts, nuts and linkage pieces pass un-obstructed WITH ADEQUATE CLEARANCE thru the linkage hole in the arm plate.

The following diagrams show the 1800 mounting plates but the 1500 linkage is the same configuration.

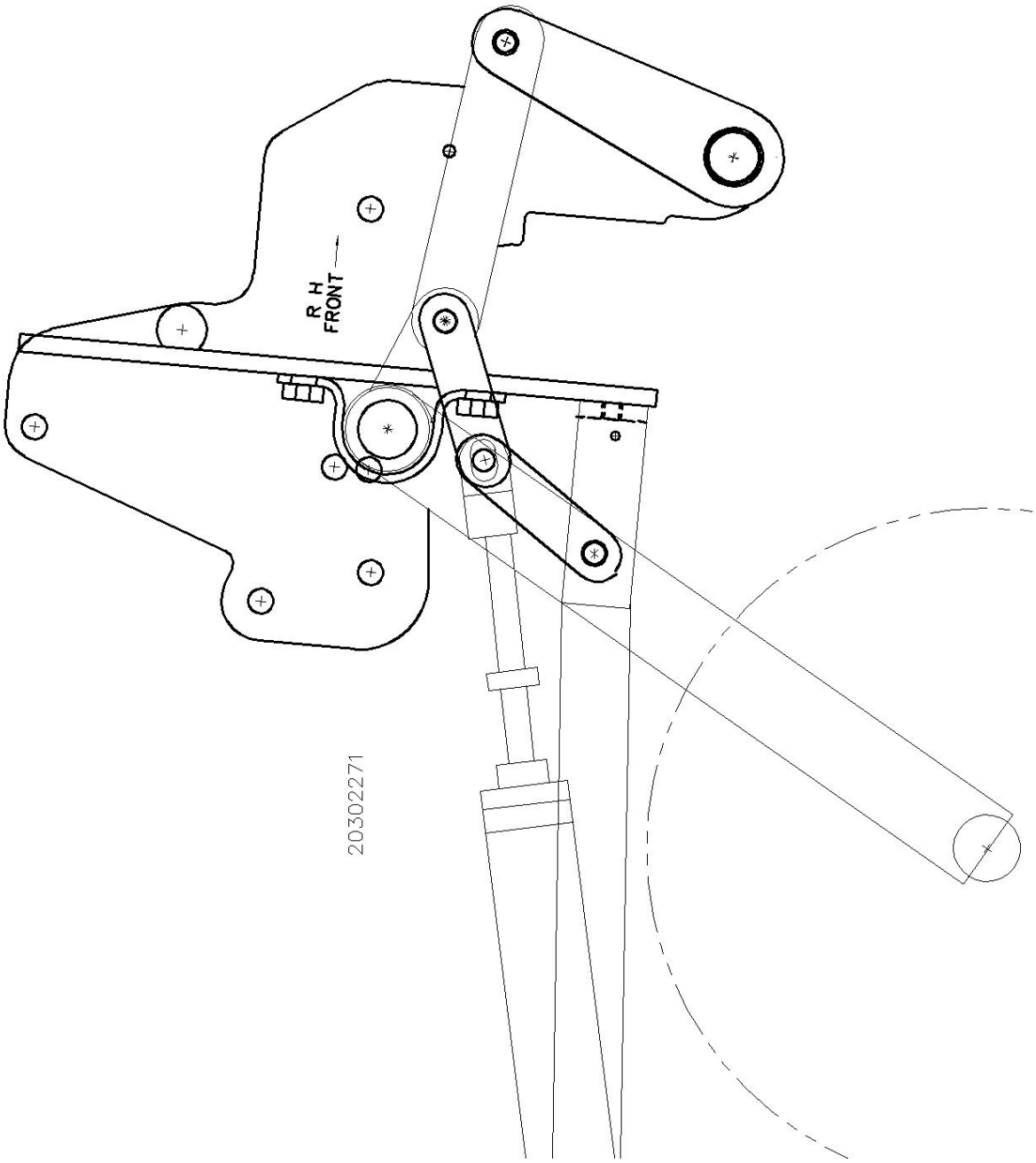


Figure 3

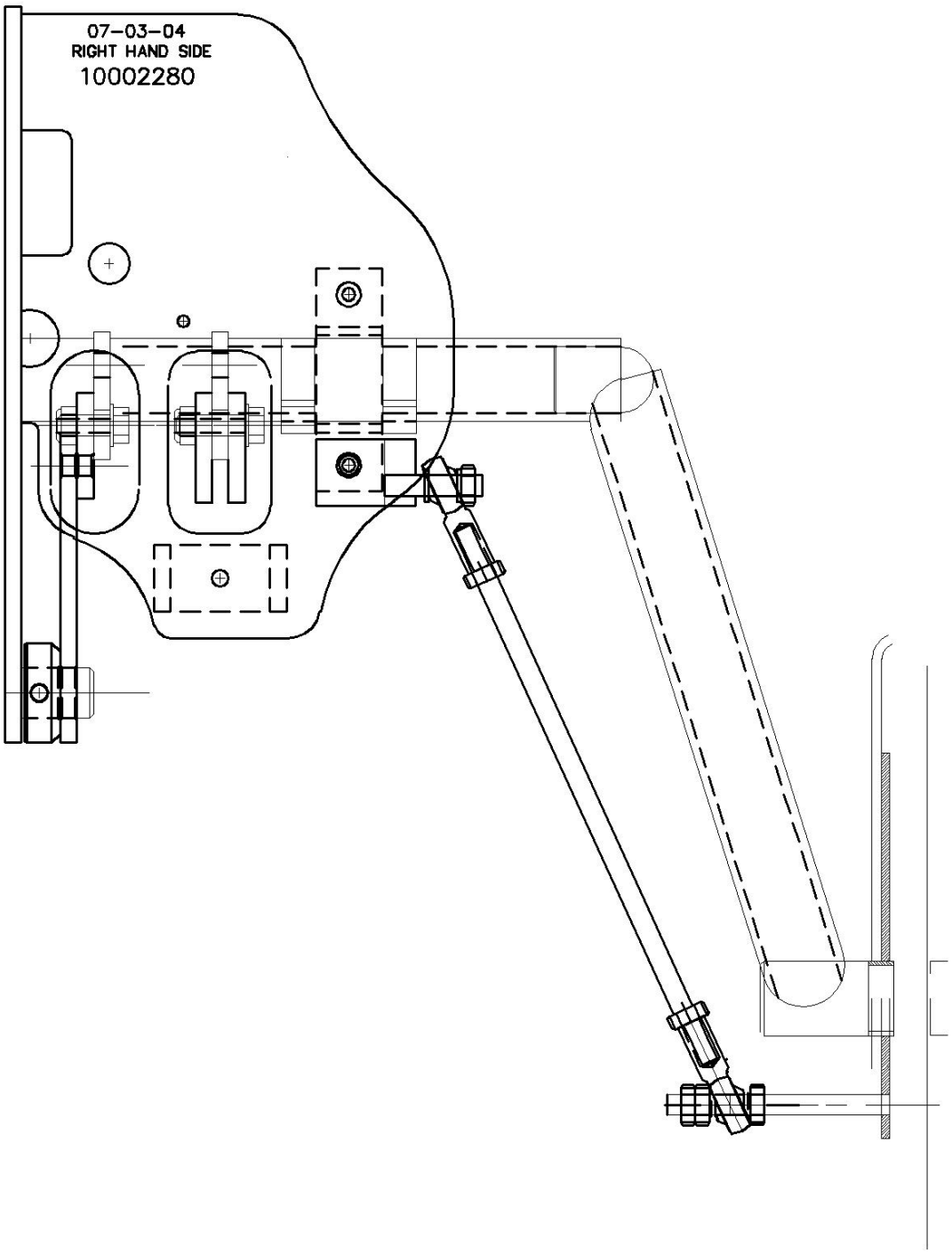


Figure 4

Step 5 Hydraulic Pump/ Motor And Solenoid Valve

Installation in right hand saddlebag
NOTE: Pump motor and solenoid valve are pre assembled at the factory

