

VARIATIONS ON THE ESCAPEMENT RETARD

1. Review the lessons on Introduction To Shutters and the developments leading to the escapement retard shutters. Analyze the methods of using the escapement design in shutters and other mechanisms requiring a delay.
2. Read and study the lesson text, "Variations on the Escapement Retard."
3. You should know:
 - a. How the escapement mechanism is incorporated into many machines used in photography.
 - b. The general features of a retard gear train that determine its action -- either fast or slow.
 - c. The advantages gained through the use of camera body space to house the shutter mechanism.
 - d. How to disassemble and reassemble the Argus C-3 shutter.
 - e. The variations found in different models of the Argus C-3.
 - f. The functions of the various parts of the Argus C-3 shutter.
 - g. The adjustment procedures for the Argus C-3: retard position adjustment, shutter speed adjustment, release cam adjustment, and sync cam adjustment.
 - h. The operation of the Argus C-4 shutter.
 - i. How to disassemble and reassemble the Argus C-4 shutter.
 - j. The adjustment procedures for the Argus C-4: leaf lever adjustment, shutter speed adjustments, sync adjustments, and lens focus adjustment.
 - k. The variations in different models of the Rollei 35.
 - l. How to disassemble and reassemble the Rollei 35.
 - m. The operation of the Rollei 35 shutter and cross-coupling mechanisms.
 - n. The adjustment procedures for the Rollei 35: shutter speed adjustments and lens focus adjustment.
 - o. The critical lubrication points in the Rollei 35.
 - p. The method used to obtain a great number of speeds in the Ilex Acme shutter.
 - q. The advantages and disadvantages of the two types of speed cams: the step-type cam and the smooth cam.
4. List five malfunctions that might occur in the Argus C-3 shutter through incorrect assembly and tell how they would be corrected. For example:
 - a. Malfunction-----Shutter delivers slowest speed only, regardless of speed setting.
 - b. Cause-----Bell crank spring disconnected or broken.
 - c. Correction-----Connect or replace spring.



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Your best approach in working these out is to start with the cause (error in assembly) and then determine what effect the error will have on the shutter operation.

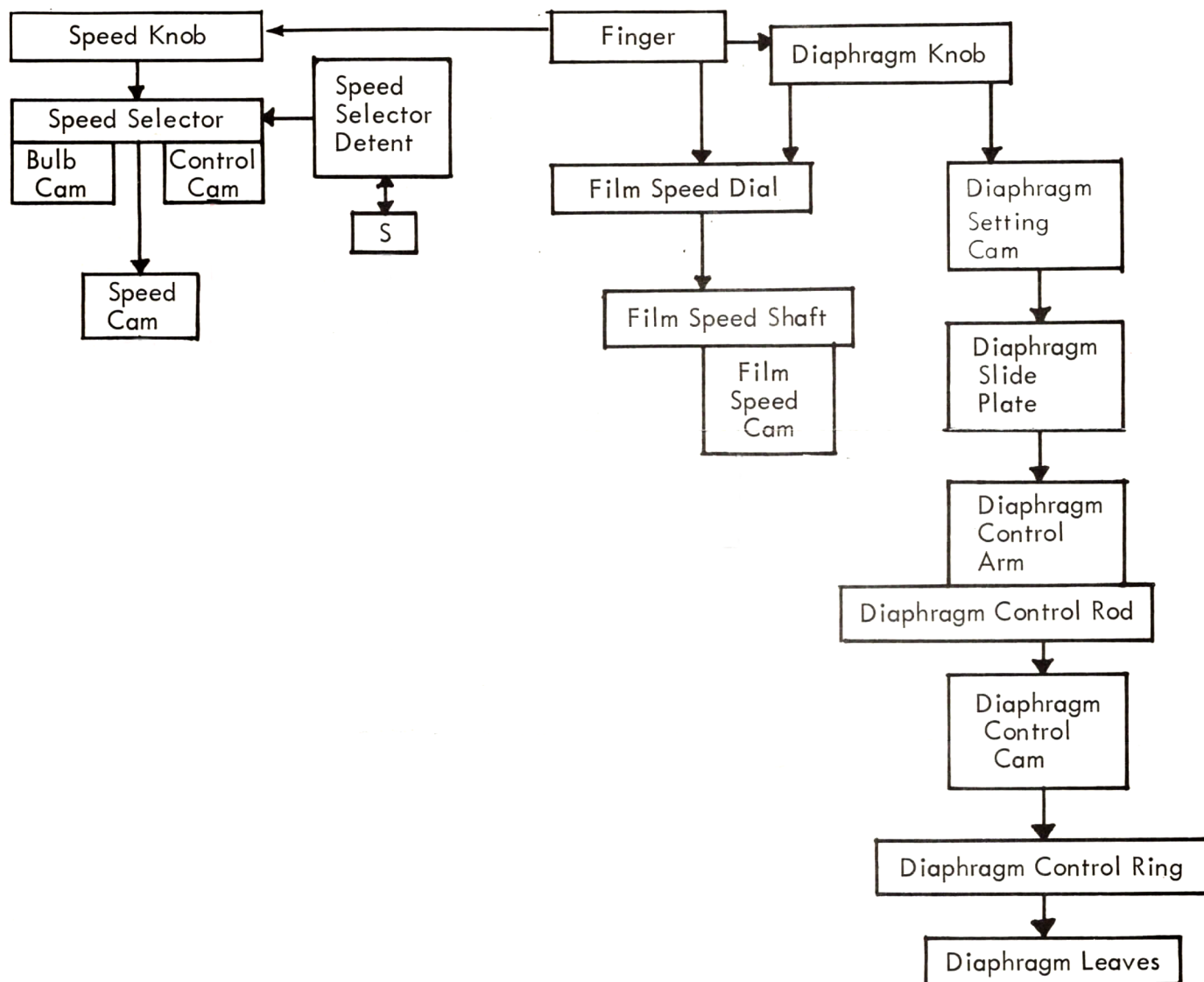
Type or print your answers below:

1. a. Malfunction _____
b. Cause _____
c. Correction _____
2. a. Malfunction _____
b. Cause _____
c. Correction _____
3. a. Malfunction _____
b. Cause _____
c. Correction _____
4. a. Malfunction _____
b. Cause _____
c. Correction _____
5. a. Malfunction _____
b. Cause _____
c. Correction _____

5. The system of levers between the Rollei 35 shutter and exposure meter is known as "mechanical cross-coupling." Later in your course, you'll study another method of linking the shutter to the exposure meter called "electrical cross-coupling." The mechanical cross-coupling system is used more frequently -- and is generally more complex -- than the electrical system.

Drawing a cycle-of-operations on the Rollei 35 cross-coupling system should help you understand the linkage route more thoroughly. We have drawn a partial cycle to include the shutter parts which operate the cross-coupling system. Add the following parts to the partial cycle: POINTER, POINTER LINK, POINTER RACK, PALLET CAM LEVER, and EXPOSURE SETTING LINK. Be sure to add the springs and all arrows necessary to connect the parts you added to the partial cycle.

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6. Place your completed LESSON QUIZ, form #6611, and all pages of your LESSON PROCEDURE in the envelope marked 14*. It is already addressed to the Instruction Department.

To avoid delays, DO NOT include correspondence to other departments in your lesson shipment.

*This envelope was used to protect your lesson text when it was sent to you.

One of the saddest experiences which can ever come to a human being is to awaken, grey-haired and wrinkled near the close of an unproductive career, to the fact that all thru the years he has been using only a small part of himself!

V.M. Burrows