

PENTAX SPOTMATIC



Reprinted November 1975

© Copyright 1971

NATIONAL CAMERA
TECHNICAL TRAINING DIVISION

2000 W. Union Avenue • Englewood, Colorado 80110

ALL RIGHTS RESERVED





BATTERY TEST:

Set: ASA 100 and "bulb"
on speed knob (see
illustration #3)

Push exposure meter
on/off switch up to
energize meter.

If battery is good,
exposure meter
needle will jump
to "underexposure" (-)
position.

EXPOSURE METER
ON/OFF SWITCH

SWITCH INDICATOR
WINDOW

"P" FLASH
CORD TERMINAL



"X" FLASH CORD TERMINAL

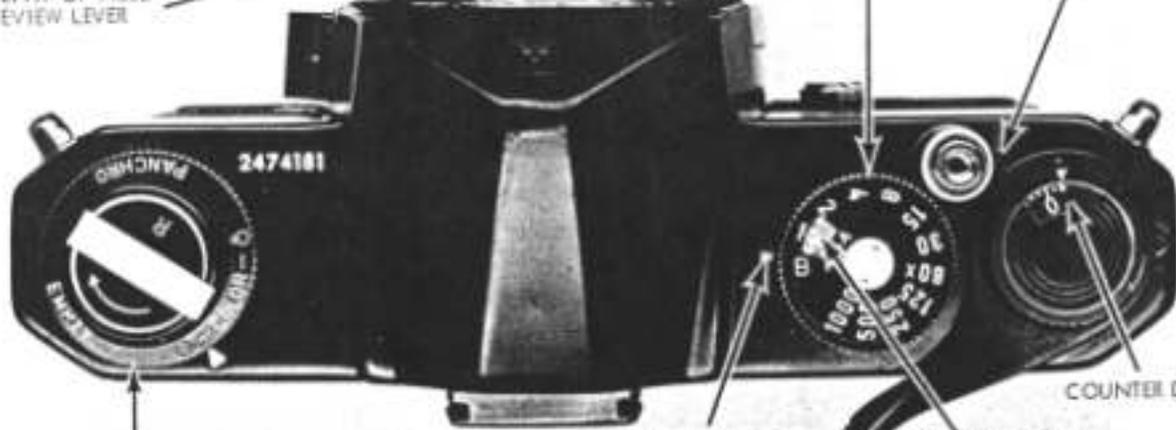
LENS FOCUSING RING

DIAPHRAGM SETTING RING

DEPTH-OF-FIELD
PREVIEW LEVEL

TO SET FILM SPEED, LIFT AND
ROTATE KNURLED SPEED KNOB

SHUTTER COCKED
INDICATOR WINDOW



3

FILM TYPE
REMINDER DIAL

EXPOSURE METER
INDICATOR WINDOW
(RED SIGNAL INDICATES
METERING LIMITS)

