



THE HYDRAPULSE SWITCH ACE-84

INSTALLATION PROCEDURE

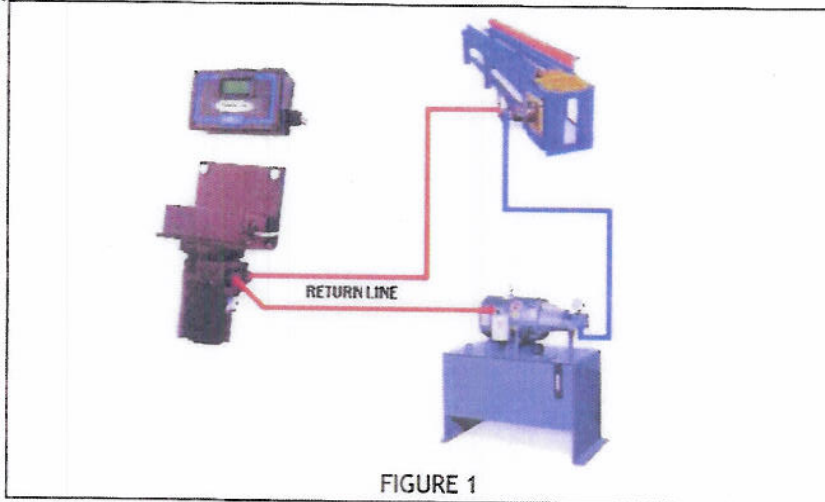
REV. 10/04

95F Hoffman Lane
Islandia, NY 11749
800.876.3900

MOUNTING:

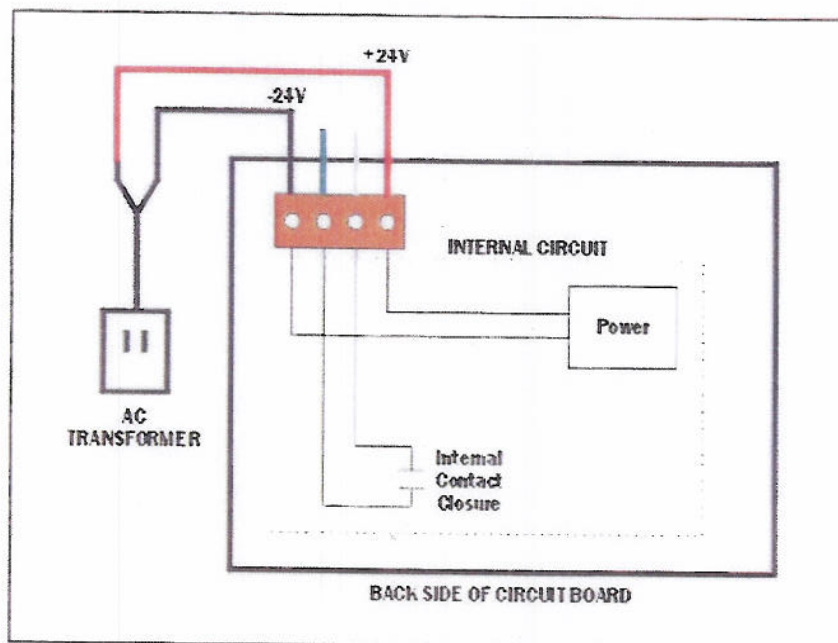
The HYDRAPULSE SWITCH should be wall mounted in a dry area. Once the unit is mounted, the hydraulic connections should be made as shown in figure 1. The return line coming from the conveyor motor should be used.

CAUTION: When plumbing the Hydrapulse motor, **DO NOT OVER TIGHTEN FITTINGS**. This may crack the motor and void the warranty.



WIRING:

The HYDRAPULSE SWITCH requires 9-24VAC or DC to operate and provides a dry contact closure as output. A supply current of 15-30 mA (0.4 W) depending on the supply voltage is required. The output contacts are rated at 500 mA (1/2 A) maximum. An AC adapter is provided to supply power to the Hydrapulse Switch. This can be mounted anywhere and wired to the unit. *We highly recommend using this adapter and not the power from your controller.*



WHEN USING A COMMANDER CONTROLLER:

When connecting the Hydrapulse Switch to a Compuwash Commander controller, the pulse wires get connected to TB5 located on the right side of the main circuit board (CC-64).