1. **Drilling Pump/Motor and Solenoid Valve body mounting holes**

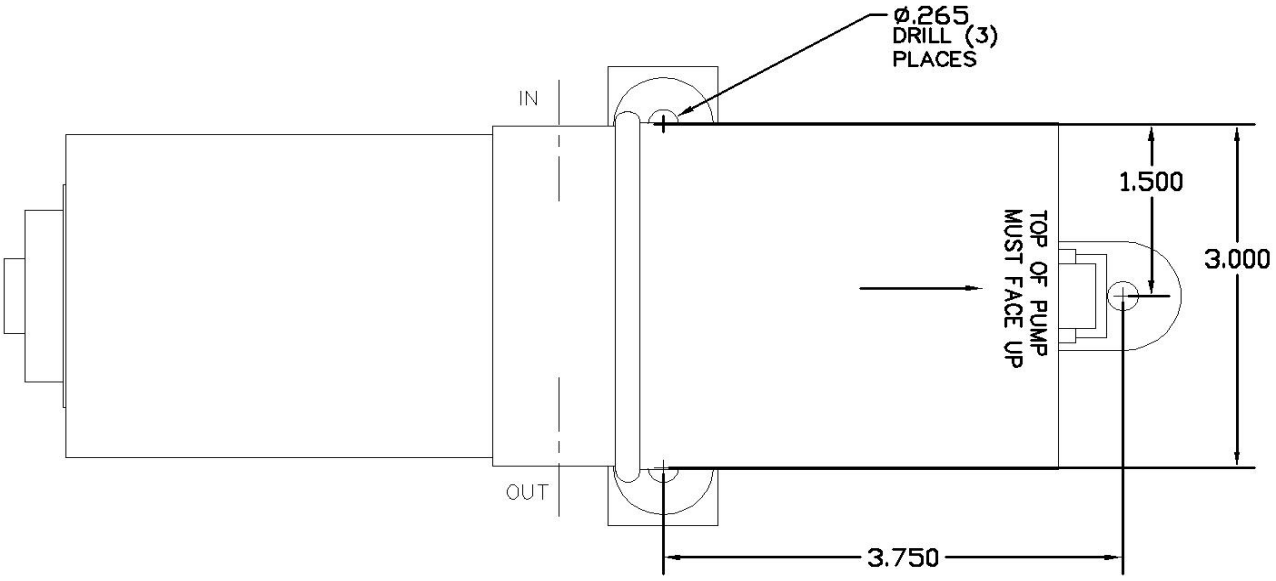
   Use template in the appendix to get a general location (template is actual size). Put the upper hole per the picture below. The solenoid should not rest on the saddlebag. Mark the center of the 3 (17/64") diameter holes with a scriber. Line up locations with the scriber marks and center punch the hole locations, then drill the 3 (17/64") holes. Remove the sharp edges with a small file. See drawing 10002330 (pg. 29) for assembly parts. See drawing 10002331 for mounting hardware.

2. **Pump/Motor and Solenoid Valve hose holes.**

   a. Drill (2) ¾" holes. Remove sharp edges.

   b. Find a spot on the back wall of the saddle bag. Drill (1) 1" diameter hole. This is the hole for Pump/Motor solenoid valve wires. Check the back before drilling to ensure nothing will get ruined.

NOTE: The pump/motor relay and solenoid have been pre-assembled and will be installed as an assembly.
The wires from the pump and solenoid will be connected to the main harness as described on page 34.



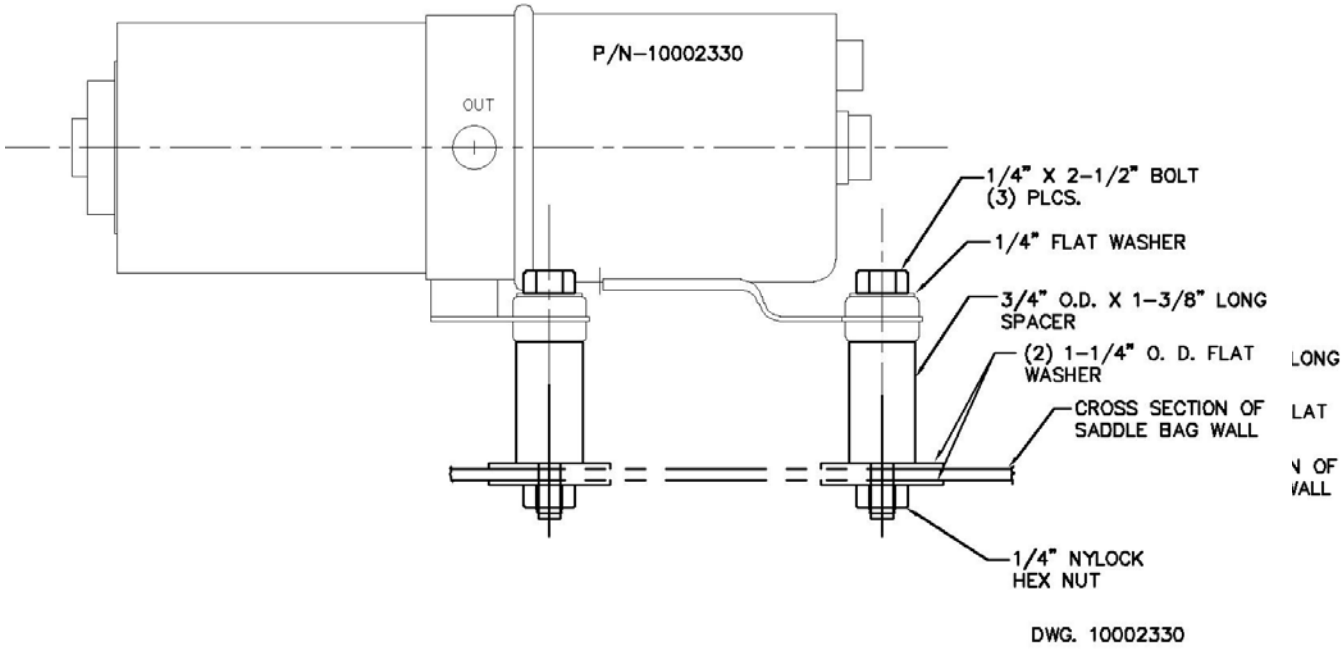
POSTION PUMP INTO THE LEFT REAR OF THE RIGHT HAND SADDLE BAG.
WHEN IN THE PROPPER POSITION THE PUMP WILL LEAN ABOUT 15°
TO THE RIGHT AT THE TOP. AT THIS POINT LAY THE TEMPLATE
INTO THE SADDLE BAGE AND DRILL THE THREE MOUINTING HOLES.