FILM SPEED DIAL

COUNTER DIAL

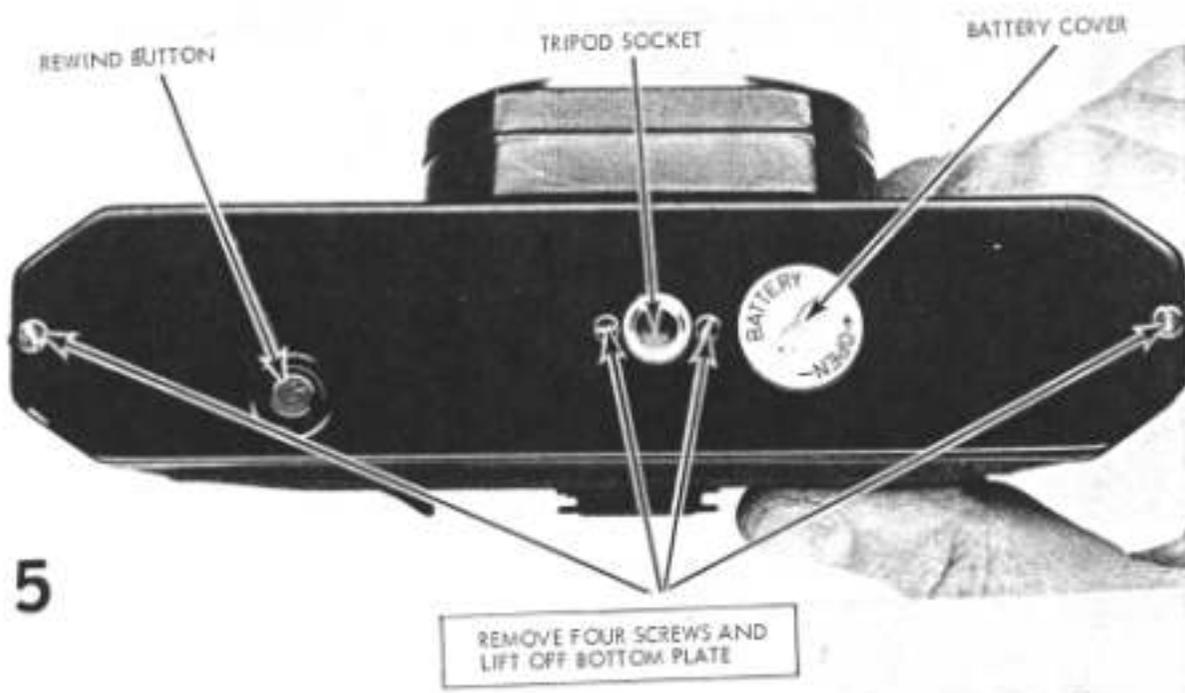
UNSCREW AND REMOVE LENS

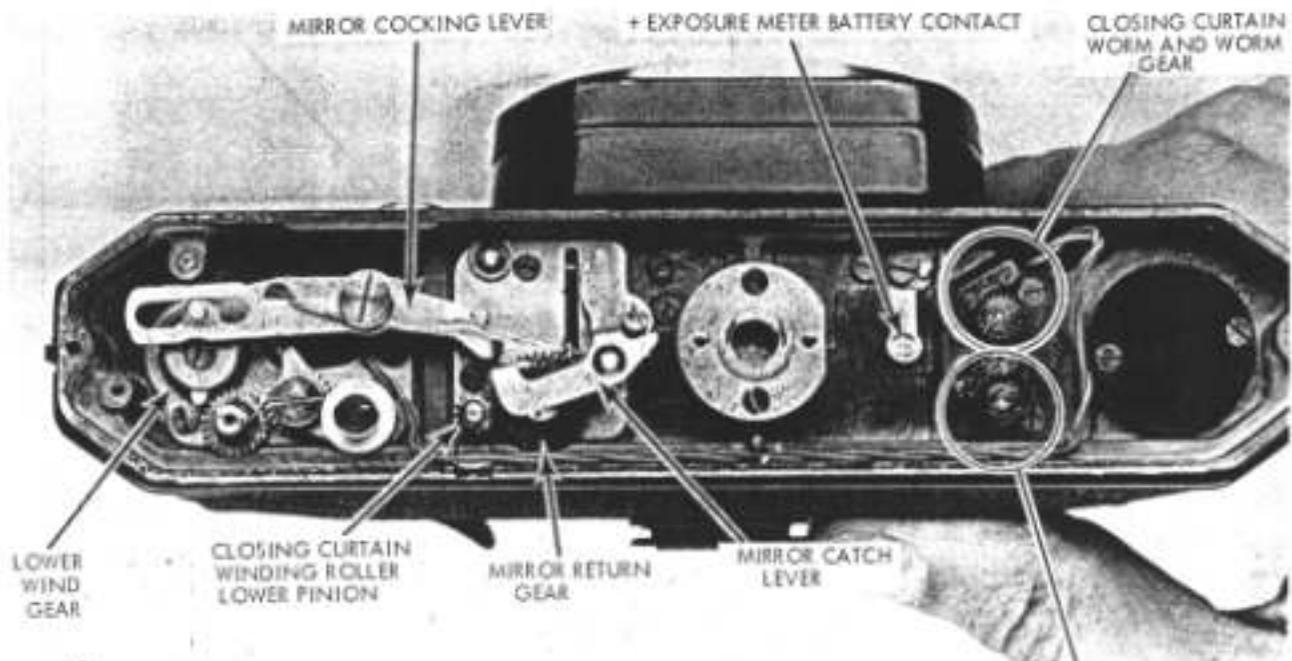
DELAYED-ACTION
RELEASE BUTTON



DIAPHRAGM
CLOSING BAR

4





6

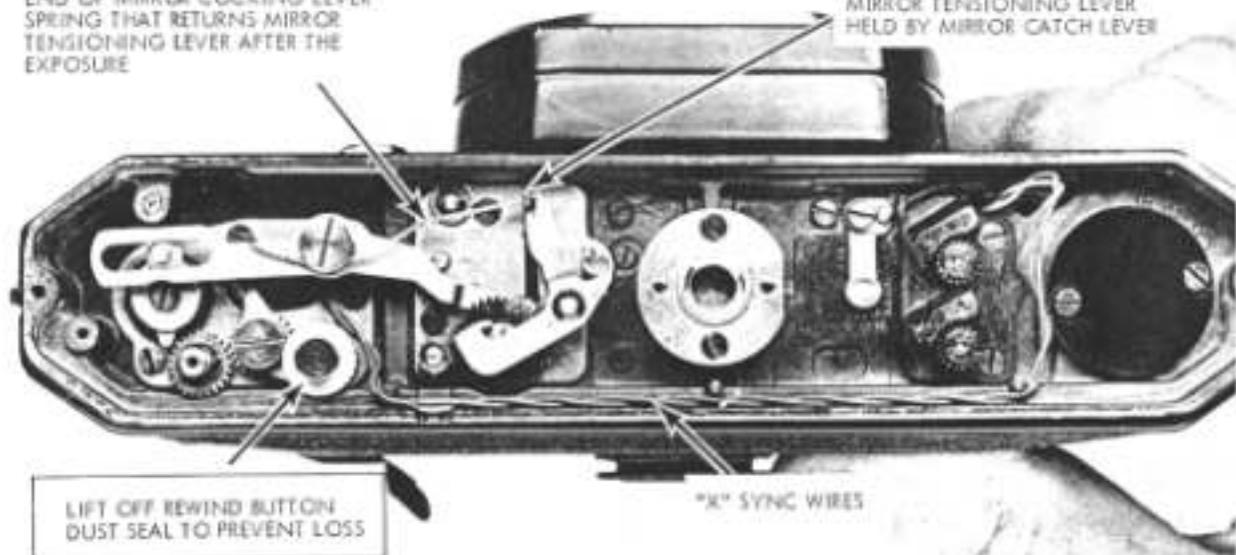
SHUTTER RELEASED

RECENT MODEL

OPENING CURTAIN WORM AND WORM GEAR

END OF MIRROR COCKING LEVER
SPRING THAT RETURNS MIRROR
TENSIONING LEVER AFTER THE
EXPOSURE

MIRROR TENSIONING LEVER
HELD BY MIRROR CATCH LEVER



LIFT OFF REWIND BUTTON
DUST SEAL TO PREVENT LOSS

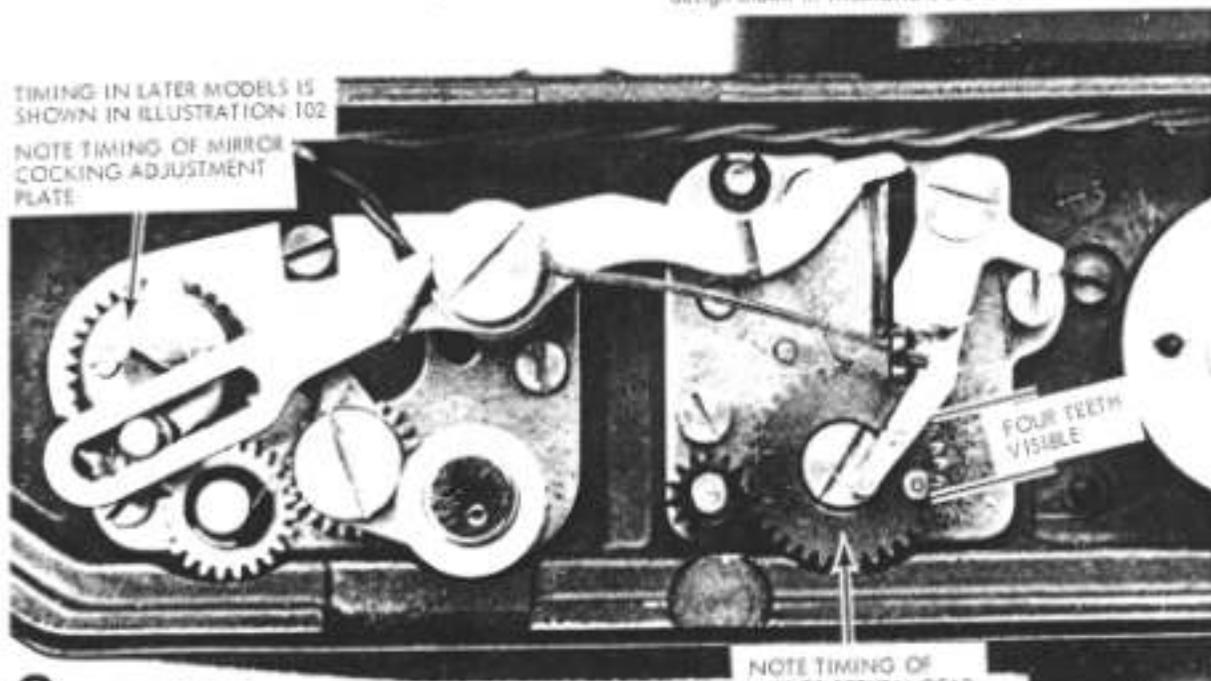
"K" SYNC WIRES

7 SHUTTER COCKED

EARLY MODEL

The mirror cocking lever drives the mirror tensioning lever toward the rear of the camera during the cocking cycle -- just opposite to the cocking direction in the design shown in Illustrations 6 and 7.

TIMING IN LATER MODELS IS SHOWN IN ILLUSTRATION 102
NOTE TIMING OF MIRROR COCKING ADJUSTMENT PLATE

