Figure 8-8 shows the basic types of line disconnects. Most lines leading from a QECA are secured to a threaded fitting at the firewall by a sleeve nut around the tubing. Hoses are sometimes secured in this manner but may also be secured by a threaded fitting on the unit to which they lead, or by a hose clamp. The firewall fittings for some lines have a quick-disconnect fitting that contains a check valve to prevent the system from losing fluid when the line is disconnected. Metal tubing on some installations may also be disconnected at a point at which two lengths of it are joined together by a length of rubber hose. Such a disconnection is made by loosening the hose clamps and sliding the length of rubber hose over the length of tubing that remains on the aircraft. There may be some further variations in these types of disconnections, but they follow the same basic pattern.

Some type of a container should be used to collect any fuel, oil, or other fluid that may drain from the disconnected lines. After the lines have drained, they should be immediately plugged or covered with moisture-proof tape to prevent foreign matter from entering them, as well as to prevent any accumulated fluid from dripping out.

Other Disconnections

The points at which the various air ducts are disconnected depend upon the engine and the aircraft in which it is installed. Usually, the air intake ducts and the exhaust system must be disconnected so the basic engine or the QECA can be removed. After the engine connections are free (except the engine mounts) and all the disconnections are entirely clear so they do not bind or become entangled, the engine can be prepared for hoisting.

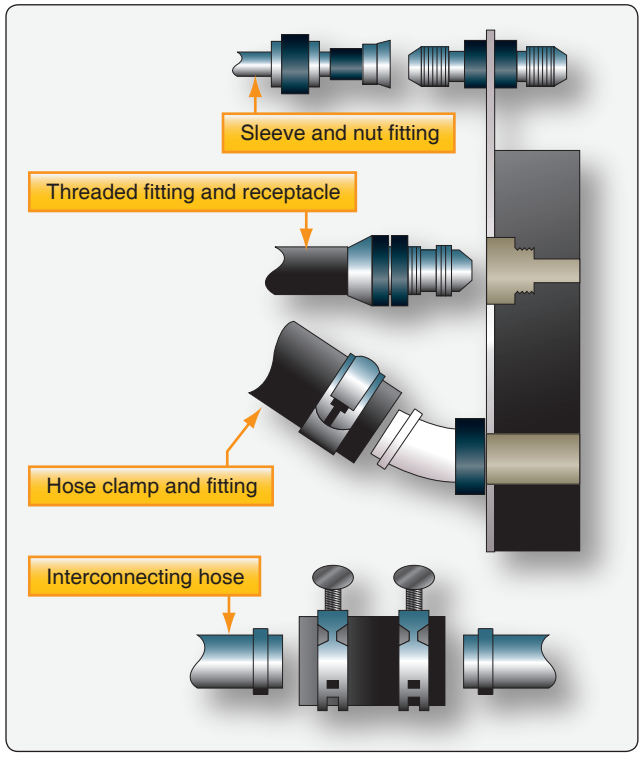

Figure 8-8. *Types of line disconnects.*

Removing the Engine

If a QECA is being removed, the engine mount accompanies the engine. The mount remains on the aircraft if only the engine is being removed. Before the engine can be freed from its attachment points, a sling must be installed so the engine's weight can be supported with a hoist when the mounting bolts are removed.

Aircraft engines, or QECAs, have marked points for attaching a hoisting sling. The location of these attaching points varies according to the size and weight distribution of the engine. *Figure 8-9* shows a sling supporting an engine that has two attaching points. As a matter of safety, carefully inspect the sling for condition before installing it on the engine.

Before attaching the sling to the hoist, be sure that the hoist has sufficient capacity to lift the engine safely. The engine's center of gravity (CG) should also be taken into account as the engine is hoisted. A manually operated hoist mounted in a portable frame is shown in *Figure 8-10.* This hoist assembly is specifically manufactured for the purpose of removing engines and other large assemblies from aircraft. Some frames are fitted with power-operated hoists. These should be used with care, since considerable damage can be done if an inexperienced operator allows a power-operated hoist to overrun. The hoist and frame should also be checked for condition before being used to lift the engine.

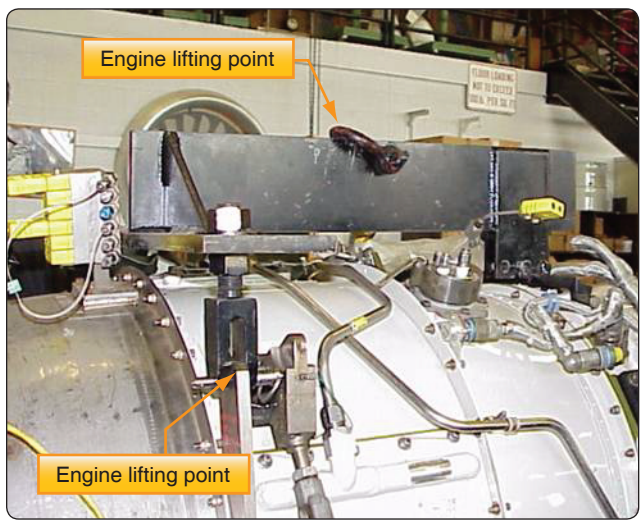

Figure 8-9. *Hoisting sling attached to engine.*