TEMPLATE

10002330–T
9–20–06

DWG 10002330-T

MOUNTING SYSTEM FOR (2) WIRE PUMP



DWG 10002330

Step 6 Install hydraulic lines

Parts Required:

(2) Hydraulic cylinders (pre mounted at factory)

(1) Hydraulic solenoid (pre mounted to the pump motor) and previously mounted (Step 5 Hydraulic Pump/ Motor And Solenoid Valve) in the right saddlebag

(2) 90º swivel elbow

(2) brass tees

(2) sets hydraulic hoses (right side and left side) including pump and solenoid connections

(4) 90 degree brass street elbows (pre assembled to the cylinders)

1 quart dextron fluid (not supplied) purchase dextron III (atf) fluid

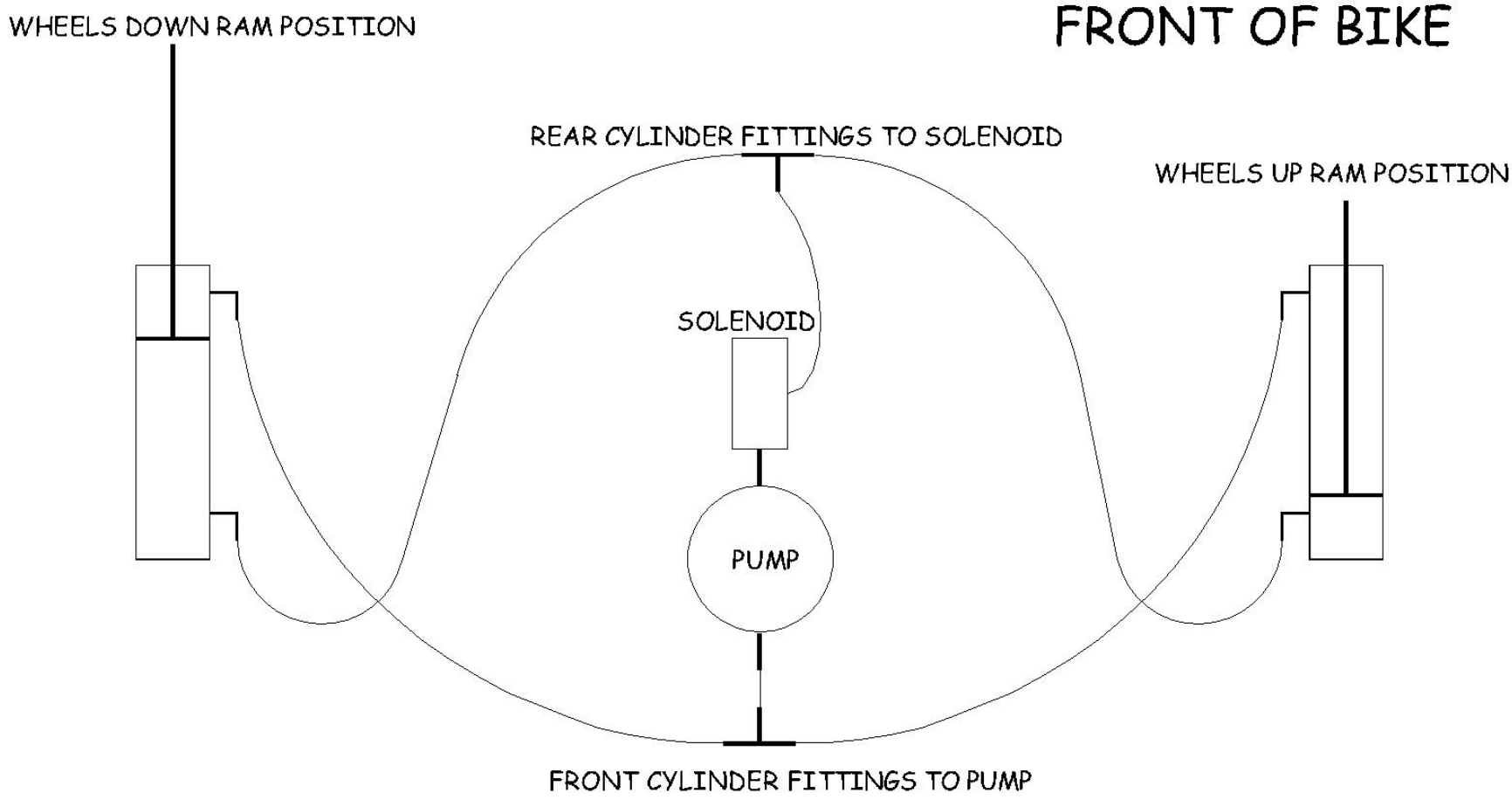
3. The pump motor and hydraulic solenoid are now mounted in the right hand saddlebag, with the hoses coming out of the 3/4" holes.
4. Install loosely, pre-assembled hydraulic hose assemblies to the cylinders. The long hose to the front elbow and the short hose to the back elbow (these are all flare fittings, so do not apply any pipe dope or Teflon tape) then tighten. Be sure to double wrench these fittings and do not over tighten. Tie wrap all of the hoses up to the sub-frame to keep them secure and away from the muffler. If the hoses become detached or are not pre-assembled, refer to the hose layout drawing 10002481 (pg. 32).
5. Attach the hoses from the saddlebag into a 90º swivel elbow then into their respective “T” at the back of the bike see hose layout drawing 10002481 (pg. 32). Proceed to tighten all of the hose fittings. This includes the four cylinder connections. The “T” connections (four at each “T”) and the pump & solenoid connections are inside the right saddlebag. These are all flare nuts and must be seated (do NOT use pipe dope) by double wrenching each fitting taking care not to put any force on the pre assembled pipe fittings. See picture below for an example.

Rear View

1800 shown

Step 7 Fill lines with fluid.

1. Remove and save the rubber plug, located on the top of the pump. Use a paper towel or with very dry and clean fingers carefully inch it out.
2. Initially, fill the pump reservoir with Dextron III ATF Fluid (Not Supplied) to within ½" of the top pump fill hole. At this point you cannot over fill the pump because the lines and cylinders must fill as you continue the filling process.
3. Manually rotate the swing arms up and down a dozen times, and then allow the system to rest while the excess air dissipates out through the pump reservoir.
4. Check the fittings for leaks and the fluid level in the pump. Re fill as necessary. The final level should be between ½" to ¾" from the top. A tie wrap will work as a dip stick to check the level.
5. Repeat the above procedure several times to assure that all air is out of the system. Replace the rubber plug.
6. Re attach the crossover link bolt.
7. Before driving use the emergency service jumpers to purge the remaining air from the system. See Step 9 Page 34. Cycle the wheels several times, then recheck the fluid.



HOLES FOR HOSES ARE IN BACK OF SADDLEBAG.
LONGER HOSES CONNECT TO FRONT CYLINDER FITTINGS.
SHORTER HOSES CONNECT TO REAR FITTINGS.

DO NOT SCALE DRAWING	Title	HYDRAULIC LAYOUT		SAFETY FEATURES INC 30570 FOREST BLVD STACY MN 55079 (651) 462-2552	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE INCHES AND TOLERANCES ARE: DECIMALS X. ± .1 .x± .05 .xx± .015 .xxx± .005 ANGLES ± 1°	Job Num	RETRACT-A-TRIKE			
	Approved		Date		
	Drawn By	PZAK	Date		
	Scale	1 - 1	Sheet	1 of 1	A 0300-8001 Rev -

Step 8 Mount control box

ELECTRONIC CONTROL BOX

INSTALLATION

Parts required:

1 ea. Control box	2 ea. 6-32 nylock nuts	
2 ea. 6-32 bolts	4 ea. #6 flat washers	1 ea. Main wire harness

The battery must be charged to avoid any damage to the control box, check the condition of the battery before proceeding!

Control box location:
The control box is the black box. Most control boxes will be installed in the trunk slightly off center to the right of the back wall. This will vary depending on the options your bike has. The control box must be positioned to be able to hook up the blue connectors. Before you go to the next step, physically hold the control box in the location where it will be mounted. This will allow you to better visualize the next step.