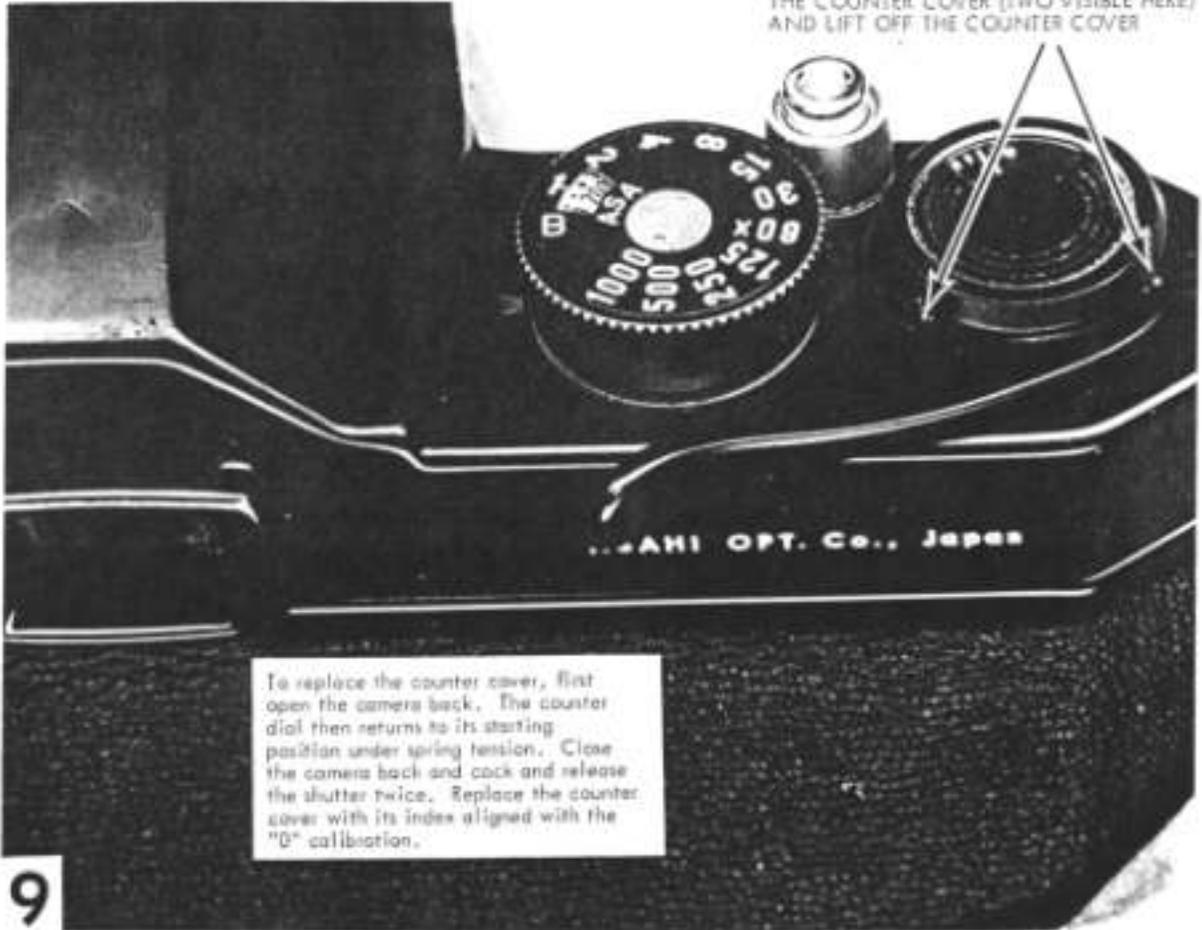


8 SHUTTER COCKED

NOTE TIMING OF MIRROR RETURN GEAR

TIMING OF MIRROR RETURN GEAR IN LATER MODELS IS SHOWN IN ILLUSTRATION 44

LOOSEN THE THREE SETSCREWS HOLDING THE COUNTER COVER (TWO VISIBLE HERE) AND LIFT OFF THE COUNTER COVER



To replace the counter cover, first open the camera back. The counter dial then returns to its starting position under spring tension. Close the camera back and cock and release the shutter twice. Replace the counter cover with its index aligned with the "0" calibration.

9

Temporarily install the closing curtain latch/bulb lever assembly. When the closing curtain wind gear is held by the closing curtain latch/bulb lever assembly, the lead edge of the closing curtain should be aligned as shown in the previous illustration. Adjust the timing between the closing curtain wind gear and the closing curtain pinion shaft until you have the proper distance.

