

cult and slow process on the fire ground to reposition the penetrator in the correct location.

It is also necessary to keep the hardened tip sharpened for an easy purchase on the fuselage skin. When targeting the fuselage skin you need to stay away from rivet lines in the fuselage. they normally indicate stiffeners, bulkheads or circumferences in the fuselage structure.

There is a very good possibility that you will not be able to arrive at your objective at exactly a 90 degrees You will have to develop a sense of what angle the penetrator can actually pierce the fuselage skin. With training your sense of the perimeters possible will become more evident. The items that you will need to get a sense for are:

- How far off center you can pierce a hole through.
- How to create a purchase point with your harden point.
- As you extend what forces are being generated on the penetrator head.

One of the concerns with a penetration operation at a increased horizontal angle is that the penetrator has a friction connection for the vertical plane but not the horizontal plane. The possibility to break the penetrator mounting is considerable when forces are applied side to side. Optimally you

want to pierce the objective as close to 90 degrees from the fuselage as possible. The ability of the apparatus driver to position the apparatus with the best opportunity to reach the fuselage at a 90 degrees irregardless of the obstruction at the incident will allow for a successful operation.

There are two aspects of the reach of the boom that will affect the spotting distance. First, is the need to use an extension for the penetrator tip. With the extension attached to the tip this increases the amount of boom extension necessary to reach the objective. Second, if the boom is rotated horizontally this also decreases the total reach. Both these factors must be taken into consideration when spotting the apparatus prior to penetrating the fuselage skin.

Once you are set up to penetrate remember that first move on the joystick is extend, and your next move only is retract. Remembering this "memory jog" it will not allow you the opportunity to input the wrong movement for the boom that may cause a failure of the penetrator mount.

PASSENGER AIRCRAFT

Incident Example, 737 MANCHESTER ENGLAND

In 1985 an interior fire occurred on a Boeing 737 in

Manchester, England. (*Photo below*)

There were 137 persons on the aircraft. The situation started during the takeoff roll. At 123 knots the number one engine suffered uncontained engine disintegration. During the engine explosion, part of the engine struck an under-wing fuel tank access panel, creating a 8 inch diameter hole.

The fuel was ignited and directed against the fuselage by the number one engine clamshell thrust reverser. The right turn of the aircraft onto a taxiway placed the fire upwind of the aircraft. The seven knot wind blew the fire around the rear fuselage.

Direct fire penetration into the cabin occurred in 20-40 seconds. Fire first penetrated through air conditioning cavities, then the skin, and lastly through the windows. The Captain thought that they had blown a tire, until the fire warning bell sounded for the number one engine.

Tower confirmed that there was a fire and recommended evacuation from the right side of the aircraft. The aircraft was rapidly brought to a halt and turned right off the runway and onto a taxiway. Persons were getting out of their seats in the rear of the aircraft before it came to a stop. Also, before the aircraft came to a stop, the right rear door (R2) was seen to be opened and the escape slide deployed.

No evacuation took place via this door, which was subsequently closed, or the rear left door (L2), or the left over wing exit. The Captain ordered the cabin crew and passengers to evacuate the aircraft via right side over the cabin address system.