Hole location for main wire harness:
This hole will allow the harness to be fed into the trunk for the control box connection.
Locate the hole approx. 2" from the edge of the control box next to where the connectors plug in. You have some leeway here because of the flexibility of the wires. Drill two 1" diameter holes 1" apart, then cutout between the two holes to create an oval. Double check the other side to ensure you're not drilling into anything important. Try to stay to either side of the main frame where the seat sits. Feed the blue connectors through the oval into the trunk. The ground wire is black and can be connected to the saddlebag bolt located towards the upper front of either saddlebag. Remove the bolt and file the paint off the surface.

System will not function if ground wire is not properly installed.

Position the control box and attach the Velcro to each side.

With the control box attached, locate the two main harness connectors (blue) into their appropriate positions on the control box. **Note the connectors can only be attached in one position and have notches or keyways for proper insertion.** They are also male and female connectors and cannot be installed in the wrong ports

Step 9 Wiring Harness Main Section

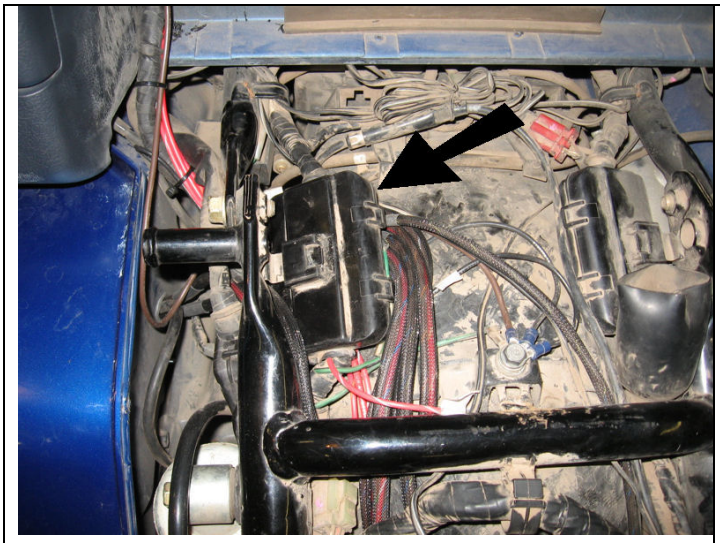
The main wire harness connects the Control Box to the 12 volt system on the bike.
Position the remaining wires as follows:

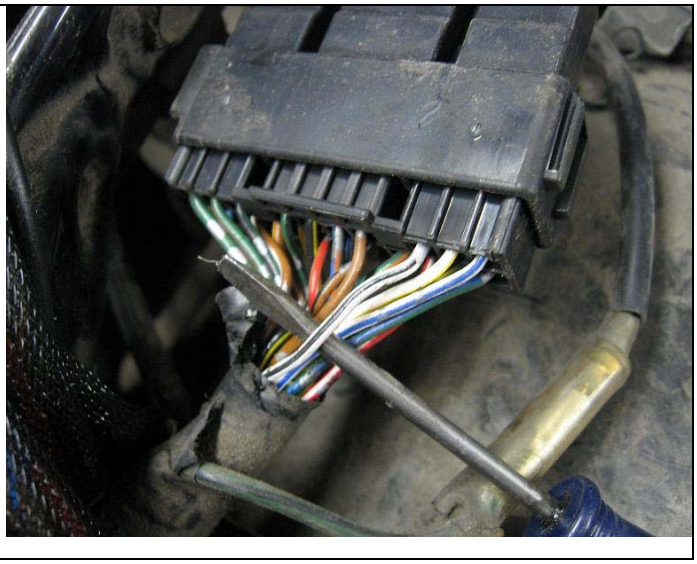
Pump and Solenoid wires (there are 3) green & yellow that control the pump and brown that controls the solenoid, the fourth (white) is a ground wire. They should now be connected to the four pin square rubber connector. Feed these wires through the 1" hole drilled in the right hand saddlebag (see page 27). Run them across the back and top of the inside of the saddlebag. Connect the square connectors together and the 2 pin connector to the pump. The wires should be attached to the back wall to keep them organized and away from any cargo that might be carried in the saddlebag later. Tidy up any loose wires around the pump and solenoid with tie wraps.

Limit switch wire connection: There is an **Up** limit switch, a single (3) pin connector and there is two **Down** limit switchs, there are two (3) pin connectors. The connectors have different male/female connectors so they can't be installed wrong. Check to ensure the up limit switch is the odd connector. The up limit switch is located on the right side towards the rear of the bike. The two down limit or forward limit switches are interchangeable. These connectors should be routed under any frame members. Follow the wiring diagram and connect these wires to the wires coming from the limit switches.

Step 10 Wheel Pulse

The ***Wheel Pulse*** wire is the control that does not allow the Retract-A-Trike^{Tm} to activate above **19 MPH or at STOP**. The proper wire selection and quality of this connection is critical to the safety features of the Retract-A-Trike^{Tm} unit.
The grey wire in the main wire harness must be **solder connected** to the GOLD WING pulse wire.





The above photo indicates the location of the connection for the speed sensor.

The wheel pulse wire is located under the seat. The left hand picture above shows the location of the connector. The right hand picture show the cover removed and the connector flipped over to provide access to the black/white wire.

1. 1988/1992 the pulse wire is black/white, 1993 and following, the colors are yellow/red
2. With a pointed object, find the correct wire and pull it up so you can strip a length of insulation about 3/8" long off it.
3. **Solder** the red/grey wire in the main harness to this wire. **Solder this joint well.** .A quality joint here is more important than lots of solder.

Note: the non-accessory power can be connected at this point as well. It has not been thoroughly tested but it has worked on the bikes we have tried it on. On our test bikes it was the white/blue wire on the right side of this connector. Test the wire before using this connection point. Non-accessory power is when there is power when the switch is on run or ignition and NO power at off and accessory.

It is not possible to overemphasize the importance of the quality of this connection. A cold solder joint will cause an intermittent operation problem.

This procedure and the quality of this solder joint is a very critical connection of the entire electronics package!

Step 11 Wiring Harness - Switch section

The wiring harness is separated into two sections. The sections will be connected above the fuel tank. Make sure when running the wiring that nothing will pinch or rub the wires or connectors. These instructions are for the upper section that connects the switch and buzzer.

1. Remove the seat.
2. Remove the two acorn nuts holding the top compartment on.
3. Remove the bolt holding the left fairing inner cover. This is the bolt with a nub on it for the side cover to attach to.
4. Open the gas access hatch. On each side of the opening is a lever to release the top compartment. Once the top compartment is loose lift it up slightly.
5. Loosen or remove the top inner cover, it just has to be moved enough to get the switch wiring harness under it.
6. Fish the harness under the top shelter. Lift the edge of the shelter up slightly in order to see the best area to fish the harness through. We If the harness is located correctly you should be able to pull the harness and have it move freely.
7. Check to make sure there is enough wire to mount the switch on the handlebar with the wheel turned both directions. The connector should be above the fuel tank.

Switch Harness Routing

Step 12 Control Switch

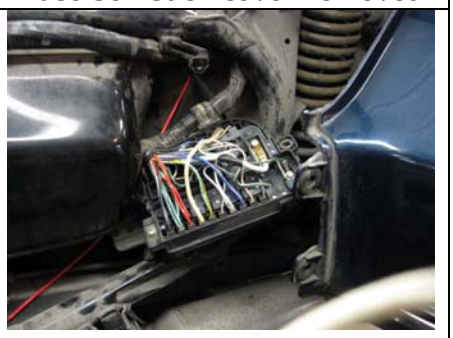
Parts required:
The switches are pre-assembled with the up-down switch, red light and Green Light.
The switch should be attached to the left handlebar. See photo below.