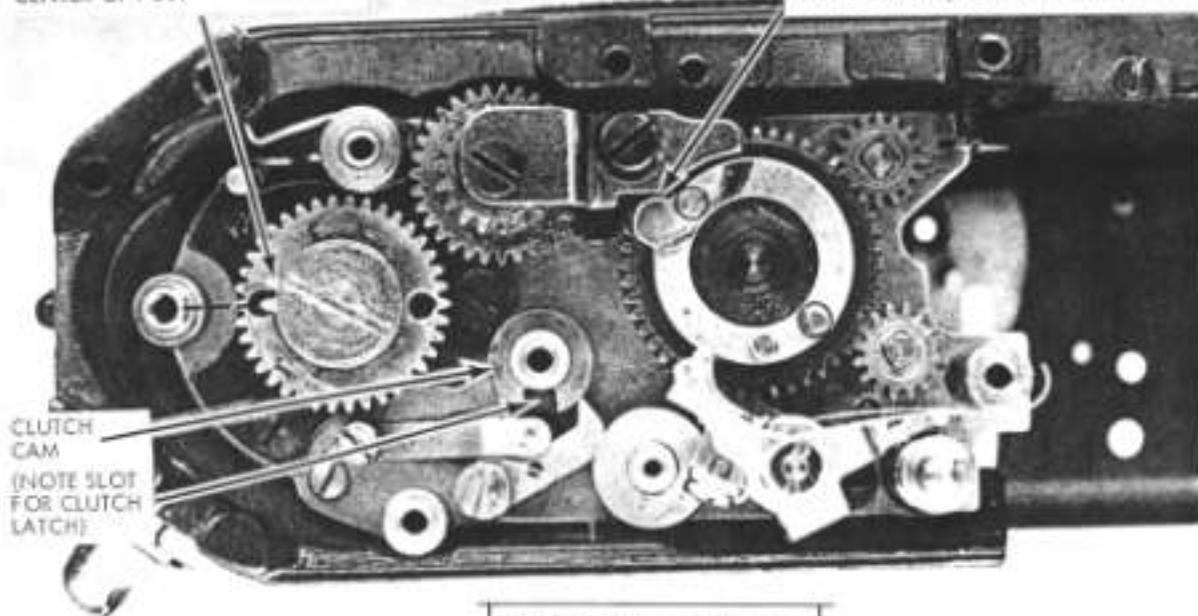
Unlike earlier Pentax models and the current M1A, the closing curtain should NOT creep into the aperture at the one-second setting.



You may find it easier to time the opening curtain wind gear if you once again remove the closing curtain latch/bulb lever assembly. Time the opening curtain wind gear to the opening curtain pinion shaft for the proper curtain overlap during the cocking cycle. Ideally -- especially when installing new curtains which tend to stretch -- the overlap should be 0.1mm greater than one bar.

TURN THE WIND SHAFT GEAR
CLOCKWISE UNTIL THE COUNTER
DIAL ACTUATOR POINTS TO THE
CENTER OF POST

YOU SHOULD NOW HAVE A 0.2MM
GAP BETWEEN THE OPENING CURTAIN
WIND GEAR LUG AND THE STOP PLATE
— ADJUST THE POSITION OF THE
OPENING CURTAIN WIND GEAR STOP
PLATE (IF NECESSARY) BY TURNING
ITS SETSCREW (SEE ILLUSTRATION 61)

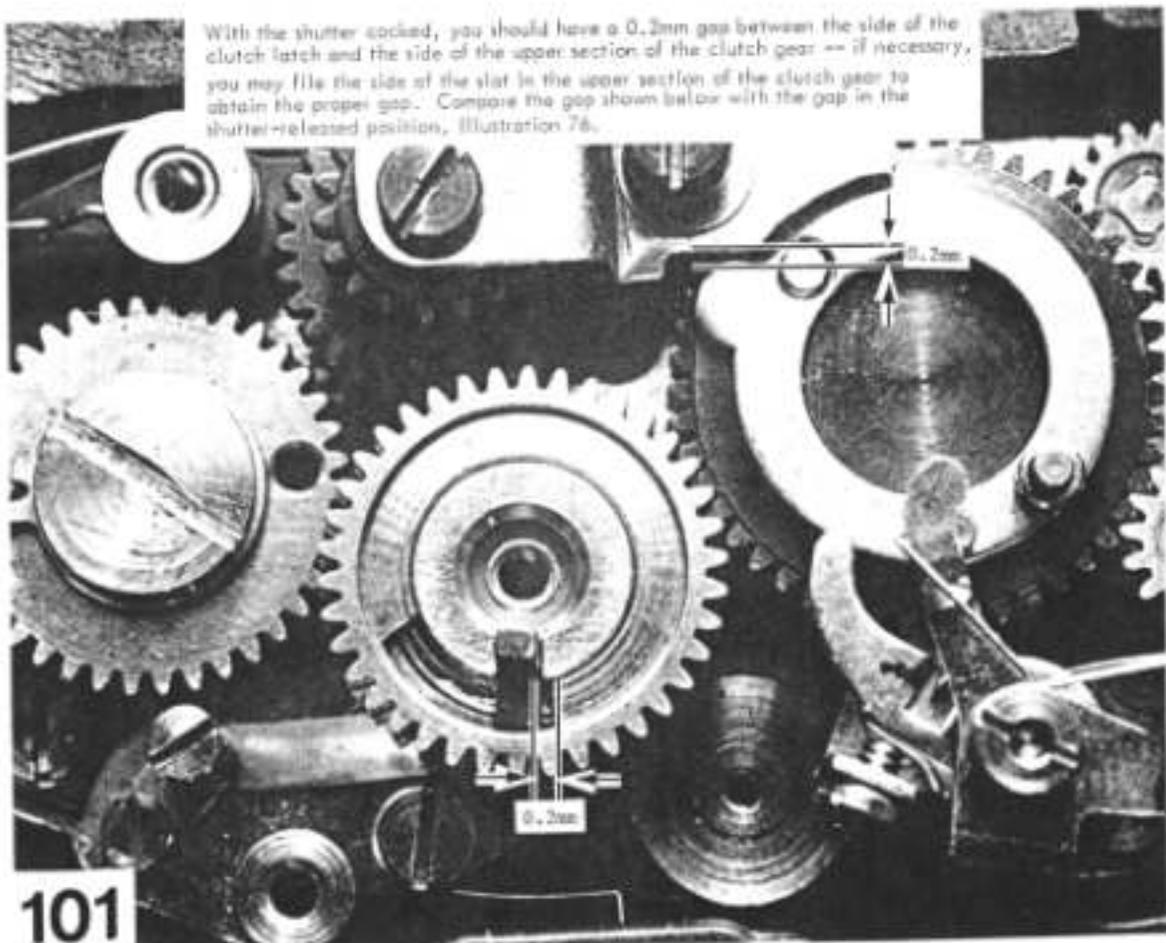


CLUTCH
CAM
(NOTE SLOT
FOR CLUTCH
LATCH)

