

857 *sprint*

706/703 *sprint*

Assembly and Use

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Please read the entire instruction sheet including CAUTIONS at the bottom of this page before assembling or using your 857 or 706 / 703 *sprint*.

A suitable battery will be required before you can use the Sprint system. At the current time we have chosen not to be a supplier of the batteries and chargers for the *sprint* system. This was done in an effort to allow purchasers of the *sprint* system to buy the freshest battery possible at the lowest price. The recommended NiMh battery (Part number CU-J805) available from www.batteryspace.com used in the *sprint* system is not affected by the new stringent shipping restrictions applied to lithium batteries so purchasing and receiving your battery is still easy.

Purchase Correct Battery. Batteries and chargers are available from batteryspace.com (links are provided on page 2 and at www.portablezero.com)

Please read the short section about battery use on page 2.

Although batteryspace.com has designed a battery for use with the *sprint* series system, you can choose any suitable battery that meets the voltage requirement of your radio and will fit into the battery case. The battery case on the *sprint* system is very compact so battery size must be carefully checked.

Battery connection: After you purchase your battery you will need to make the proper connections for the battery and radio. We recommend Anderson® Powerpoles however any suitable well insulated connector can be used. It is best to wire the battery so that it can be removed from the case. To do this a pass through power lead that remains on the case should be used with connectors inside the battery box and outside the case for connection to the radio. On the yaesu 857D we recommend that the main power lead be converted to Anderson powerpoles however a short power lead with Molex connectors can also be used. For the Icom 706 a Molex connector will be required (not included) check for videos on battery installation examples at www.portablezero.com

Cautions: Correct length (metric M4) mounting screws must be used to mount the *sprint* side panels to the radio or damage to the radio circuit board can result. Do not over tighten the mounting bolts or the threads in the radio can become stripped. The *optional knurled thumb screws (not included)* can only be used with the complete 857 *sprint* system with **mounting brackets** attached and cannot be used with the battery case sides only. Adjust your power settings to operate your radio at 20 watts maximum (check your operator's manual for power setting adjustments. It is advisable that fuses (not included) be installed on both the positive and negative power lead. The fuses can be located inside or outside the battery case. Care should be taken to make sure any internal battery case wire connections are secure and insulated properly. Anderson Power Poles® are the recommended connection technique. Make sure that you use a screwdriver that fits the 8 small battery case mounting screws properly. Don't over tighten the screws once they have seated against the side panels.

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Ordering your Battery and Charger: links provided below and at www.portablezero.com

Recommended Battery is available here> <http://www.batteryspace.com/custom-nimh-battery-pack-13-2v-4500mah-4-3af-cell-with-8-0-18-awg-open-end-wire.aspx>

120v AC Powered Charger is available here> <http://www.batteryspace.com/Multi-Current-Universal-Smart-Charger-for-9.6V---18V-NiMH/nicd-battery-pack.aspx>

12 Volt DC Powered Charger is available here> <http://www.batteryspace.com/Ultra-Smart-DC-Charger-1.0A-for-2.4V-14.4V-2-12-cells-NiMH/NiCd.aspx>

Battery Use: (General information) operating your radio from batteries is much different than using a regulated 13.8V 20 amp power supply. Battery voltages must be monitored during use. The following information is provided as starting guidelines only and is not intended as an in-depth guide for battery use. Please do proper research to fully understand your battery/radio characteristics and the battery that you will be using.

Battery voltage drops from the fully charged state to the lowest acceptable discharge state during use. Radio operation should be discontinued and the battery recharged when this occurs. The Yaesu and Icom radios are designed for an operating voltage of about 13.8 +/- about 10% for Yaesu FT-857D and +/-15% for Icom IC-706MIIIG . The recommended NiMh battery (product ID # 7155, Part number CU-J805) that is supplied by battery space.com has a nominal voltage of 13.2 volts. It is very similar to the battery supplied by Yaesu for internal use in the FT-897D. Fully charged it is about 14.8V. During discharge the voltage will drop. The lowest recommended voltage according to the battery manufacturer is 11.0 volts. We have operated the radios without issues down to about 11.5V however your individual results may vary and we recommend that the battery voltage and radio behavior be carefully monitored during use. This battery is rated at 4500 MAH (4.5AH). That means you can draw approximately 1 amp for 4.5 hours. Some menu settings can be changed to reduce battery drain such as display brightness or display auto off/on etc. Please refer to your operator's manual for proper menu settings. The Sprint series system is designed for casual or short term emergency operations with an emphasis on compact size and is not intended to supply power for extended periods of time. It is important that you adjust you radio power setting to 20 watts or below before using the sprint system. Different modes may require a lower power setting.