1. Move the grip out to make room for the switch.
2. Remove the two allen head screws to split the halves of the switch housing.
3. Mount the switch.
4. Run the wires along the handlebar with the other existing Honda wiring. Ziptie the wires.
5. Mount buzzer (alarm/Horn) in a convenient location. We mount it underneath the plastic housing that holds the ignition. Attach with double face tape or Velcro.

Step 13 Control Box Power Installation

The orange wire coming from the main wire harness controls the power to the control box of the **Retract-A-Trike**™ system. Because of its importance, this connection **must also be soldered**. In order to solder this wire to an ignition source, it will be necessary to remove the fuse box assembly located on the **left** side of the bike.

With the fuse box removed, take off the back cover and **locate a non- accessory power source.**

Fuse box location	Fuse box back cover removed
	
Showing connection location	
	

A non- accessory hot wire is **any fuse that will only have power when the key is on ignition and not on accessory.** This is extremely important as the **Retract-A-Trike** ™ control box **must not** receive any power when the key is on accessory, and it cannot be connected to a fuse that has a relay interface. Since this can vary it is your responsibility to find the proper location for this connection.

Depending on the model year of the bike, this should be either one of the following:

1. The horn/turn fuse **Hot Lead**
2. The ignition/cruise/start fuse **Hot Lead**

There is two sides to a fuse, the hot side and the cold side. The hot side is the side that has power. You can check this by removing the fuse and checking each side with a voltmeter. The side with power is the hot side or the hot lead. The **Hot Lead** is used in the event of a blown fuse. The **Retract-A-Trike**™ will still have power to the ELECTRONIC CONTROL BOX.

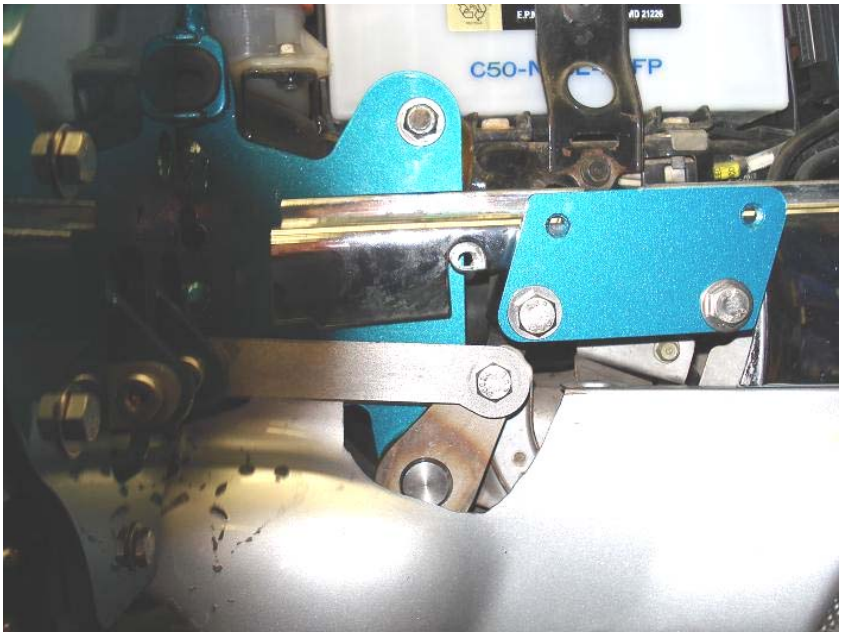
IMPORTANT

In order to maximize this connection, follow the instructions for the wheel pulse connection. **This connection must also be soldered**. A cold solder connection at this point will also result in intermittent operation of the **Retract-A-Trike**™

Note: An alternative connection point is in the connector box where the pulse wire is connected. There is a wire that satisfies the non-accessory power but you will have to test to find it. We have tried it and it is working but have not tested all models at this point. It is an easier connection point but it will be your responsibility should you decide to go this route.

Step 14 Side Covers

See figure below for the area to cut out of the heat shield. The wheels must be able to move through their complete stroke without the crossover linkage hitting the heat shield.



This cut is to enable the crossover linkage to move freely.

Footrest Under Cover

Side Cover
Cut a notch around the adaptor plate. There is a cutout in the adaptor plate so you don't need to modify anything on the saddlebag. See picture below.

Step 15 Overlock Adjustment

The overlock is a critical component for safe operation of the Retract-A-Trike™ system. The overlock prevents the wheels from coming up under pressure. The overlock should be part of your pre-ride inspection. (See pg. 41 for an illustration)

The adjustable overlock plate is already mounted on the frame plate in the front portion of the cylinder frame.

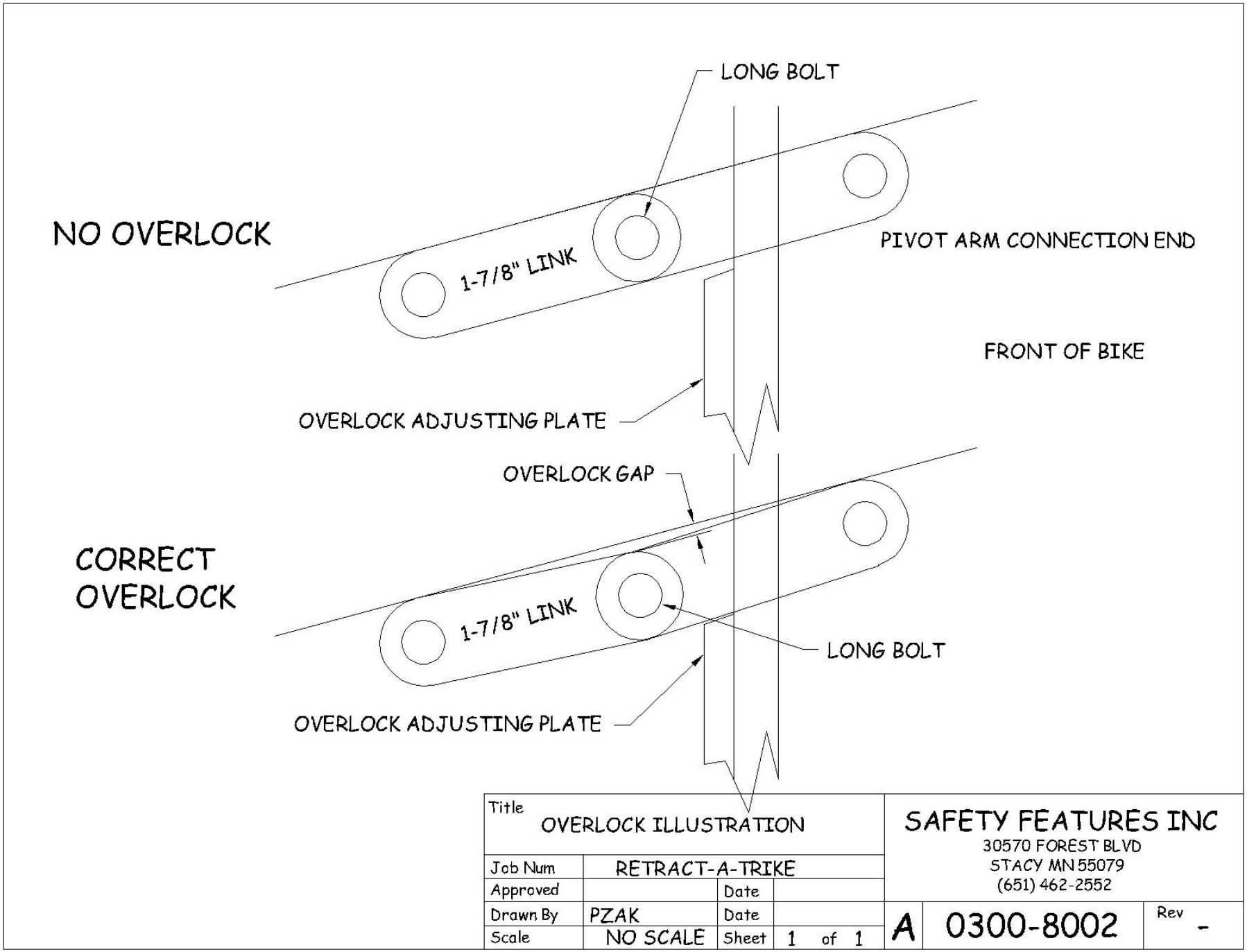
1. Straighten the arms made up of the overlocking linkage by moving the wheel pivot arm into the down position.
2. Visually inspect that there is an overlock gap. The gap should be a 1/16”or more, never less.
3. If the gap is less move the adjustable overlock plate down until you have approximately 1/16” overlock gap. You may have to loosen the bolt holding the overlock plate.
4. If the gap is too much take a small hammer, tap the adjustable overlock plate up until the gap is approximately 1/16”.
5. Tighten the nut and bolt that hold the adjustable overlock plate in position. Tighten this to 16 ft. # of torque.
6. The overlock assembly should now be adjusted to the required overlock position.
7. Test the overlock by pulling up on the pivot arm sharply, it should not come out of overlock.