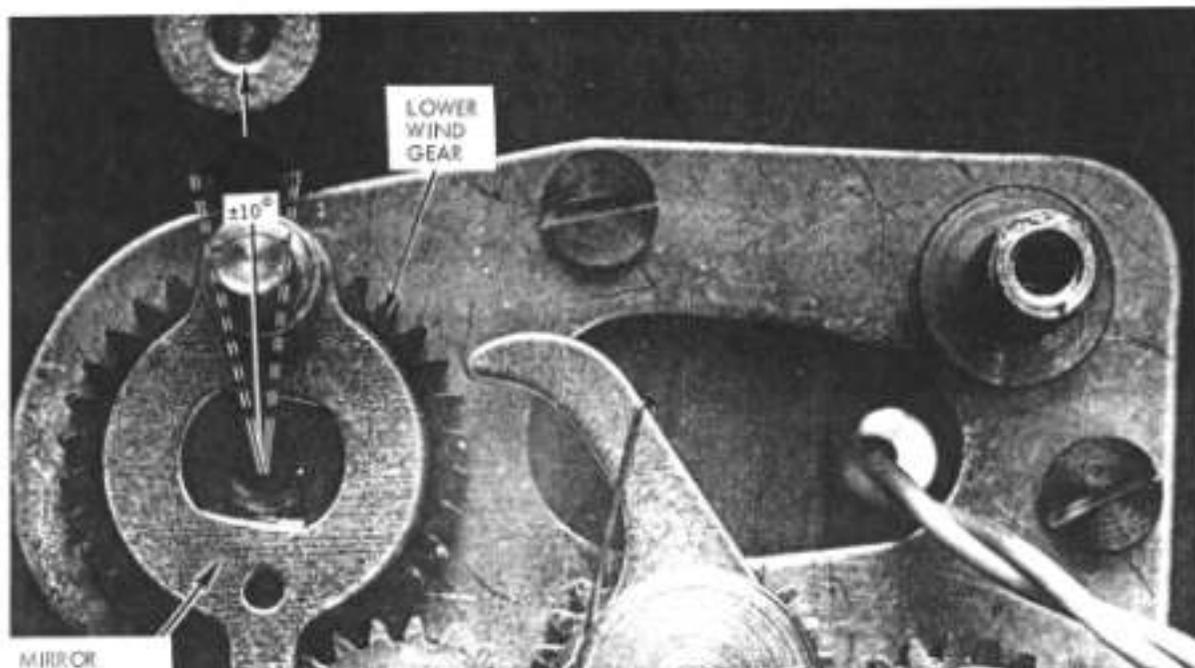
COCK THE SHUTTER BEFORE
REASSEMBLING CLUTCH GEAR

100

With the shutter cocked, you should have a 0.2mm gap between the side of the clutch latch and the side of the upper section of the clutch gear -- if necessary, you may file the side of the slot in the upper section of the clutch gear to obtain the proper gap. Compare the gap shown below with the gap in the shutter-released position, Illustration 76.