WHEN USING A NON-COMPUWASH CONTROLLER:

For connections to other controllers check the installation manuals for these controllers. If the controller requires a contact closure connect the GREEN and WHITE wires to the input terminals and the RED and BLACK wires to the power observing voltages and polarities. If on the other hand it requires a voltage level as input a connection scheme, a qualified technician or Compuwash technical support will be able to assist you.

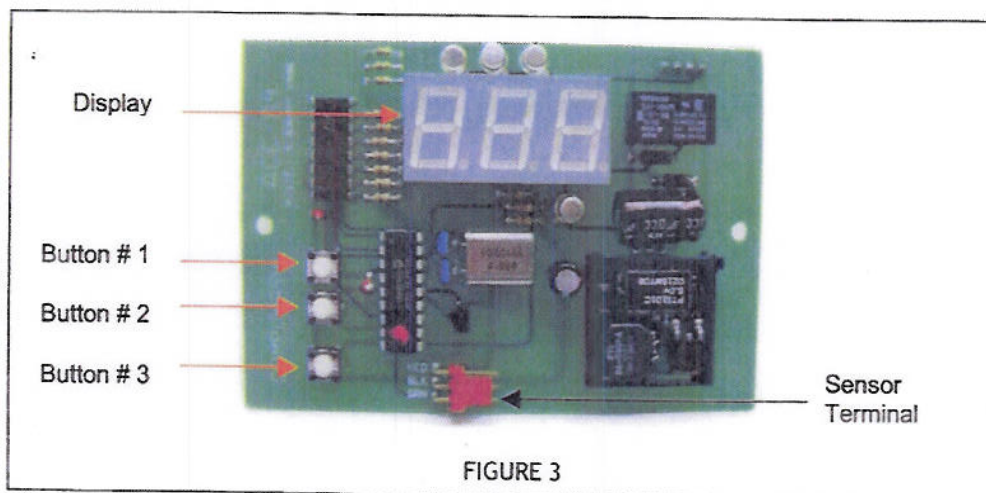
POWERING UP:

Once all connections are completed satisfactorily turn the power on, the display should read "0.00.

CALIBRATION:

You will need the following:

- Stopwatch
 - Wax-pencil or marker
 - Measuring tape.
- 1) Place two marks 200 inches apart on the conveyor; these marks will be used to time a conveyor roller.
 - 2) Remove the cover from the HYDRAPULSE SWITCH ENCLOSURE and locate the three buttons shown in figure 3.
 - 3) Turn on the conveyor, after a few seconds the display will stabilize. Once calibrated the display will show an average speed for the last 2 seconds. The HYDRAPULSE SWITCH can display your conveyor speed in two formats: 'feet per minute' or 'cars per hour' (a standard car length and space is 21 feet). To select 'feet per minute' press and release button 1, for 'cars per hour' press and release button 2.



All calibration values are in 'feet per minute', once the unit has been calibrated to match your conveyor the display format can be selected as shown above.

NOTE: The conveyor must be running and brought up to a high constant speed throughout the entire calibration process. Cars should not be on the conveyor during calibration.

