MSA Passport® FiveStar Nickel Metal Hydride Charger Stand (P/N 10018393) Operating Instructions

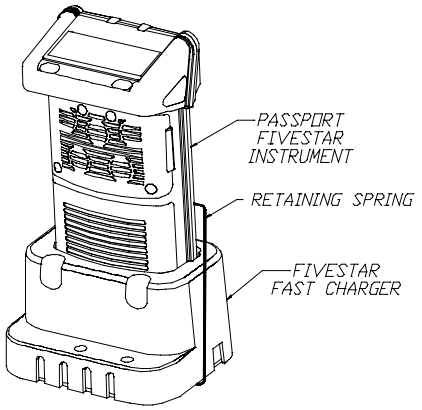

Figure 1.
Passport FiveStar Instrument and NiMH Charger

The Passport FiveStar Fast Charger Kit is designed for use with:

- nickel metal hydride (NiMH) Battery Packs
- nickel cadmium (NiCd) Battery Packs.

This charging system is designed for charging both FiveStar NiMH *and* NiCd Battery Packs.

The NiMH Charger Stand requires a Power Supply (P/N 10013426) and an IEC-compatible Power Cord (P/N 634073 for North American wall outlets).

⚠ CAUTION

Use only the recommended power supply, which is for 100 to 240 VAC, 50/60 Hz. circuits only; use of other wall adapters can damage the Charger and Battery Pack.

⚠ CAUTION

Do not block the front ventilation holes or the rear fan when charging NiMH batteries. Doing so may increase the temperature of the battery being charged and lead to permanent cell damage.

⚠ CAUTION

Only charge NiMH batteries in ambient temperatures between 32 and 104°F (0 and 40°C). Otherwise, permanent damage to the NiMH batteries may result.

1. Insert the Wall Adapter jack tip into the jack receptacle on the side of the Fast Charger Stand.
2. Plug the provided Wall Adapter into a standard wall outlet.
   - Charge Mode light turns amber (see TABLE and FIGURE 2).
   - Battery Type light flashes green.
   - Charger is ready for use.

Status Light Indications		
LIGHT COLOR	**LEFT LIGHT CHARGE MODE**	**RIGHT LIGHT BATTERY TYPE**
AMBER	Ready to charge	
RED	Fast charge	NiMH (flash)
GREEN	Topping/ maintenance charge	NiCd (flash)
RED/GREEN	System error	
RED/AMBER	System error	

Charging Passport FiveStar Instruments

1. Turn the instrument OFF.
2. Insert instrument into the Charge Stand (FIGURE 1). The Fast Charger then proceeds through several charge modes described below:

   Soft Start Mode

   - Mode light turns red
   - Battery Type light flashes red for NiMH or green for NiCd battery pack
   - For the first two minutes of the charge cycle, the Fast Charger gradually increases the charging rate.

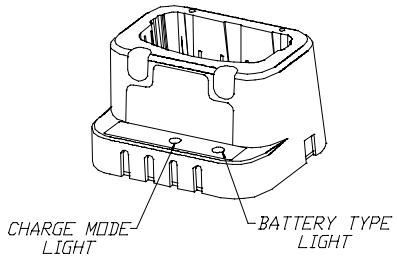

Figure 2. Charge Stand

(L) REV 1
P.O. BOX 427, PITTSBURGH, PA 15230
10017984

- Battery Type light flashes slowly, then faster as the charge rate increases.

Fast Charge Mode

- Battery Type light flashes about once per second
- Fast Charge mode lasts up to approximately four hours, depending on amount of discharge.

Topping Charge Mode

- As battery nears full charge, the Charger changes over to a Topping Charge mode
- Charge Mode light turns green
- Battery type light flashes OFF approximately every four to five seconds
- Topping charge lasts about four hours.

Maintenance Charge Mode

- The instruments or battery packs may be left on charge indefinitely without adverse effects to the battery packs
- Charge Mode light remains green
- Battery Type light flashes OFF approximately every 12 to 15 seconds.

Charging a Battery Pack Separately from the Instrument

1. Insert the Battery Pack (with the six gold contacts facing downward) into the Charge Stand by sliding the curved top of the Battery Pack down the front side of the Charger (FIGURE 3).
2. Snap the Retaining Spring into place over the Battery Pack (FIGURE 3) to ensure full Charger-to-Battery Pack contact.

⚠ CAUTION

The retaining spring ensures that all contacts are properly mated between Battery Pack and Charger. Charging the Battery Pack separately from the instrument, without snapping the retaining spring into place, can cause the Battery Pack to be under-charged, over-charged or damaged.

System Diagnostics

- The Charge Mode lights should be amber and the Battery Type light is flashing green when no battery pack is installed.
- NiMH charging is indicated by the Battery Type light showing red (and the fan must be running).
- NiCd charging is indicated by the Battery Type light showing green (the fan does not run during NiCd Pack charging).
- If the Charge Mode light does not indicate proper charge progress, or if the Battery Type light does not indicate the proper battery pack, reseat the instrument/pack within the Charger. If this does not solve the problem, the instrument/pack may still not be making proper contact, contacts may be dirty. Try cleaning the contacts on the battery pack. If this does not correct the problem, the Charger may be inoperative.

  NOTE: If the NiMH Battery Pack has been over-discharged, the Fast Charge mode may terminate in the first half-hour and the Battery Pack may not be fully charged. This is a result of a safety feature built into the Charger circuitry to prevent damage to fully-charged packs installed in the Charger. Simply remove and reseat the Battery Pack and it will proceed through a full charge cycle.

  Over-discharging typically arises when the FiveStar Alarm NiMH Battery Pack has been run completely through instrument shutdown and then allowed to sit (while attached to the instrument) for several days prior to charging. It is best to avoid these conditions, as they will degrade the overall life of the NiMH Battery Pack.

- If the Charge Mode light flashes red/green or red/amber, the Charger must be returned for repair.
  - For repair, send both the Charger *and* Wall Adapter to:

    MSA Instrument Division
    Service Department
    1000 Cranberry Woods Drive
    Cranberry Township, PA
    16066-5296
    (1-800-MSA-INST)

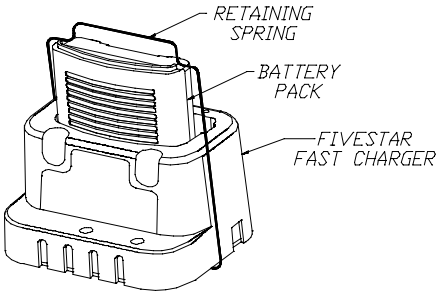

Figure 3.
Battery Pack