101



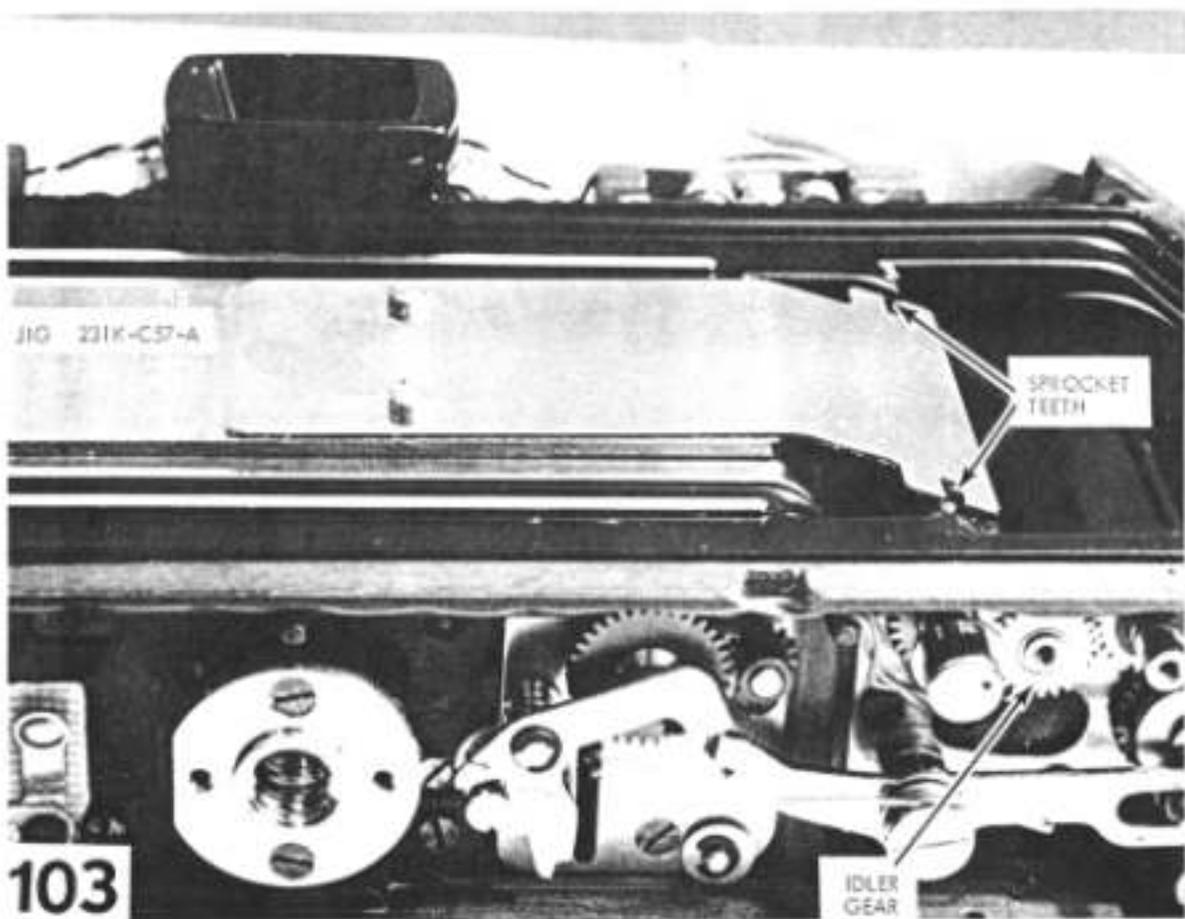
MIRROR
COCKING
ADJUSTMENT
PLATE

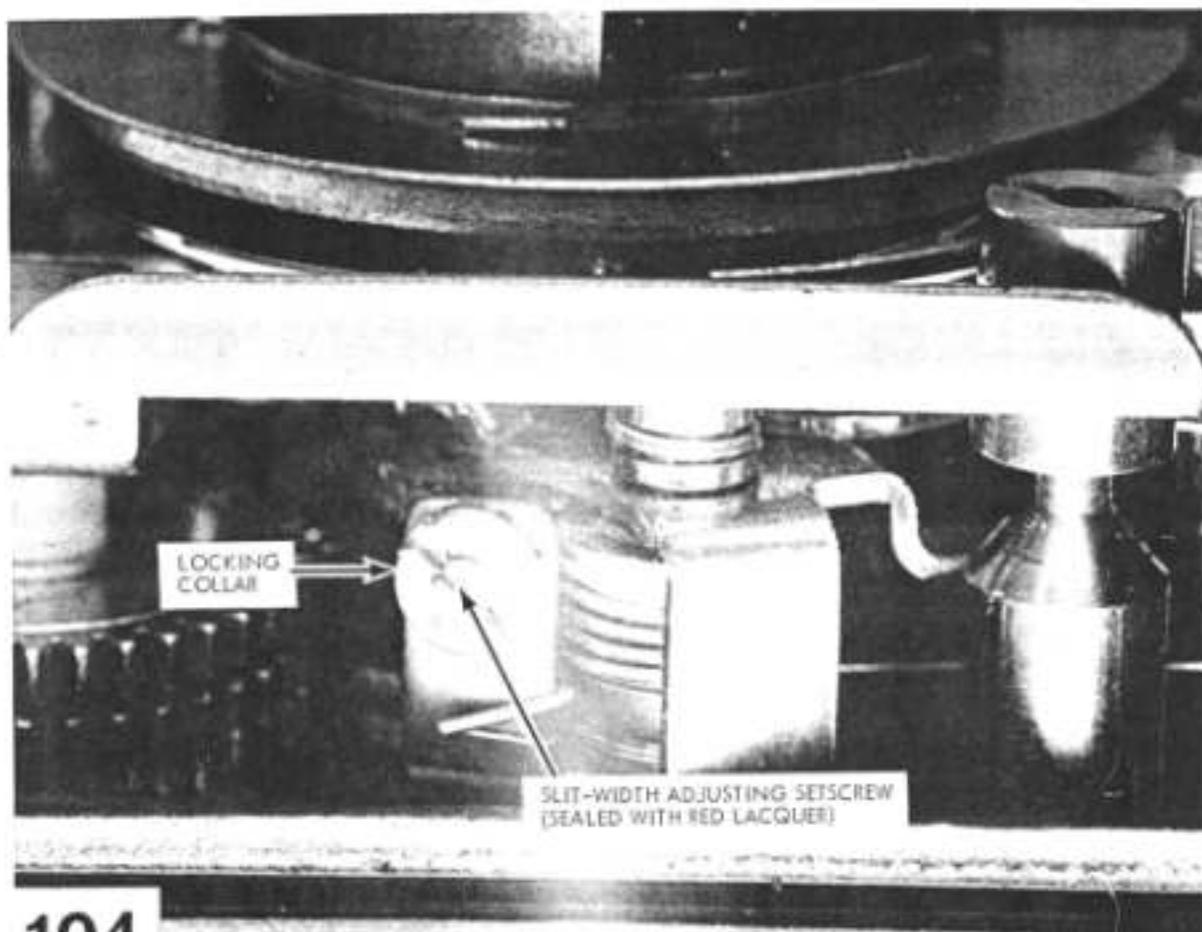
The pin on the mirror cocking adjustment plate should point to the post as shown. Note that you have a tolerance of 5° on either side of the center of the post — however, it's preferable to have the pin pointing slightly to the right of the post center rather than to the left. If the pin does not align as shown, switch to one of the four other mirror cocking adjustment plates available.