NOTE

More than 1/16” of gap will cause extra strain on the hydraulics and poor performance.
Less than 1/16” of gap will cause the overlock assembly to slip out of overlock and will result in a loss of the mechanical overlock of the Retract-A-Trike.

> **It is better to have more than 1/16” gap than less than 1/16”. Make sure there is enough so that it won’t come out of overlock.**

Repeat above steps for other side overlock set up.



Title	OVERLOCK ILLUSTRATION			SAFETY FEATURES INC 30570 FOREST BLVD STACY MN 55079 (651) 462-2552	
Job Num	RETRACT-A-TRIKE				
Approved		Date			
Drawn By	PZAK	Date		A 0300-8002	Rev -
Scale	NO SCALE	Sheet	1 of 1		

Step 16 Limit Switch Adjustment

The limit switches have been pre-installed onto the main frame before shipment. If they are removed during the installation of the main frame, care must be taken so that they can be re-installed in their proper location.

Each limit switch is assembled to a mounting plate, and the mounting plate is attached to the rail clamp (see picture below, up limit is pictured). Please note that there are two down switch assemblies (one on each side towards the front) and one up assembly. The left and right hand assemblies for the down switches are unique to their position**.** The up switch is located on the right side main frame and is mounted to the rear.

Adjust the overlock before adjusting the limit switches. The limit switches turn off the pump, if not adjusted properly the pump may shut off before putting the wheels into the locked position.
This is not safe!!

When the wheels are in their down position, check that both switches have been engaged. You can do this by pushing the metal tang and listening for a click. If you hear a click then the switch is not engaging and must be adjusted. Move the wheels with the handlebar switch to the down position, make sure that the link is in the overlock position.

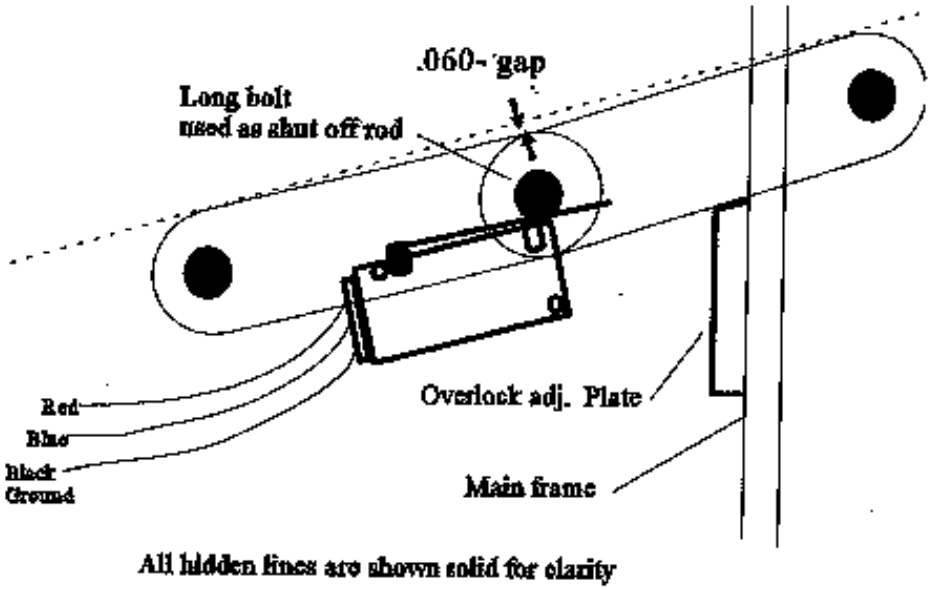
After ensuring that the down limit switches are correct, put the wheels in the up position. Using the same method check the up limit switch. If there is no click then adjust as necessary.

To check if the limit switches are hooked up properly, follow the following steps:

1. Put the wheels in the half way position.
2. Turn the key to ignition.
3. Manually engage each limit switch.
4. When you engage the upper limit switch the green light on the handlebar should come on.
5. When you engage either down limit switch the red light should come on.
6. If the lights don't come on check the connections and the fuse.
7. If the upper limit turns on the red light then the connection is backwards.
8. If the down limit turns on the green light the connection is backwards.

LIMIT SWITCH FOR DOWN AND LOCKED POSITION

REFERENCE ONLY
NOT TO SCALE

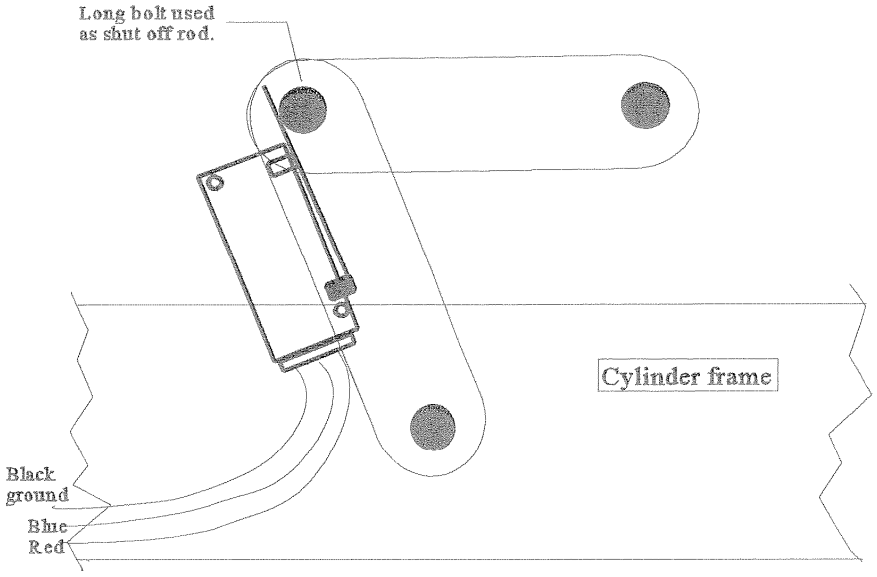


THIS GRAPHIC IS FOR THE RIGHT SIDE ADJUSTMENT SO LEFT SIDE IS MERELY THE OPPOSITE.