- 4) Press and release button 1, this sets the display to 'feet per minute'.
- 5) Using your stopwatch measure the time, in seconds, it takes a roller to go from your first mark to your second.
- 6) Calculate your conveyor speed using the formula: 1000 divided by the time recorded in step 5. Note: For accurate results use speed values between 40 and 90 'feet per minute' if value is less than 40 or greater than 90, use flow control to adjust conveyor speed and repeat steps 5 and 6.
- 7) Press and release button 3. The left digit on the display will begin to flash. Use buttons 1 and 2 to adjust display to match value calculated in step 6, take note of decimal place. Button 1 increases the display while button 2 decreases it. If buttons 1 and 2 are held down, the display will change quickly.
- 8) Once the display matches the calculated value press and release button 3, the display will now go blank for 15 seconds. After 15 seconds the display will now read "2.00" and the middle digit will now be flashing. Using buttons 1 and 2, adjust the display to set the number of pulses you wish the HYDRAPULSE SWITCH to generate per foot of conveyor movement. For example, if you want your pulses to be 6 inches apart leave the display at 2.00. For 8 inches apart adjust display to 1.50. If you are trying to match an existing pulse rate you can calculate that by dividing a function's pulse count by the distance to the enter switch. Use functions at end of tunnel to be most accurate. For example, if the air dryer is previously set at 100 pulses and is at a distance of 60'. The pulse rate is 100/60 or 1.67 pulses per foot.

The formula for calculating this number is $12 / (\text{the number of inches for each pulse})$.

NOTE FOR CUSTOMERS WITH DRB CONTROLLERS: DRB's tunnel controllers prefer to have one pulse per sprocket revolution. This means that if you have a standard 12-tooth sprocket, then your pulses per foot rate should be 0.37 ($12" / 31.92"$ per sprocket revolution = 0.37).

- 9) After the pulse rate has been set, press and release button 3. After a few seconds the display should now show the speed of the conveyor. If the value is incorrect, repeat steps 1 to 6.
- 10) You can now select the display format, for display in 'feet per minute' press button 1 and for 'cars per hour' press button 2.
- 11) Replace cover. The Hydrapulse Unit is now calibrated to match your conveyor. The values recorded are retained even if the power is removed.

CONVERTING CONVEYOR SPEED

Inches Per Second X 14.3 = Cars Per Hour (i.e. 7 Inches Per Second = 100 CPH)

OR Feet Per Minute X 2.86 = Cars Per Hour (i.e. 35 Feet Per Minute = 100

If you have any further questions about your Hydrapulse Switch, please don't hesitate to call Compuwash at 1.800.876.3900.

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Hydrapulse unit assembly instructions (HYD-8400):

BILL OF MATERIALS

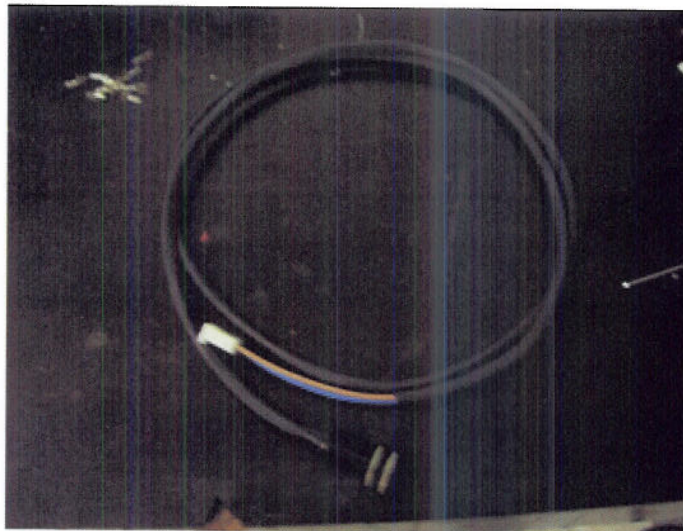
(1)	HYD-8422	SENSOR COMPLETE ASSEMBLY
(1)	HYD-84C7	75' HYDRAPULSE CABLE
(2)	SEN-PEEF	1/2" STRAIN RELIEF
(1)	HYD-84DC	HYDRAPULSE DECAL
(1)	HYD-EN02	5X5X3 PLASTIC ENCLOSURE
(1)	HYD-BP02	ENCLOSURE BACK PLATE
(1)	HYD-84MB	MOTOR MOUNTING BRACKET
(1)	HYD-84BC	MOTOR COVER
(1)	HYD-84SB	HYDRAPULSE HYDRAULIC MOTOR
(1)	HYD-84PC	HYDRAPULSE CIRCUIT BOARD
(1)	HYD-84PS	HYDRAPULSE 24VAC TRANSFORMER
(1)	HYD-84AA	SENSOR MOUNTING BRACKET
(1)	HYD-84SP	16 TOOTH SPROCKET
(4)	3712CH50	SCREW, HEX 3/8-16 X 3/4 ZN*
(4)	37NLET0Z	WASHER EXT TOOTH 3/8 ZN*
(8)	6C37MPP0Z	SCREW, PH PHIL 6-32 X 3/8 IN ZN**
(8)	6NLET0Z	WASHER EXT TOOTH #6 ZN**