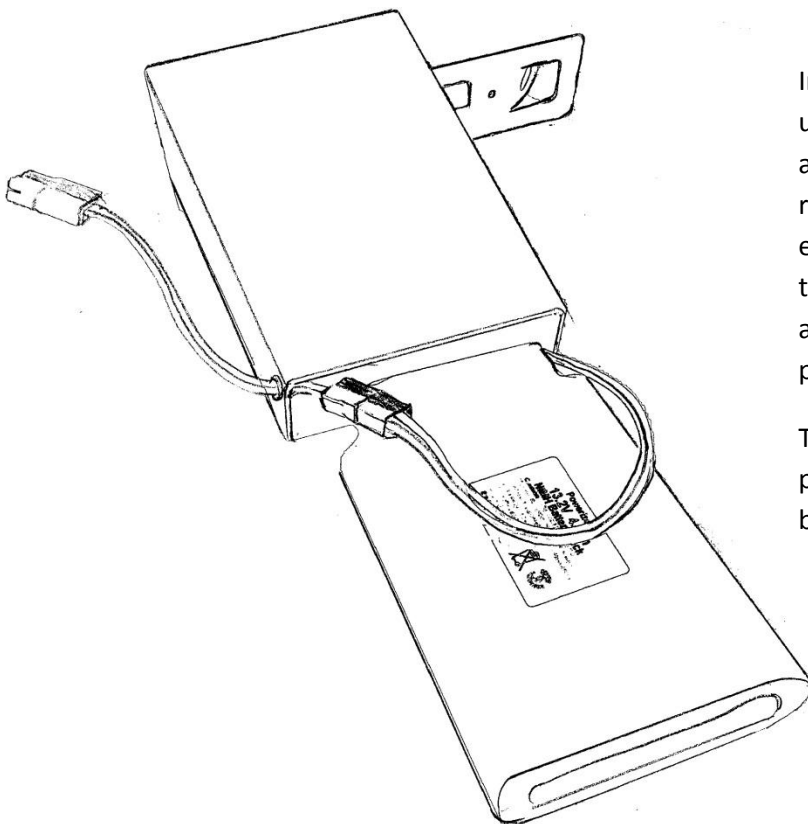
Note: the Yaesu 857D has a voltage reading on the display so battery voltage can be constantly monitored. The icom 706 does not. It is recommended that some type of external voltage monitor be used for the icom 706. We use the "watts Up" external voltage monitor with Anderson connectors installed. It shows valuable power data including voltage, wattage etc. They are available on amazon and other locations. **Check all battery leads and connections carefully. Make sure proper polarity is observed. Portable Zero LLC is not responsible for any damage to you radio.**

Battery installation and wiring: After you purchase your battery you will need to make the proper connections between the battery and radio. We advise that you make the battery removable by using suitable insulated connectors inside the battery case. We recommend Anderson® powerpoles however any well insulated connector can be used provided that they fit in the compact battery case space. To do this, a pass through power lead that remains on the case should be used with connectors inside and outside the battery case. The outer end would have the proper plug for your radio. On the Yaesu 857D we recommend that the main power lead be converted to Anderson powerpoles however a short power lead with a Molex connector can also be used. For the Icom 706 a Molex connector will be required (not included).

Check for video on battery installation at www.portablezero.com (videos)

We also advise that fuses be installed on both the negative and positive leads. We supply a short piece of #16 zip cord for through box wiring (the short runs and lower amperage used in the *sprint* system does not require the heavier gauge wire that would be necessary for a 100 watt base station). We have found that it works best to leave the battery wires long enough to slide the battery out of the case to plug or un-plug the connectors. The connectors should be able to be fully outside the battery box for easy disconnection. We have included 8 pieces of adhesive backed foam to apply to the battery for insulation and dampening. Use care while sliding the battery in and out of the battery case.

After through case wiring is complete, we have found it works best to install one side panel to the battery case and then slide the battery in. Then install the last side panel on the battery case. Always keep your battery charged. Unplug your battery from your radio while not in use. Observe proper polarity when wiring your *sprint* system.



Install your battery with the wires on the upper side of the battery as shown. This will assure that the weight of the battery is not resting on the wires or connectors. You can experiment with any wire routing technique that works well with your connection arrangement. The illustration shows one possible technique of routing the wires.

The *sprint* kit includes self-adhesive foam pads to install on the battery to dampen battery movement in the case.