Down Limit Example

LIMIT SWITCH FOR UP AND LOCKED POSITION

REFERENCE ONLY
NOT TO SCALE



THIS GRAPHIC IS FOR THE UP LIMIT SWITCH AND IS LOCATED ON THE RIGHT ONLY.

37B

Up Limit Example

Step 17 Re-assemble parts removed in step 1

1. Replace rear fender.
2. Reinstall and tighten saddlebag bolts.
3. Replace side covers.
4. Reinstall and tighten fairing bolts.
5. Reinstall fairing pocket.
6. Reinstall fairing molding.
7. Reinstall and tighten the top shelter bolt.
8. Replace the seat, check the wiring to ensure the seat won't pinch or sit on any wires.

Step 18 Testing the System

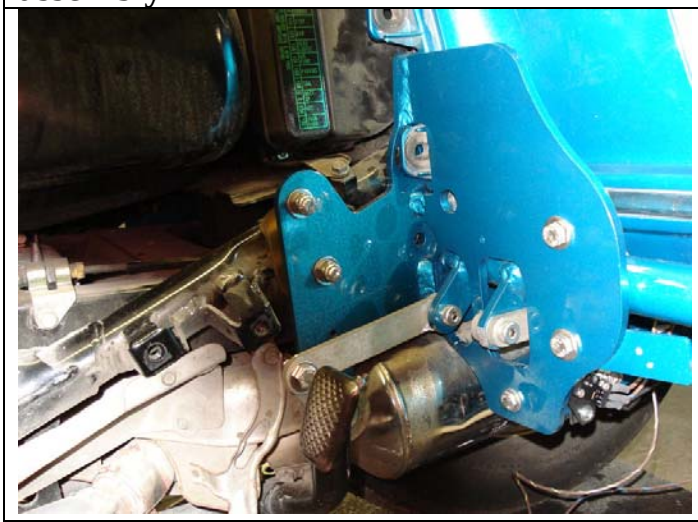
1. Set the motorcycle on the center stand.
2. Turn the key to the ignition position.
3. Have someone push down on the rear of the bike to get the front wheels off the ground.
4. Rotate the front wheel and put the **Retract-A-Trike™** wheels up and down several times.

Check List

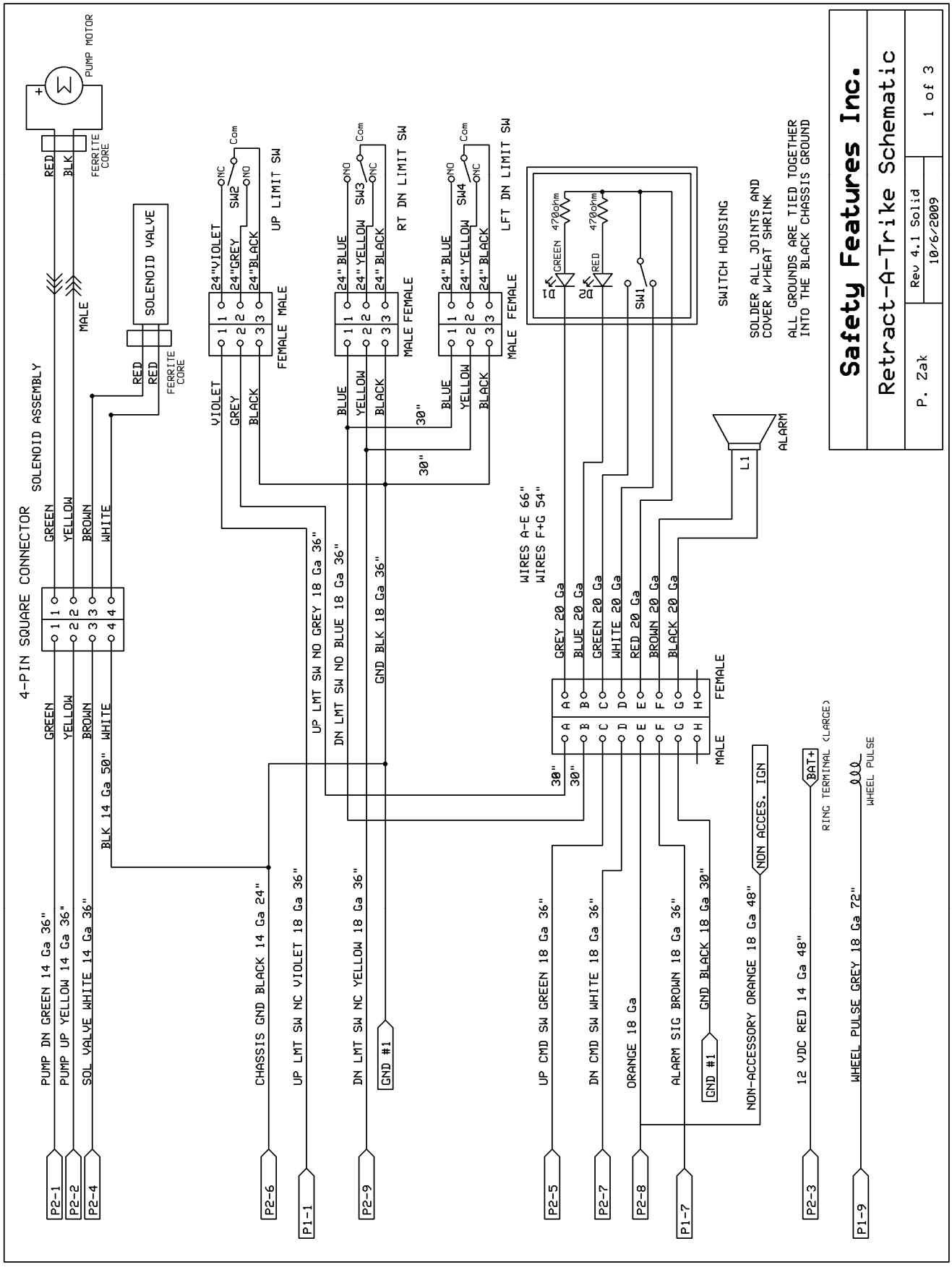
1. With the wheels down, check the overlocks on both sides to be sure they are in a locked position.
2. When the wheels are down the Red warning light is on.
3. With the wheels down, check all of the hydraulic connections, including the motor/pump and solenoid connections for leaks.
4. With the wheels down check all three limit switches to make sure they are tightened securely.
5. With the wheels down, check all of the bolts on the linkage and make sure they rotate freely.
6. When the wheels are in transition, make sure there is adequate clearance on the linkage components as they pass through the frame plates on both sides,
7. Push down on the wheels when they are in the up position to be sure the solenoid valve has hydraulically locked them in that position.
8. When the wheels are up, the green warning light is on.
9. Starting with the ignition off and wheels in the down position and the control switch is up, turn the key on to ignition. The alarm will sound, and when the rear wheel is rotated nothing should happen. When the control switch is moved to the down position the alarm will turn off.
10. With the ignition key off and the wheels down and the front wheel not moving, turn the ignition key on and put the control switch to the up position. There will be no alarm and the wheels will stay in the down position until they see a wheel pulse. Rotate the front wheel and the wheels will come up.

