KS-14799 TIMER
REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers the KS-14799 timer.

1.02 Reference shall be made to Section 020-010-711 covering general requirements and definitions for additional information necessary for the proper application of the requirements listed herein.

1.03 Before doing any work on the timer, take it out of service by restoring the MAN-AUTO key of the traffic usage recorder to the unoperated position.

1.04 One dip of oil for the purpose of this section is the amount of oil retained on a KS-14162 brush after being dipped into the oil to a depth of 3/8 inch and then scraped on the edge of the container to remove the surplus oil. There should not be sufficient oil adhering to the brush to form a drop on the end of the bristles.

2. REQUIREMENTS

2.01 Lubrication

(a) Each of the following parts shall be lubricated with one dip of KS-7470 oil:

(1) Front Bearing: Fig. 1(A) - Apply to cam shaft between collar and end plate.

(2) Rear Bearing: Fig. 1(B) - Apply to thrust washer.

(b) Recommended Lubrication Intervals: The parts in (a) shall be lubricated at intervals of 12 months.

2.02 Record of Lubrication: During the period of installation, a record shall be kept by date of the lubrication and this record shall be turned over to the telephone company with the equipment. If no lubrication has been done, the record shall so state.

2.03 End Play of Camshaft: The camshaft shall have perceptible end play in its bearings, but this end play shall not exceed

Max 0.015 in.

Gauge by eye and feel.

2.04 End Plate Mounting: The pairs of end plate mounting nuts on the studs adjacent to the camshaft shall be positioned to hold the end plate free from warp.

Gauge by eye.

2.05 Cam Position: Fig. 1(C) - With the end play of the camshaft taken up in either direction, each micro switch actuator shall overlap its associated cam.

Gauge by eye.

2.06 Timing Requirements

(a) Accuracy of Timer: The camshaft shall make one complete revolution in

100 sec ±1 sec

Use the KS-3008 stop watch.

Check this requirement as follows:

(1) Prepare the circuit by blocking relay CT1 in the nonoperated

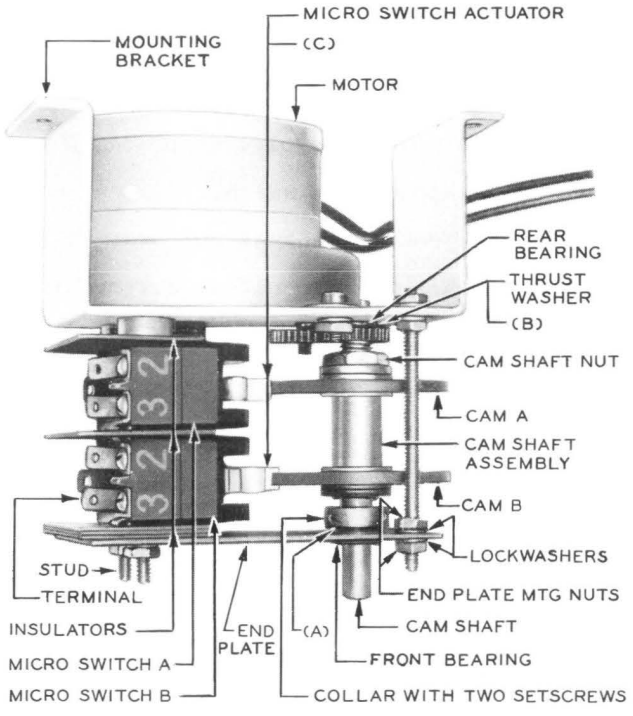

Fig. 1 - KS-14799 Timer

position and relay CT in the operated position. Both relays are mounted on the control cycle timing panel. On the register rack, remove relay CCU from its socket.

(2) Connect one lead of the No. 510C test lamp to terminal 3 of micro switch A and the other lead to 48-volt battery. Start timing when the test lamp lights. Stop timing when the test lamp relights after it has been extinguished once.

(b) Micro Switch A Contact Closure: Contacts 1 and 3 shall close for

Min 5 sec
Max 8 sec

during a complete revolution of cam A.

Use the KS-3008 stop watch.

Check this requirement as follows:

(1) Prepare the circuit as covered in (a) (1).

(2) Connect one lead of the No. 510C test lamp to terminal 3 of micro switch A and the other lead to 48-volt battery. Start timing when the test lamp lights. Stop timing when the lamp is extinguished.

(c) Micro Switch B Contact Closure: Contacts 1 and 3 shall close for

Min 2 sec
Max 4 sec

during a complete revolution of cam B.

Use the KS-3008 stop watch.

Check this requirement as follows:

(1) Prepare the circuit as covered in (a) (1).

