



*MiniSShot*

## Wiring Harness Guide

Rev. 2010/03/10

## **Introduction**

This document provides information relating to the wiring harnesses used for the MiniSShot electrical and avionics systems.

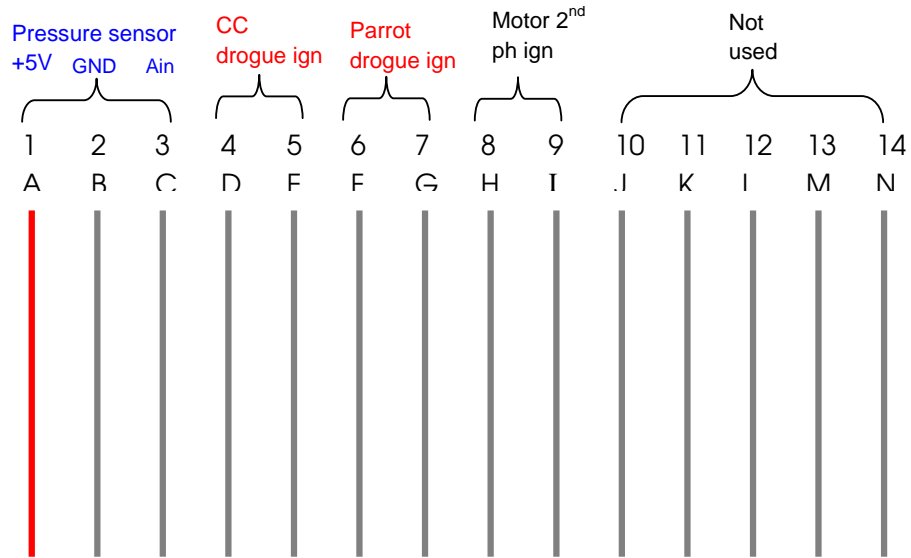
### **Item 1 - Break-away Connector**

The break-away connector provides electrical connectivity between the two separable sections of the vehicle (booster & payload capsule). At apogee, separation occurs and the connector, which consists of male & female 15-pin D-sub connectors, disconnects. Note that following apogee, electrical connectivity is no longer required as the booster and payload capsule descend separately.

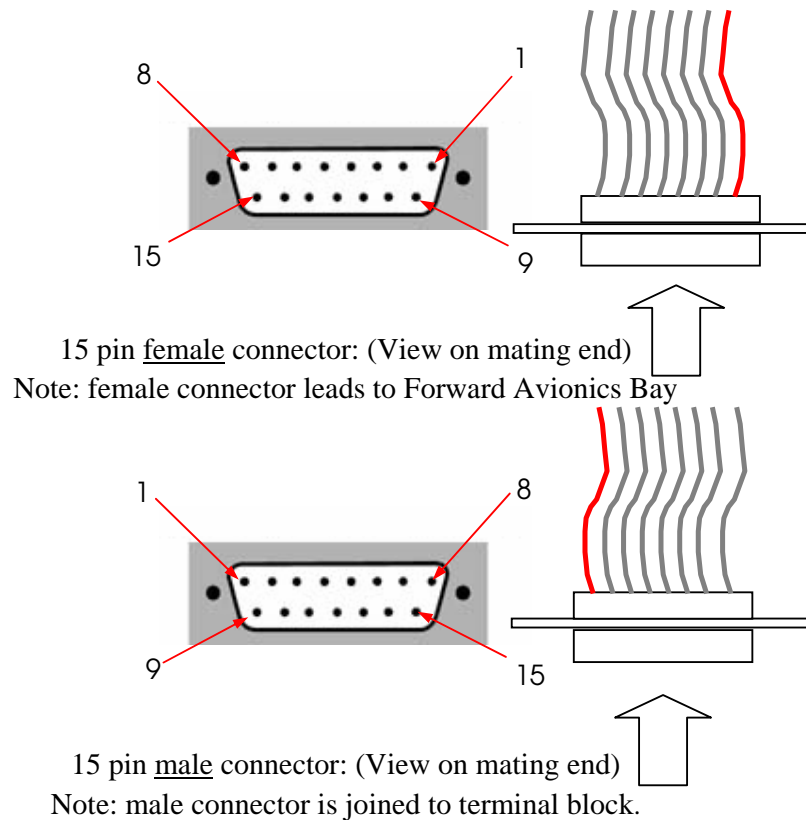
28 gauge ribbon cable is soldered to each of the two mating connectors.