* hardware to secure the motor

** hardware to secure the enclosure cover, enclosure back plate, and sensor bracket.

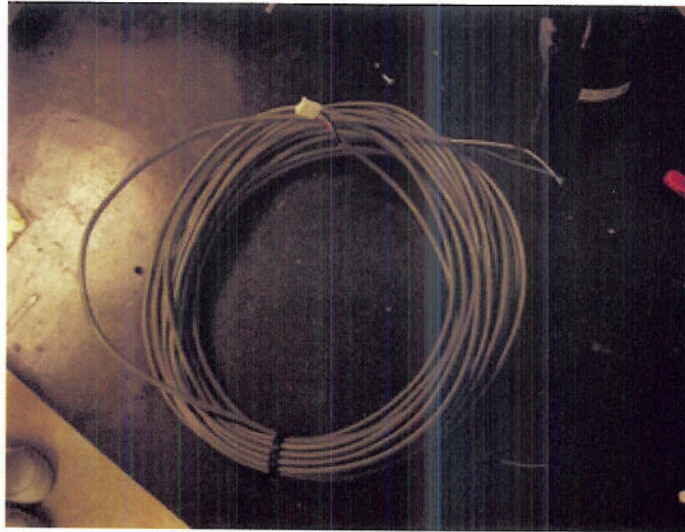
CONNECTING THE SENSOR(HYD-84SS)

- step #1-** Insert the 3-prong wire connector from the complete sensor assembly (HYD-84SS) in such a way that when the cable is plugged into the PC board (HYD-84PC), the order should be: tan on top, blue in the middle, black on bottom. Do not plug the connector into the PC board.
- step #2-** Screw one lock washer onto the sensor about mid-way and then slide the sensor bracket (HYD-84AA) onto the sensor. The other lock washer can be screwed on to hold the bracket in place. The sensor bracket should have the "L" part where the screws bolt it down pointing away from the front of the sensor.



CONNECTING THE CABLE(HYD-84C47)

The cable used is the 4-wire 22AWG cable; there is a black, red, green, and white wire. This cable is generally cut in 50ft runs.



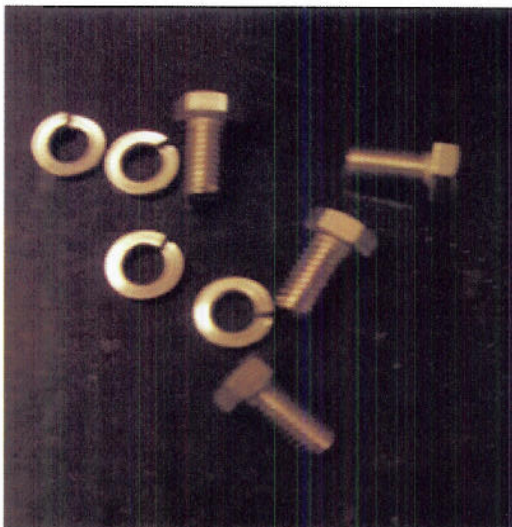
- step #1-** The connector is plugged into the back of the board (HYD-84PC), and the LCD screen is facing away from the assembler, the color order from left to right should be: black, white, green, red.
- step #2-** Strip each of the four (4) wires on the other end of the cable. The length of the exposed wire can vary. The green and the white wires will be the dry contact and the black and the red will be the power for the board (HYD-84PS). How these are connected to the controller is up to the installer (REFERENCE ATTACHED WIRE DIAGRAM).