(2) Connect one lead of the No. 510C test lamp to terminal 3 of micro switch B and the other lead to 48-volt battery. Connect terminal 1 of micro switch B to ground using a 1W13A cord equipped at each end with a No. 365 connecting clip. Start timing when the test lamp lights. Stop timing when the lamp is extinguished.

(d) Contact Sequence: Contacts 1 and 3 of micro switch A shall close

Max 1 sec

before contacts 1 and 3 of micro switch B open.

Use the KS-3008 stop watch.

Check this requirement as follows:

(1) Prepare the circuit as covered in (a) (1).

(2) Connect one lead of a No. 510C test lamp to terminal 3 of micro switch A and the other lead to 48-volt battery. Connect one lead of a second No. 510C test lamp to terminal 3 of micro switch B and the other lead to 48-volt battery. Connect terminal 1 of micro switch B to ground using a 1W13A cord equipped at each end with a No. 365 connecting clip. Start timing when the test lamp connected to micro switch A lights. Stop timing when the test lamp connected to micro switch B is extinguished.

3. ADJUSTING PROCEDURES

3.001 List of Tools, Gauges, Materials, and Test Apparatus

Code or Spec No.	Description
Tools	
43	3/16-in. and 1/4-in. Hex. Open Double-end Flat Wrench
245	3/8-in. and 7/16-in. Hex. Open Double-end Flat Wrench
510C (2 reqd)	Test Lamp, equipped with W2BL (48-volt) Cord
R-2961	Allen Socket Screw Wrench
KS-14162	Brush
-	4-in. Regular Screwdriver
Gauges	
KS-3008	Stop Watch or Equivalent
Materials	
KS-7470	Oil
	Hardwood Toothpick, flat at one end and pointed at the other.
Test Apparatus	
1W13A	Cord, equipped with a No. 365 connecting clip at each end.

3.002 Removing Panel Cover: To gain access to the KS-14799 timer, remove the panel cover using the 4-inch regular screwdriver.

3.003 When it is necessary to rotate the camshaft assembly manually, rotate

it only in a clockwise direction, as viewed from the front, by applying approximately equal force to both cams with the fingers.

3.01 Lubrication (Rq 2.01)

(1) Lubricate parts as specified in 2.01, using the KS-14162 brush.

3.02 Record of Lubrication (Rq 2.02)
(No Procedure)

3.03 End Play of Camshaft (Rq 2.03)

(1) If the end play requirement is not met, manually rotate the camshaft assembly until the two collar setscrews are accessible. Loosen the setscrews with the R-2961 wrench. Reposition the collar as required and securely tighten the setscrews.

3.04 End Plate Mounting (Rq 2.04)
3.05 Cam Position (Rq 2.05)

(1) If the end plate is warped, reposition the pairs of end plate mounting nuts on the studs adjacent to the camshaft as required. Use the No. 43 wrench. Recheck requirement 2.03.

(2) If a micro switch actuator does not overlap its associated cam, reposition one or more of the insulators with respect to the micro switch in order to bring the micro switch actuator into proper relation with the cam. To reposition an insulator, remove the four outer end plate mounting nuts and lockwashers using the No. 43 wrench. Grasp the outer end of the camshaft and remove the end plate and the camshaft assembly. Take care not to lose the thrust washer on the inner end of the camshaft. This washer may adhere to the rear bearing. Remove the two end plate mounting lockwashers remaining on the studs. Reposition the insulators and micro switches on the studs as required, first noting the position of the insulators and micro switch terminals with respect to the mounting bracket in order to insure that the parts will be properly remounted. If there is insufficient slack in the micro switch leads to permit removal of the switch from the studs, unsolder and tag these leads at the terminal strip on the mounting panel. After the insulators and micro switches have been repositioned, remount all the other parts in the reverse order of their removal. Make sure that the thrust washer is on the inner end of the camshaft and that the projecting portion of the front bearing is on the outside of the end plate. Reconnect and solder any leads which were removed. Recheck requirements 2.03, 2.04, and 2.05.

3.06 Timing Requirements (Rq 2.06)

(1) Accuracy of Timer: If this requirement is not met, replace the motor.

(2) Micro Switch A and B Contact Closure: If the duration of contact closure for either micro switch A or B is not as required, replace the camshaft assembly. If the contacts of a micro switch remain continually closed or open for a complete revolution of the associated cam, replace the micro switch.

(3) Contact Sequence: If the contact sequence is incorrect, reposition cam A relative to cam B as follows. Hold the cams stationary and loosen the camshaft nut sufficiently to permit cam A to be rotated slightly on the shaft with some bind. Using the No. 245 wrench, loosen the nut, which has a left hand thread, by turning it counterclockwise as viewed from the front of the timer. While holding cam B stationary, reposition cam A as required. Then hold both cams stationary and securely tighten the nut by turning it clockwise. Recheck the requirement.