The female connector is secured in the Recovery Bay and is interfaced to the avionics in the Forward Avionics Bay. All 14 wires are soldered to the connector, even though only 9 are active.

The opposing end of the ribbon cable that has one end soldered to the male connector screws into a terminal block located in the Aft Avionics Bay. Interfacing to a terminal block is necessary as the ribbon cable, which is pared down to 9-wires, has to fit through a 3/16" hole penetrating the Pyro Separation Device (PSD) plunger. The terminal block is soldered to a small circuit board. Each of the terminals are identified by letters from A to N, which correspond to numbered pins of the connectors. This is illustrated in Figure 1, which also identifies the connector pin assignments.



Ribbon wire number assignment. Letters refer to terminal block strips.



**Ribbon wire numbers soldered to corresponding connector numbers**

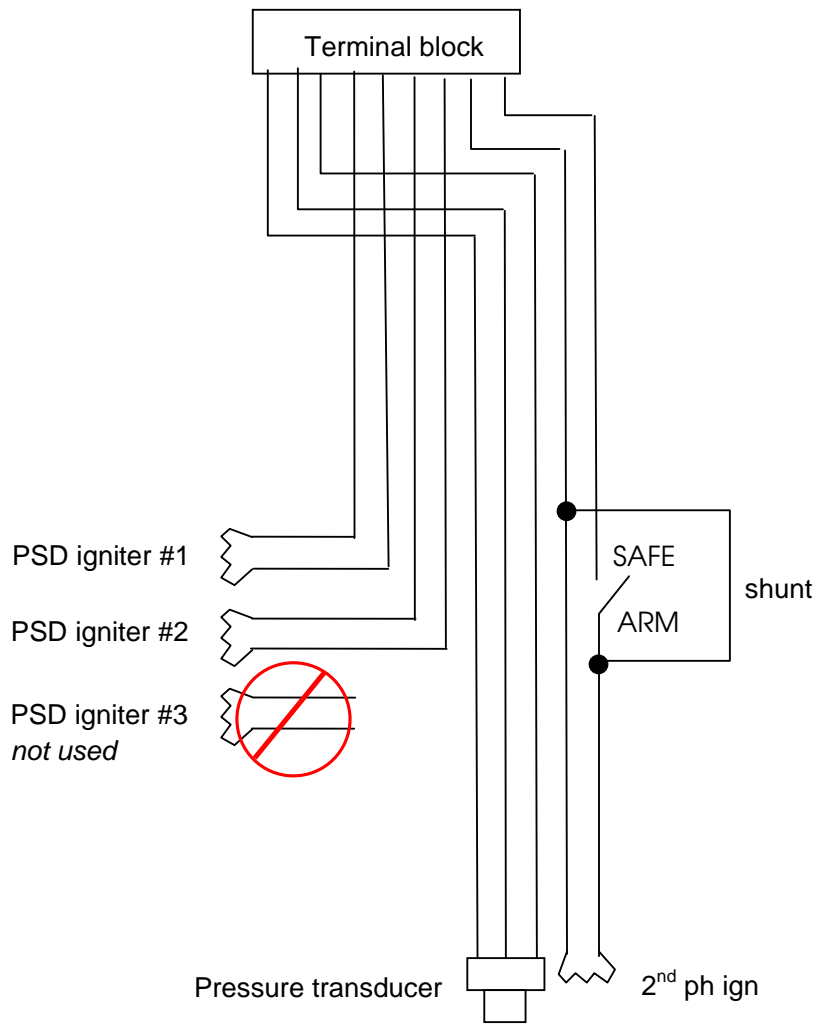
**Figure 1**

## **Item 2 – Aft Avionics Bay Harness**

This harness serves to wire the pressure transducer and motor second-phase igniter to the terminal block described in Item 1.

Integral to the harness is the safety provision to eliminate the possibility of motor ignition while the rocket is on the pad. This consists of a SAFE/ARM switch in series with the igniter, and an electrical shunt that is installed during ground operations and removed prior to flight. The shunt serves to bypass the igniter, and when installed, renders the possibility of premature ignition impossible.

A wiring diagram of the harness is illustrated in Figure 2.



**Figure 2**