OWNERS MANUAL
Remote Indicator & Control for COMBINER 50 & 150

SUMMARY

The Remote Indicator & Control allows you to manually combine your battery banks in parallel for emergency starting and provides an LED indicator to monitor battery voltage. This unit is compatible only with the new Combiner 150 or Combiner 50 from West Marine.

FEATURES

- Simple 3 wire hook-up, +12, ground, and remote connection to the combiner.
- LED indicates battery voltage. On when voltage is greater than the combiner threshold, off when less. Variable intensity during transition.
- Waterproof from front of the panel.
- Draws no current while monitoring with LED off, # ma when on while charging or during manual combine.
- 1 to 2 minute turn-off delay on emergency combine to give time to start engine.
- Can't forget and leave batteries combined.
- 10 second manual combine delay so no accidental operation.
- Simple mounting in 5/8" round hole. Panel thickness up to 3/16"
- Waterproof electronics package.
- Complete with all connecting cables. One wire extension to combiner will be required.
- Reverse polarity and wiring fault protected.

INSTALLATION

1. Drill a 5/8" hole in desired location. The top surface and edges should be clean and smooth for a watertight seal.
2. Carefully remove the electronics package from the switch. Grip the base of the switch close to the pins. Ease off with a small screwdriver if it is too tight.
3. Insert the switch in the hole and secure with knurled nut.
4. Connect the black ground wire to the nearest 12 volt negative supply.
5. Connect the red +12 volt wire to a convenient +12 volt source. The package is internally current limited so no fuse is necessary. You can use an "ignition" switched +12 supply if you desire, which will force the LED off whenever the ignition is off.
6. Connect the green remote wire to the remote terminal on the C150 or the green remote wire of the C50. Any connections should be well sealed and protected from moisture. Even small electrical leakage to +12 or ground can disrupt the operation of this high impedance circuit. Avoid exposed terminal block connections.
7. Carefully push the electronics package back on to the pins of the switch. The edge that is on the same side of the switch as the LED is marked.

OPERATION

VOLTAGE INDICATOR:-

When the voltage of either battery is above 13.3, the LED will remain on. (Even if the combiner has not yet turned on.)

When the voltage of both batteries is below 13.3 the LED will remain off. (Even if the combiner has not yet turned off.)

When the voltage is in the vicinity of 13.3 volts, alternator noise will cause it to oscillate above and below the threshold. The intensity of the LED indicates how much time it spending above the threshold.

During a charging cycle, the LED may start to come on some time before the combiner closes, and after charging ceases, depending on how quickly the battery drops to a rest voltage, the LED may go out some time before the combiner turns off.

MANUAL COMBINE:-

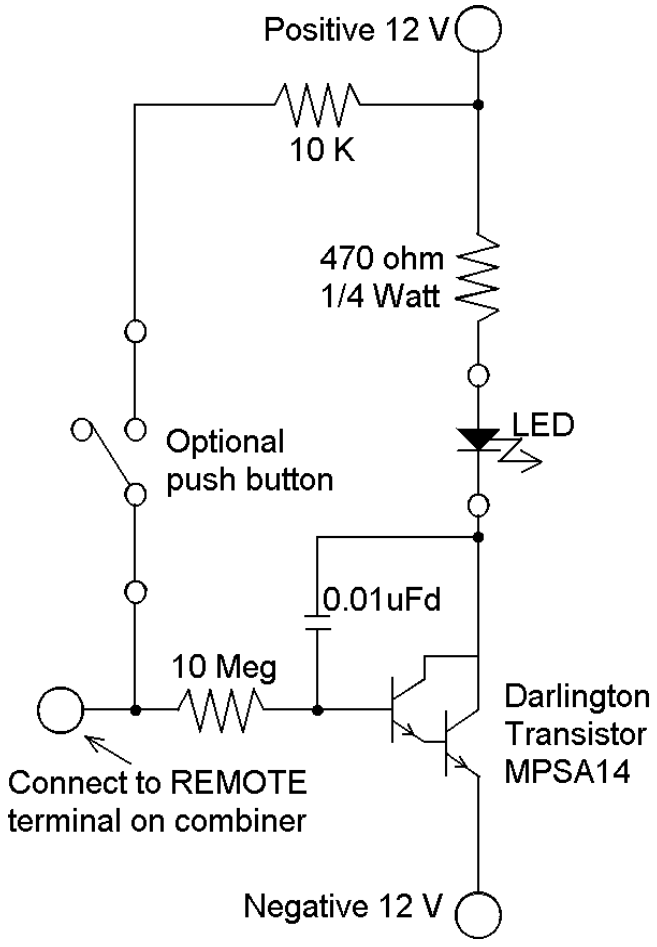
To manually combine the batteries for emergency starting, press and hold the switch for about 15 seconds. The combiner will close and stay closed for 1 to 2 minutes. If you need it closed for a longer period, periodically press the button for a few seconds to re-start the turn-off timer.

For emergency starting, the combiner will not carry the full starting current due to the wire size and length that was intentionally included for protection on the original installation. Leave the batteries combined for a few minutes to allow some energy to be transferred to the starting battery, just as you would do with jumper cables. Then when you go to start, both batteries will be helping.

If the starting battery has failed, or is very badly discharged, you may get better results by using your manual battery select switches to disconnect the starting battery completely and routing the house battery directly to the engine.

DO-IT-YOURSELF INSTRUCTIONS

Due to lack of consumer demand, this item has not been put in production. Minimum production run would be 100 and there have only been three requests at time of writing.



For those that want to make their own, here are the details.

If you just want the remote indicator and don't require the remote parallel feature, omit the push button and the 10K resistor. The original design used a push button with a built-in LED in the button. For operation in sunlit areas, you will need a display where the LED is visible. Backlighting a legend generally does not provide sufficient illumination for viewing in sunlight. Choose the mounting location carefully. The LED will be on while you are running under power and you don't want the LED to be shining in your eyes at night.

The electronics was assembled on the socket that plugged on to the push button and set in epoxy. For mounting, the electronics package was unplugged, the push button mounted and the electronics replaced. Three wires come out +12, -12 and only one wire is required to connect to the combiner remote terminal or wire.

All the components should be available at your local Radio Shack or electronics parts store. The 470 ohm resistor should be 1/4 watt, the remainder can be any rating. The 0.01 uFd is a disk ceramic, rated 50 volts or more. If you purchase an LED with a bezel mounting it will save mechanical headaches of mounting a raw LED.