

crashworthiness so passengers face longer exposure to post crash fires. With the HRET and penetrator option we have the ability to increase the survivability inside of the aircraft so that more passengers will have the time to be rescued or self evacuate. With a good working knowledge of our tactics, equipment and the aircraft industry that we serve the confidence and decision to act will become second nature for the operators.

OPERATIONAL PARAMETERS OF THE HRET PENETRATOR

The operator must understand the physical operational parameters of his equipment. The understanding of the range and reach of the boom is critical when spotting the apparatus and preparing for a penetration operation.

With boom deployment the micro processor relays what relationship the lower boom is to the top of the apparatus. When the lower boom has cleared all obstructions on the top of the vehicle a light on the dash will indicate that you can rotate the boom. This position is the lowest boom configuration for rotation without self collision. Boom rotation is used when the apparatus is unable to line up at a right angle to the objective. This boom position is the least desirable because of the limitations it sets for the operational perimeters.

The microprocessor has a auto deployment function that will allow the boom and upper arm to reach the full range of movement. This position allows for greatest flexibility for the booms range and reach. In the "auto-tilt" position the reach of the boom is also extended by an additional six feet.

The maximum height with the upper arm level is 24 feet. Pene-

tration objectives above this height are attainable but would be dependant on the radius of the fuselage at that height and a number of other factors. The reach of the appliance is 27 feet. Be aware that you are required to have at least 5 feet (*if extensions are used*) of extension for full penetration of the tip. The distance and spotting of the apparatus is critical and that fact will become evident later in this article.

In a perfect world you will approach the objective at 90 degrees to the fuselage. With aircraft incidents we have the possibility of many different obstacles as you approach the objective. One of the safety devices incorporated in the penetrator head is a friction clutch for holding vertical movement of the penetrator tip. If the penetrator tube is not in alignment with the boom, as you extend the clutch will release and move on its axis. This safety feature when forced moves the tube and does not allow the penetrator to pierce the fuselage skin.

It is imperative for the boom operator to align the penetrator with the boom prior to piercing the fuselage skin. One of the operational aides that we have implemented with our

operators is the auto level feature on the apparatus. Knowing that the operation to be accomplished is a penetration operation prior to arriving on scene and the boom is still bedded (horizontal to the ground) the operator should flip on the auto level feature on the nozzle head which automatically aligns the penetrator with the boom. Once that is accomplished the auto level switch should be shut off and the penetrator will continue to be aligned with the boom not matter what position the upper arm is in as the boom is deployed.

To help with this alignment concern we have added two features to our apparatus. The field mechanic installed a proximity switch with a "ok to penetrate" indicator light on the dash board. When the penetrator is in line with the boom we have a light that indicates that the position of the penetrator is aligned with the arm of the boom. There is also a mark on the rotation drum that is visible from the cab that can also be used to determine the position of the penetrator in relation to the boom. If the penetrator friction clutch does slip it is a diffi-