PREPARING THE MOTOR ASSEMBLY

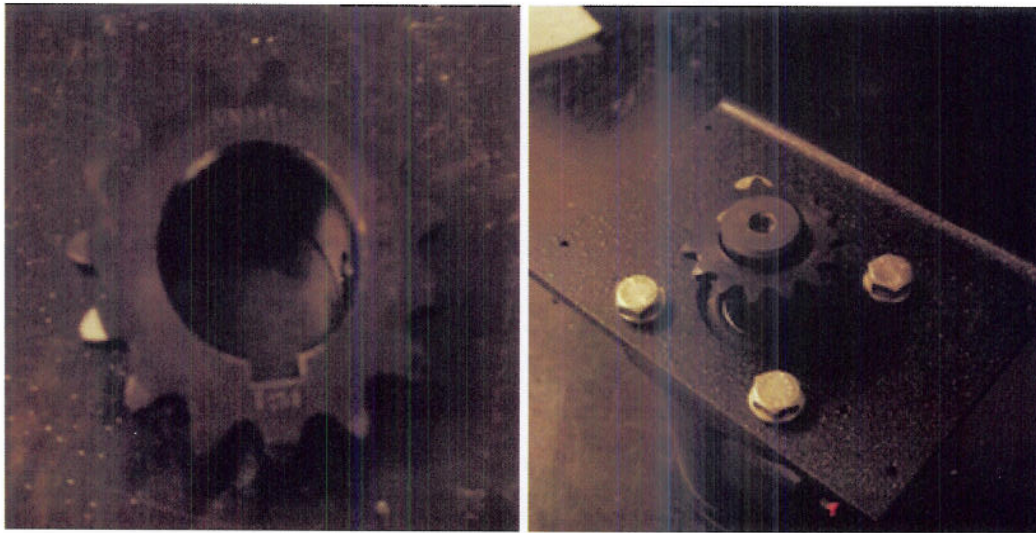
- step #1-** The motor (HYD-84SB) should be oriented with the hydraulic connections pointing to the left or the right.



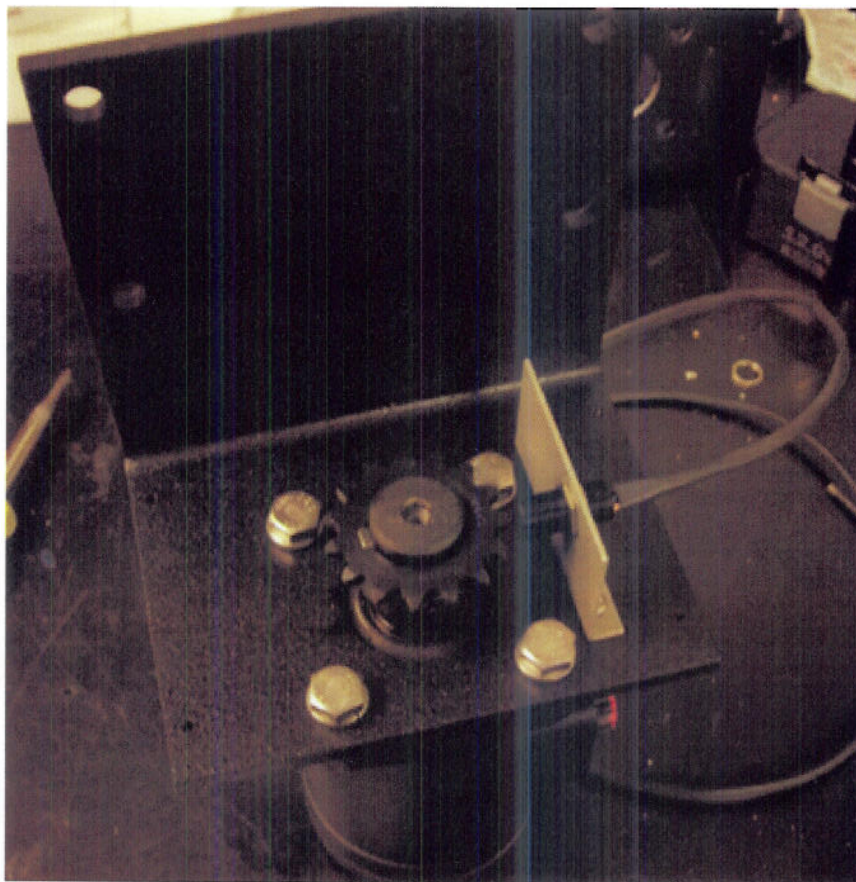
- step #2-** Bolt the motor bracket (HYD-84MB) down to the motor using four (4) bolts (P/N 3712CH50) and four (4) washers (P/N 37NLET0Z). The bracket should be positioned so that the "L" is pointing towards the assembler.



