

the original relationship of the members. The second type of contaminant is of a chemical nature and produces harmful effects by attacking the finished metallic surfaces in a corrosive manner. Ordinary fingerprints contain water-soluble, acidic salts, having extremely high corrosive activity with the metals of the critical instrument parts. Since these parts must necessarily be handled in making a piston exchange, they may be protected from exposure to both types of contaminants by the use of clean paper wipers. Even though the parts may be completely covered with oil, salts will be deposited on the metal surfaces if they are handled with bare fingers.

There are a number of industrial paper wipers available that are relatively free of lint. After a little practice, the corrosion-sensitive parts may be safely handled with these wipers instead of with the bare fingers. Even when using the wipers as insulators, the hands should first be washed and thoroughly dried before commencing the disassembly.

The space allotted to the discussion of cleanliness is not intended to imply to the technician the impossibility of performing the job correctly, but rather to give him reassurance that the results will be quite satisfactory if he follows a common-sense procedure of eliminating contaminations by technique alone.

Being forewarned of the hazards, the technician should wipe the bench and all instrument surfaces in the vicinity of the dead-weight gage before starting disassembly operations. A wad of wipers slightly wetted with a mild, non-toxic solvent will help to pick up the heavy oil film that invariably accumulates near the gage. Because of its tackiness, a wad so treated gathers and retains most of the accumulated dust and lint that has settled in the area.

DISASSEMBLY

The drive belt is removed from the motor pulley and is pulled toward the forward part of the gage. To insure that the belt has not been left off after the gage has been loaded with weights, it is advisable to leave the drive belt encircling the housing, Part 2450-100-6.

With the belt forward and out of the way, the area between the housing and motor drive serves as a space to lay the parts as they are removed from the housing. A new, clean piece of paper is placed on the base surface to keep the parts clean. The heavier type industrial wipers serve for this purpose.

After preparing the gage and bench for removal of the piston assembly, the operator should wash and thoroughly dry his hands.

Referring to the diagram for Model 2450, the weight table, Part 2450-008-1, is constructed of Type 303 stainless steel and may be safely handled with the bare fingers. The table support, Part 2450-002-9, to which the table is securely attached, is made of heat-treated alloy steel and should not be touched with the fingers.

It may be seen from the drawing that the weight table rests on the thrust bearing (05-400-0627-004) when in the down position. The bearing is designed to accommodate the load of all the weights smaller than the sleeve weight when there is no pressure in the gage. Since the table support (9) does not rest on the measuring piston thrust plate when in this position, the piston is protected from damage by an impact upon the weight-loading table. The thrust bearing is protected

from overload by the stack of large weights by the drive-sleeve thrust bearing (05-400-3002-004). With no pressure in the housing, the sleeve weight rests on a shoulder of the driving sleeve and stands clear of the weight-loading table. The accidental loss of pressure will not result in an impact on the measuring piston but on the drive sleeve thrust bearing.

In changing piston assemblies, it is necessary only to remove the bushing (2450-100-7) from the pressure housing and force the installed cylinder out with the oil pump. Spanner Wrench No. 453 is used to unlock the bushing from the housing, after which the entire bushing and weight table assembly may be unscrewed with the fingers. The knurl on the cap (2450-002-11) is provided for this purpose. It is advisable to avoid touching the bushing (7) more than necessary with the bare fingers because of the possibility of transferring corrosive fingerprints to the alloy steel. When withdrawing the assembly, it should first be lifted carefully above the housing to expose the lower end of the bushing. Occasionally, the cylinder will cling to the lower surface of the bushing as the assembly is being removed. On such occasions, the free hand should be held under the assembly to catch the cylinder in the event it should fall during transfer to the table top. In the event it does not cling to the bushing, the cylinder may be forced out of the housing by pumping in a quantity of oil with the hand pump.

As the pumping is started, and, before the cylinder begins to move, the piston will rise to its upper limit. The small thrust plate may be grasped with the fingers, which are insulated with a wiper. The pumping must be continued until the cylinder is free of the housing bore, at which time the assembly may be lifted out and immediately wrapped with a wiper.

REASSEMBLY OF THE GAGE

Assuming that a different piston assembly is to be placed in the gage, the second piston is removed from its container, in much the same way that the first one was removed from the housing. Since the second piston is covered with oil, the assembly will be a little more difficult to remove from the container. The assembly must be moved from side-to-side in the container while gently lifting by the upper thrust plate in order that the air may enter beneath the cylinder.

Before installing the replacement piston-cylinder assembly, the top mating faces of the cylinder and piston should be wiped free of lint. Lint which clings to the outside diameter of the cylinder is not objectionable, since it will be pushed aside during assembly. The replacement assembly is inserted into the housing while being suspended by the piston thrust plate. These assemblies are always handled with paper wipers as insulators against contamination by fingerprints. With the valve to the reservoir open, the assembly may be pushed into the housing by pressing on the piston thrust plate. After a final wipe across the thrust plate with a wiper, the loading table and bushing assembly is replaced.

Upon completion of the assembly, the drive sleeve is rotated so as to expose the vent screw (2450-100-3). The screw is removed with a 3/32 hex key and the drive sleeve rotated until the port is covered but is still visible. Oil is pumped into the housing until bubbles cease to appear in the vent port, after which the screw is replaced.