102

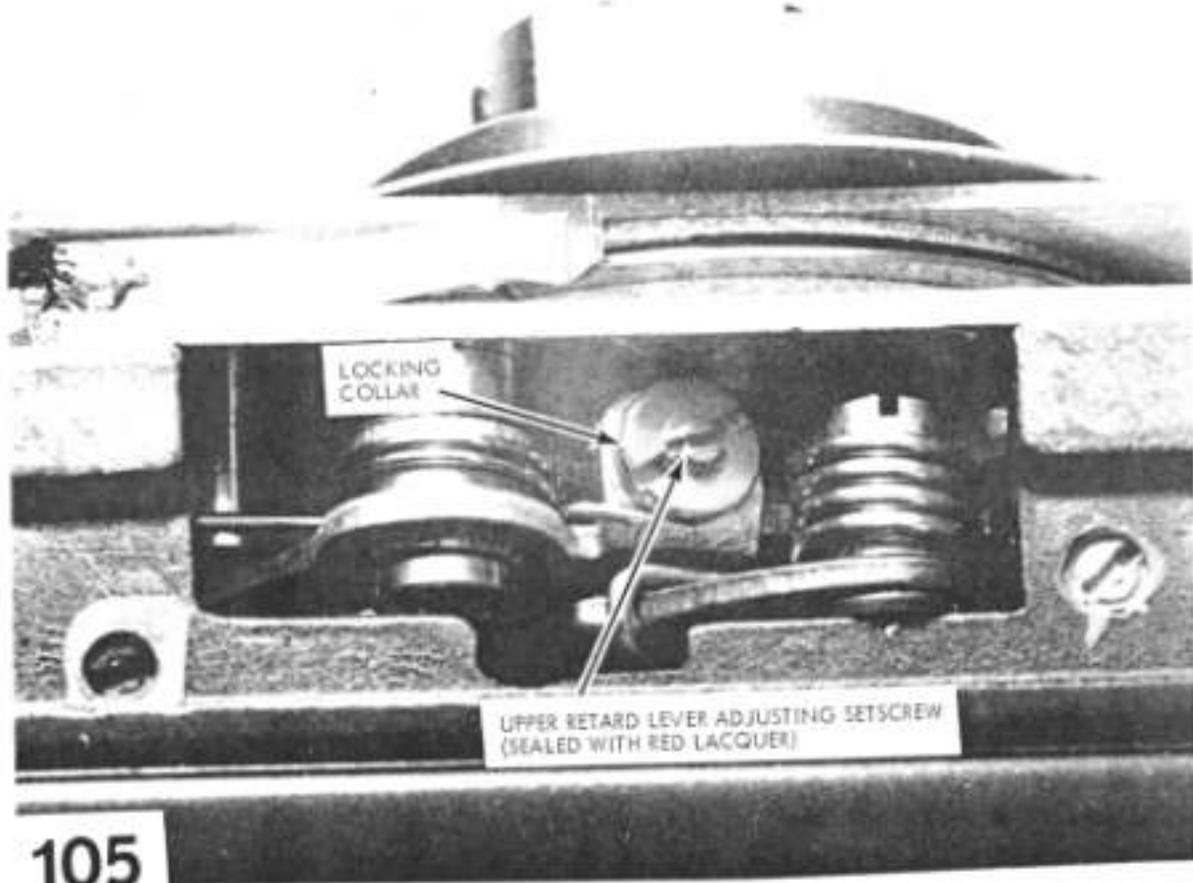


Courtesy of Honeywell

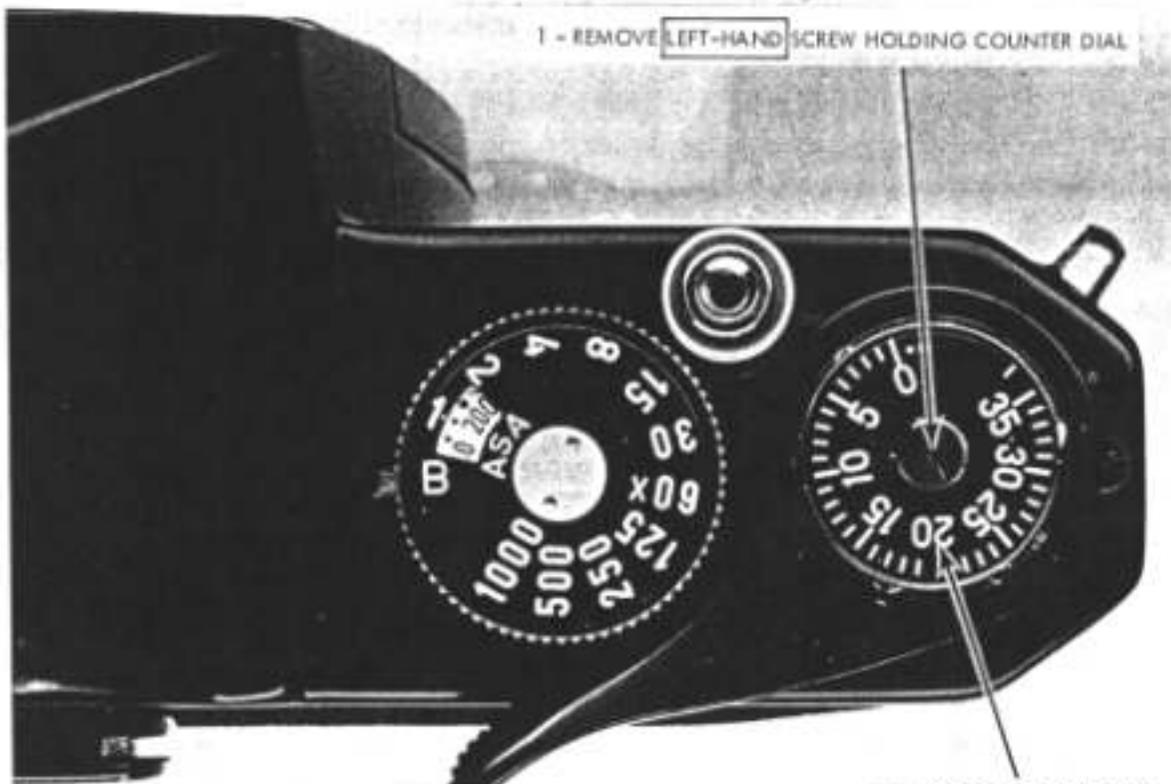




104



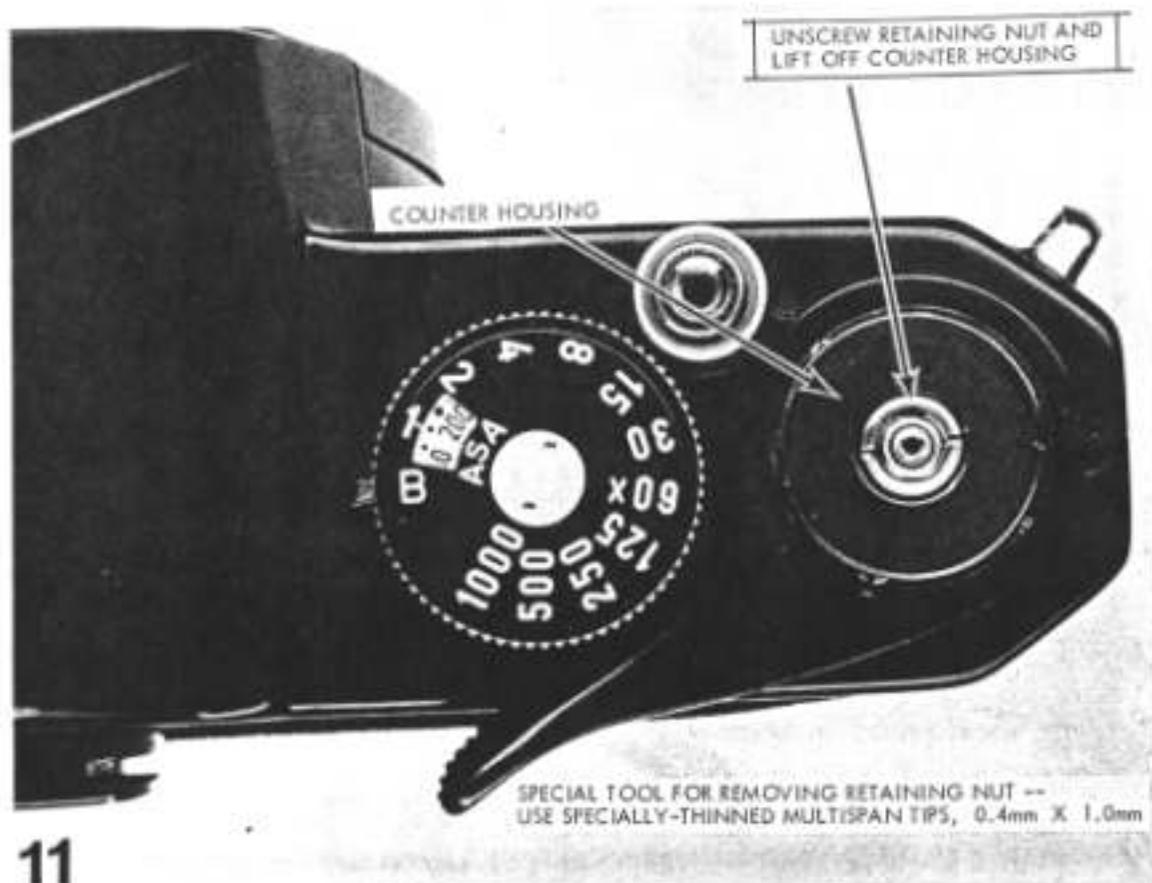


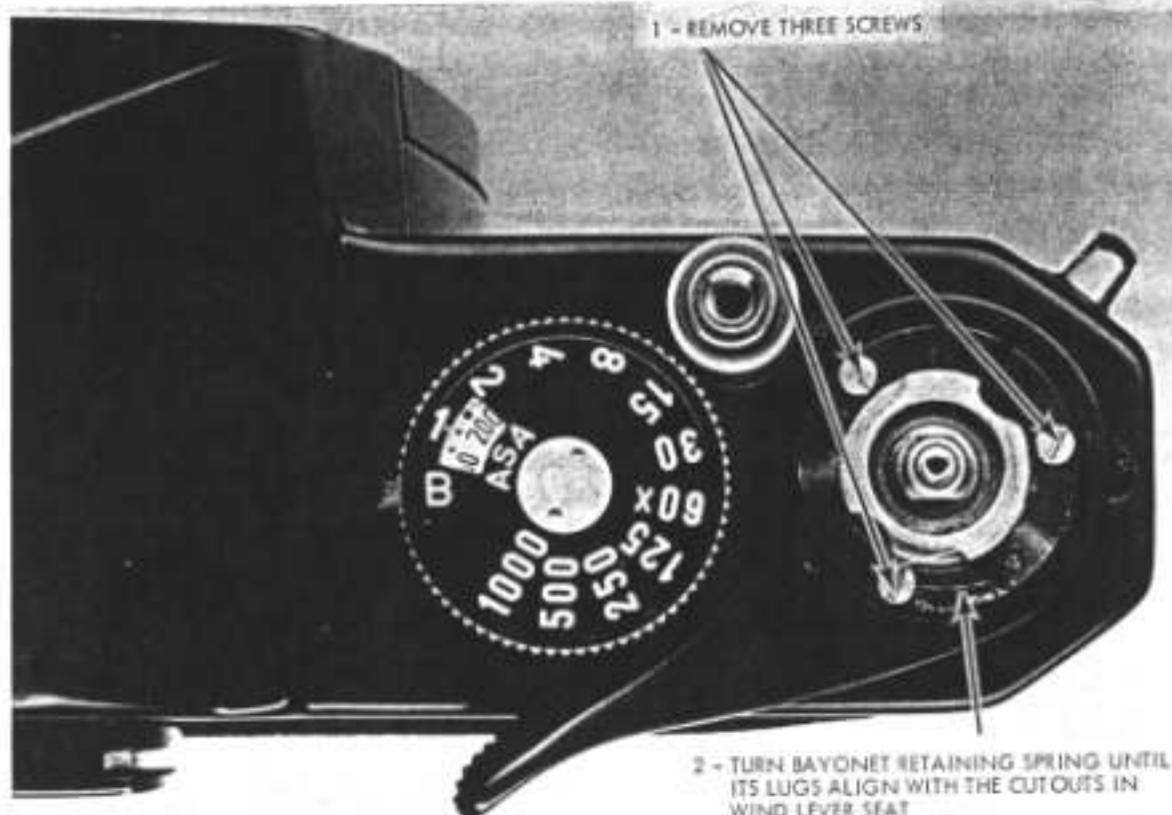


1 - REMOVE LEFT-HAND SCREW HOLDING COUNTER DIAL

2 - LIFT OFF COUNTER DIAL