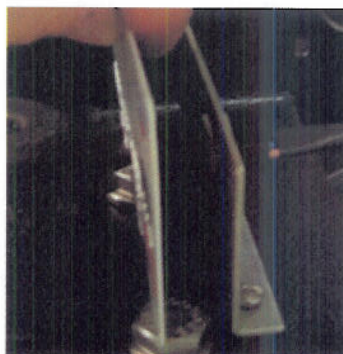
step #3- Secure the sprocket (HYD-84SP) to the motor shaft.



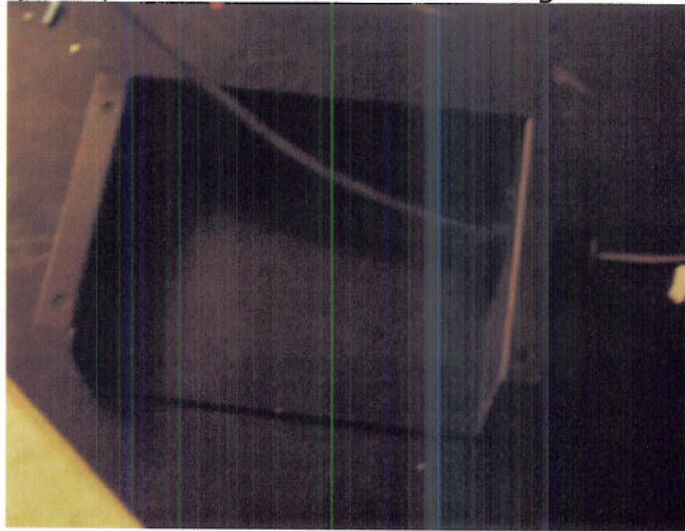
step #4- Bolt the sensor assembly (HYD-84SS) to the motor bracket with the sensor pointing towards the sprocket (HYD-84SP)



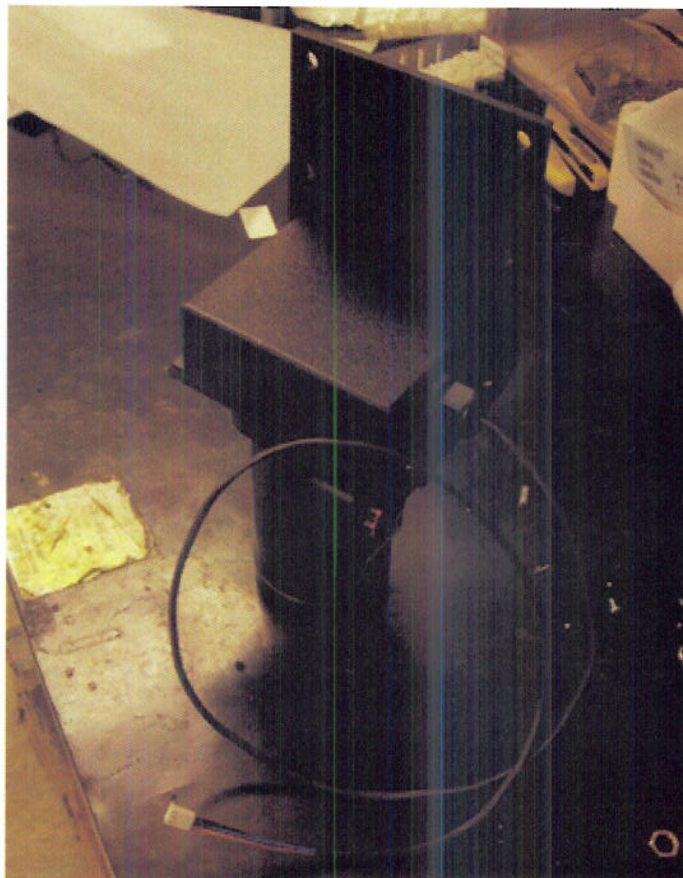
step #5- Adjust and secure the sensor so that there is no more than 1 credit card width between the sensor and the teeth of the sprocket.