Assembly: Note: The radio mounting screws (F) are designed to be used with the complete sprint system including the protective frames and mounting brackets. If you opt to install the side panels and battery case only, shorter mounting bolts will be required (not included) or circuit board damage can occur. Use M4 x 10 mm for 857D and M4 X 8MM for Icom 706/703. Read battery installation before proceeding. It is easiest to have one side panel connected to the battery case when installing the battery.

Step 1: locate the 2 side panels (A) and (B) and battery case (C). The wire pass through grommet on the battery case should be facing backward and be on the top section of the battery case (upper left on Icom 706 and upper right on Yaesu 857D when looking at the back of the radio). Place the battery case (C) next to side panel A (recessed side of battery case holes in side panel pointing away from battery box) and carefully insert screws (#4 x 3/8) into the battery box screw slots (figure 1). Use a Phillips screwdriver that fits the screws properly and apply adequate force to thread the screws into the battery case for the first time. Snug the screws against the side plates but do not overtighten. Do the same with side mounting plate B after you battery is installed.

Step 2: Take mounting bracket (D) and place against protective frame (E) and insert (M4) mounting screws (F) through mounting bracket and through the hole in side frame (A) then into the rear threaded mount hole in the radio. Align the seam on the Protective Frame (E) as per figure 2 so it is on the bottom and center the seam of the protective frame in the mounting bracket but leave it hand tight until you also have the front mounting brackets in place. Install the front mounting bracket. Make sure that the seams in the protective frames are aligned in the center of the mounting brackets, (this is best viewed from the underside of the radio) then snug up the screws. Do the same for the opposite side. **Caution: Do not over tighten the mounting screws. Just moderate tightening is required. The tapped holes in the radio can be stripped if overtightened.**

Step 3: Install 4 rubber pads on the inside each side panel as shown in figure 3.

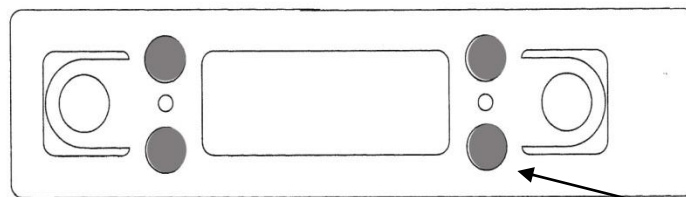


Figure 3
Install 4 rubber pads on inside (facing radio) of both side panels as shown. Pads should be placed about 3/16 above and below mounting holes. Pad location does not need to be exact.

Figure 1
Insert 4 screws #4 X 3/8 in each side of the battery case as shown. Seat the screws snugly into counter-sunk recess in side panel but do not overtighten.

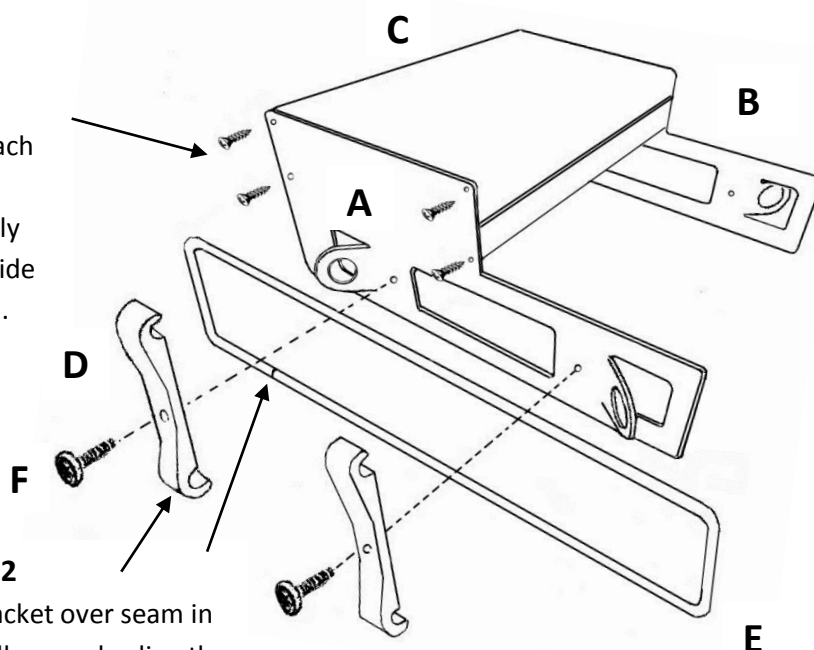


Figure 2
Center rear mounting bracket over seam in protective frame. This will properly align the frames with the radio's front panel. (install frame with seam on the bottom as shown)