Appendix

Pictures

View of left side with adapter plate assembly	**Example of good solid ground**
	
View of switch wiring harness routing by handlebar	**View of inside saddlebag**
	

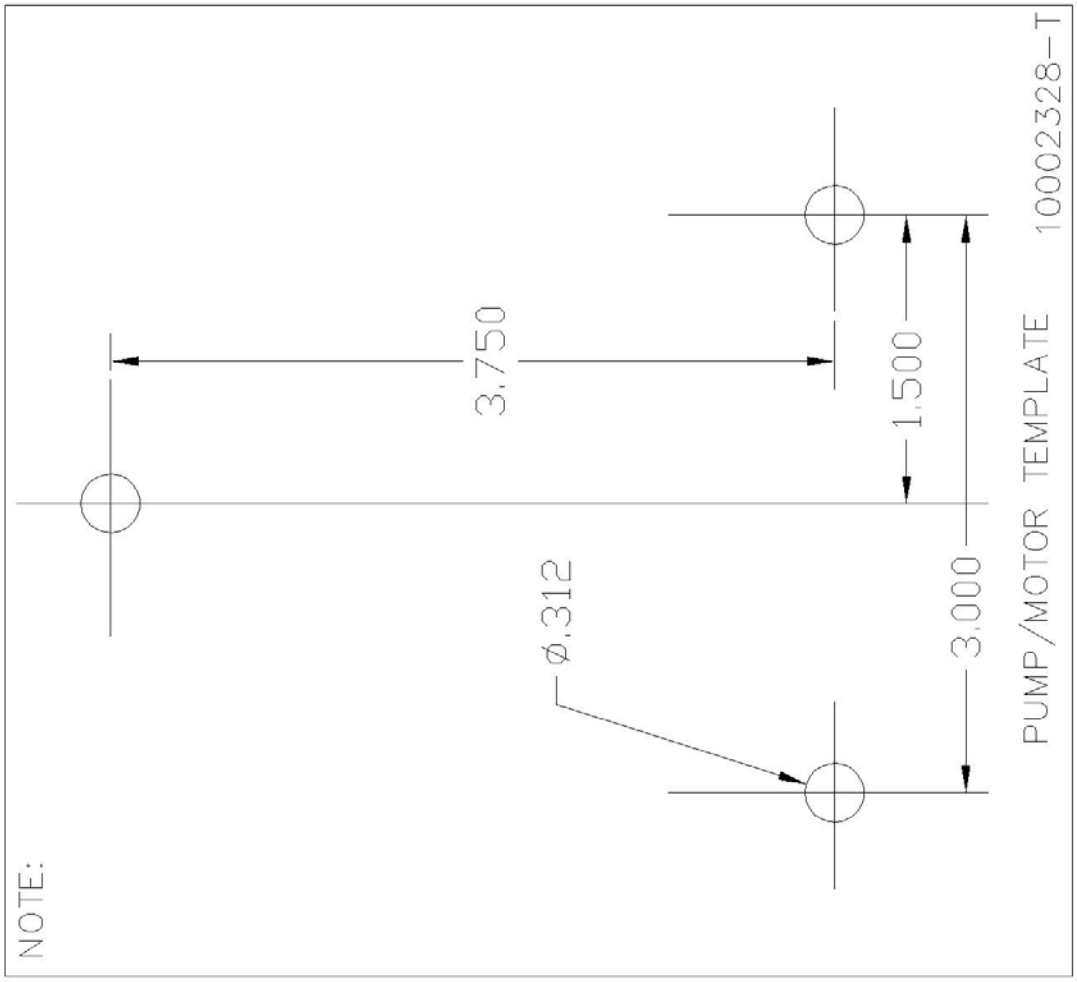
Schematic


Safety Features Inc.
Retract-A-Trike Schematic
P. Zak
Rev 4.1 Solid
10/6/2009
1 of 3
4-PIN SQUARE CONNECTOR
SOLENOID ASSEMBLY
PUMP MOTOR
FERRITE CORE
SOLENOID VALVE
MALE
FEMALE
UP LIMIT SW
RT DN LIMIT SW
LFT DN LIMIT SW
SW1
SW2
SW3
SW4
SWITCH HOUSING
ALARM
L1
SOLDER ALL JOINTS AND COVER W/HEAT SHRINK
ALL GROUNDS ARE TIED TOGETHER INTO THE BLACK CHASSIS GROUND
WIRES A-E 66"
WIRES F+G 54"
NON ACCES. IGN
RING TERMINAL (LARGE)
WHEEL PULSE
PUMP DN GREEN 14 Ga 36"
PUMP UP YELLOW 14 Ga 36"
SOL VALVE WHITE 14 Ga 36"
BLK 14 Ga 50" WHITE
CHASSIS GND BLACK 14 Ga 24"
UP LMT SW NC VIOLET 18 Ga 36"
UP LMT SW NO GREY 18 Ga 36"
DN LMT SW NO BLUE 18 Ga 36"
DN LMT SW NC YELLOW 18 Ga 36"
GND BLK 18 Ga 36"
GND #1
UP CMD SW GREEN 18 Ga 36"
DN CMD SW WHITE 18 Ga 36"
ORANGE 18 Ga
ALARM SIG BROWN 18 Ga 36"
GND BLACK 18 Ga 30"
NON-ACCESSORY ORANGE 18 Ga 48"
12 VDC RED 14 Ga 48"
WHEEL PULSE GREY 18 Ga 72"
GREY 20 Ga
BLUE 20 Ga
GREEN 20 Ga
WHITE 20 Ga
RED 20 Ga
BROWN 20 Ga
BLACK 20 Ga
470ohm
P2-1
P2-2
P2-4
P2-6
P1-1
P2-9
P2-5
P2-7
P2-8
P1-7
P2-3
P1-9

Packing List

1500 Packing List										
	Shipped	Item	Qty	Description						
				Box #1						
		1	1	Right Axle Assembly w/ limit switches, hoses, pump, & relay wiring.						
		2	1	Computer						
				Computer mounting hardware						
		3	2		Pan Hd MS 6/32 x 1.25 lg					
		4	2		Nylock Nut 6/32					
		5	4		Flat Washer #6					
		6	1	Wiring Harness						
		7	1	Switch assembly						
		8	1	Manual						
				Box #2						
		1	1	Left Axle Assembly w/ limit switch, dogbone, & hoses						
				Strap Mounting Hardware						
		2	4		Strap Mounting Bracket					
		3	4		HHCS 1/4" NC x1" SS					
		4	4		Hex Hd 1/4" NC Nylock Nut SS					
		5	8		Flat Washer 1/4" SS					
		6	4	Frame Spacers (1 each Red, Green, Yellow, Blue)						
		7	4	Frame Spacer U-Bolt (1 each Red, Green, Yellow, Blue)						
		8	1	Crossover Shaft with Hardware (1 Split Pin, 1 HHCS 1/4"NF 2-1/4" w/nut &wshrs)						
		9	2	Dogbone (may be mounted on arm)						
		10	2	Shoulder Bolt 5/16"x 1/2" w/Nylock nuts						
		11	2	Crossover Shaft Linkage						
		12	1	Overlock Adjuster						
		13	1	Paint Touchup						
				Footpeg Assembly						
		14	2		Footpeg Plates					
		15	4		.312 Steel spacers					
		16	4		.500 Aluminum spacers					
		17	4		HHCS 8mm x 65mm SS					
				Pump standoff hardware						
		18	3		HHCS 1/4-20NC-2 3/8 lg					
		19	6		Flat Washer 1/4					
		20	6		Fender Washer 1/4					
		21	3		Hex Nut 1/4-20NC					
		22	3		Steel Spacer 1 3/8"					
		23	2	HHCS 8mm x 70mm SS						
		24								
		25								
		26								
		27								
		28								

Pump Template



Emergency Cable