step #6- Insert the sensor fitting (SEN-PEEF) into the motor cover (HYD-84BC) and pull the tail of the sensor through it.

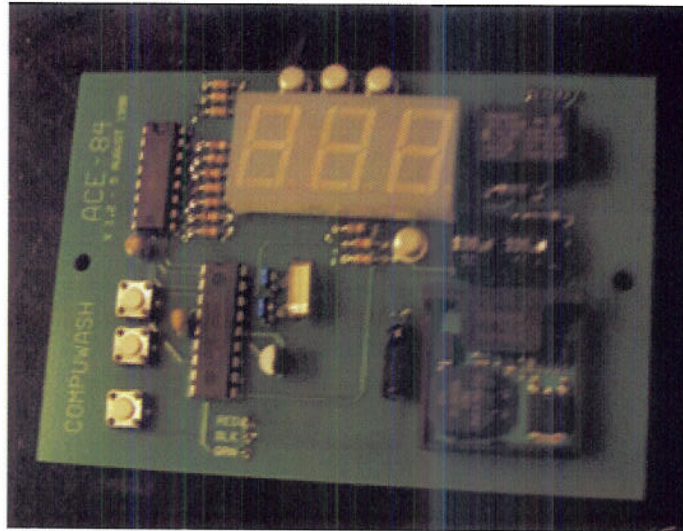


step #7- Bolt the motor cover (HYD-84BC) onto the motor bracket (HYD-84MB).



PREPARING THE CONTROL BOX (HYD-84CB)

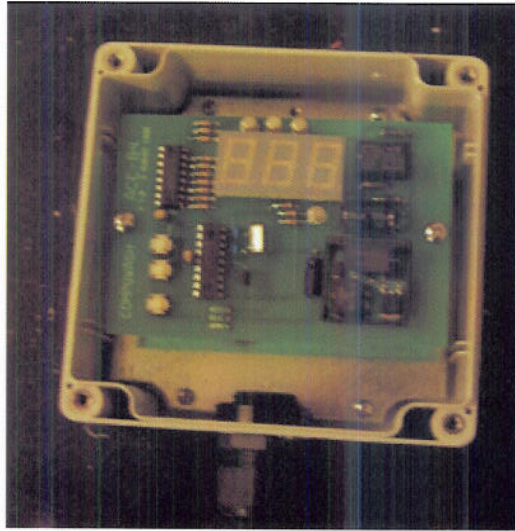
- step #1-** Screw the PC board (HYD-84PC) standoffs into the back plate of the enclosure (HYD-EN02).



- step #2-** Insert the sensor fitting (HYD-84CN) into the side wall of the enclosure (HYD-EN02).



- step #3-** Secure the PC board (HYD-84PC) and the back plate (HYD-BP02) to the standoffs using (6) screws (P/N 6C37MPP0Z) and (6) washers (P/N 6NLET0Z)



- step #4-** Attach the face plate (HYD-BP02) to the enclosure (HYD-EN02).
- step #5-** Apply the decal (HYD-84DC) onto the enclosure cover in such a way as to allow the LCD screen of the PC board (HYD-84PC) to be visible.

FINAL ASSEMBLY

The following should be bundled together for shipping:

1. The completed motor assembly
2. The completed control box. (HYD-84CB)
3. The 50ft cable. (HYD-84C7)
4. The 24VAC power supply adapter. (HYD-84PS)
5. The instruction manual. (HYD-84MN)

