index assembly. It may be necessary to remove the plate assembly (4) several times to place the collar in the proper position so as to contact the index release lever almost at the end of its travel. This is done by loosening the set screw (5) and rotating the collar to its correct position. However, if the plate assembly is removed, it will be necessary to run the clock mechanism for its full one-minute period so that it is unwound before replacing the plate assembly.

2-40. PRESSURE CONTACT SCREW. (See figure 2-14.) The pressure contact may be adjusted in the following manner. Place the averager on the bench with the triangular plate assembly (4) facing up. Turn the pressure screw in a counterclockwise direction and, at the same time, alternately lift up and release the yoke and index (30) until it has free movement. Then turn the pressure screw clockwise and, at the same time, alternately lift up and release the yoke and index assembly until the free movement has been taken up by the position of the screw. Permit the mechanism to operate until the time dial indicates 15. Rotate the bearing plate located in the mounting plate (9) with a suitable tool and observe the movement of the friction disk gear assemblies. If the assemblies show any indication of slipping, increase the tension on the pressure contact screw until there is no apparent slippage while rotating the bearing plate. At this point, further increase the tension by one full turn. Excessive pressures will not permit the knob on the sextant to operate freely and smoothly. It is, therefore, important, that the tension is correctly adjusted. After adjustment cover the head of the screw with Minnesota Mining and Manufacturing Co.'s E.C. 801 Cement.

2-41. SPRING TENSIONS. (See figure 2-14.)

a. Tension of the spring (6) must be sufficient to return the parts attached to the shaft of the plate assembly, to its starting position after the mechanism has been wound.

b. Tension of the spring (24) must be sufficient to prevent slippage of the index disks. If a new spring is being installed, apply tension by changing the position of the spring hook (55) in the frame assembly (56) to its maximum position so that the spring is fully loaded.

2-42. TIMING THE AVERAGER. (See figure 2-33.) The averager must be operated for a maximum time interval of 60 seconds and must be timed against a master stop watch, electric timer or equivalent. Conduct the test as follows:

a. Rotate the sector shaft (1) to wind the averager and then release it to be assured of maximum operation. The mechanism should operate for approximately 3 seconds before it is automatically stopped. At this point the time dial (2) should indicate zero.

b. Simultaneously depress and release the averager operating shaft (3) and the master stop watch.

c. Stop the master watch when the shutter actuating push rod (4) "pops" out. The time dial should indicate 30 seconds. The difference between the master watch and twice the averager time dial reading must not exceed 1 second.

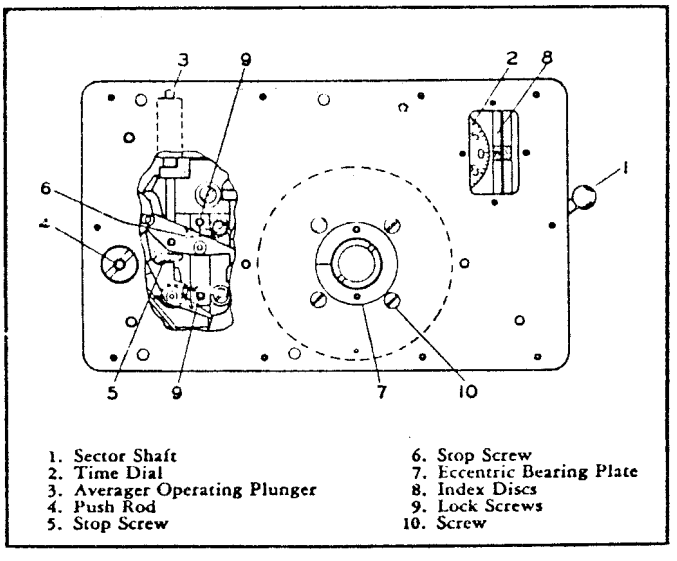
Note

The averager time dial indicates half the time of observation in seconds.

2-43. ADJUSTMENT OF CLOCK MECHANISM. The clock is so adjusted to allow the ball carriage assembly to travel between the stops in 60 seconds ±2 seconds. Lengthen or shorten the effective length of the hairspring to accomplish this adjustment.

2-44. FINDING THE CENTER OF ROTATION OF THE BEARING PLATE AS INDICATED ON THE INDEX DISKS. (See figure 2-33.)

a. Each averager has certain inherent errors which



1. Sector Shaft
2. Time Dial
3. Averager Operating Plunger
4. Push Rod
5. Stop Screw
6. Stop Screw
7. Eccentric Bearing Plate
8. Index Discs
9. Lock Screws
10. Screw

Figure 2-33. Averager Adjustments

must be adjusted to within its operating tolerances. The ball carriage of the averager operates between two rails, allowing the carriage very little side play. The carriage travel is governed by two adjustable stop screws (5 and 6) which are mounted on the control unit. The stops ar so adjusted that when the averager is fully wound it will be stopped by the control unit. At this position the point of contact of the ball in the carriage will be on the vertical centerline of the bearing plate of the mounting plate assembly. Due to the allowable side play of the ball carriage and the play in the radial bearing of the bearing plate, an eccentric adjustment (7) located in the mounting plate assembly is used to position the ball on the horizontal center line. By adjusting the carriage stops and the position of the eccentric, the errors of the averager may be controlled.

b. Using a suitable tool rotate the bearing plate and observe the movement of the index disks (8). The reference line on the index assembly should not move more than 0.010 inch in either direction from the zero reference line on the window when the plate is rotated