VARIATION: In earlier models, the counter dial return spring is underneath the counter dial - - - the spring unwinds when you lift off the counter dial. In later models, such as the camera shown, the spring acts internally on the counter shaft -- the spring remains inside the wind lever shaft assembly.



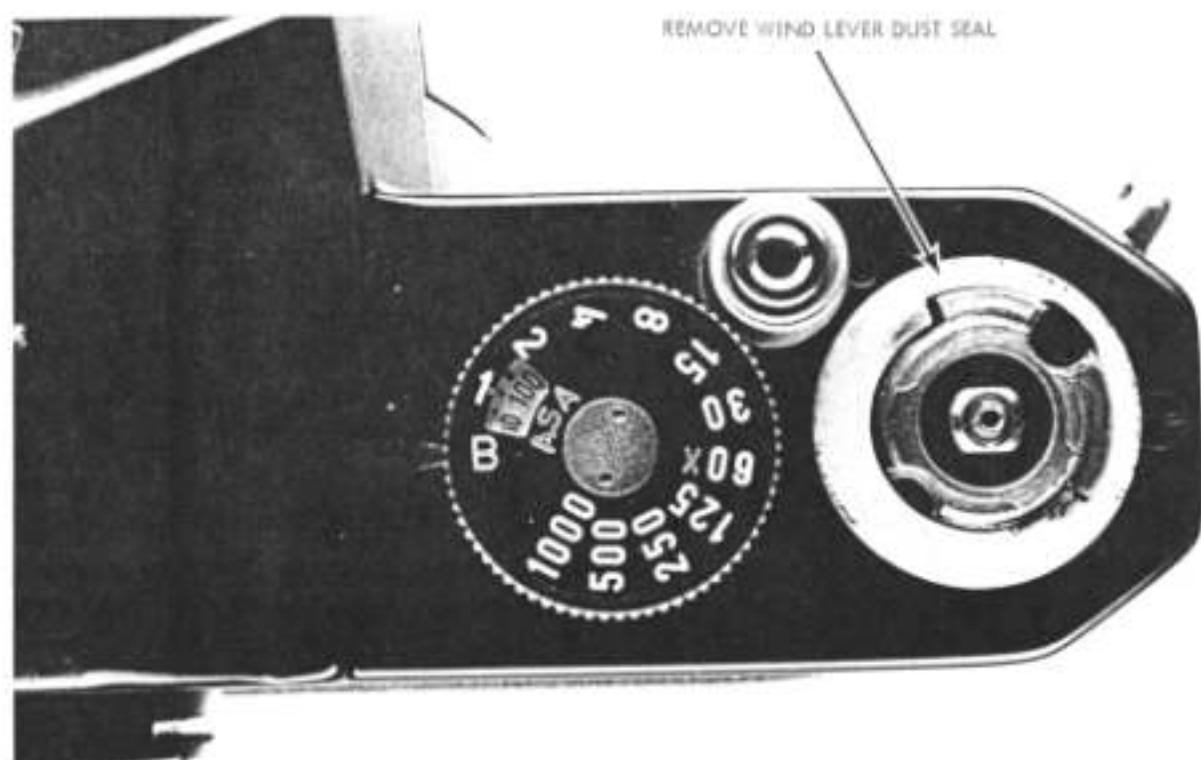


1 - REMOVE THREE SCREWS

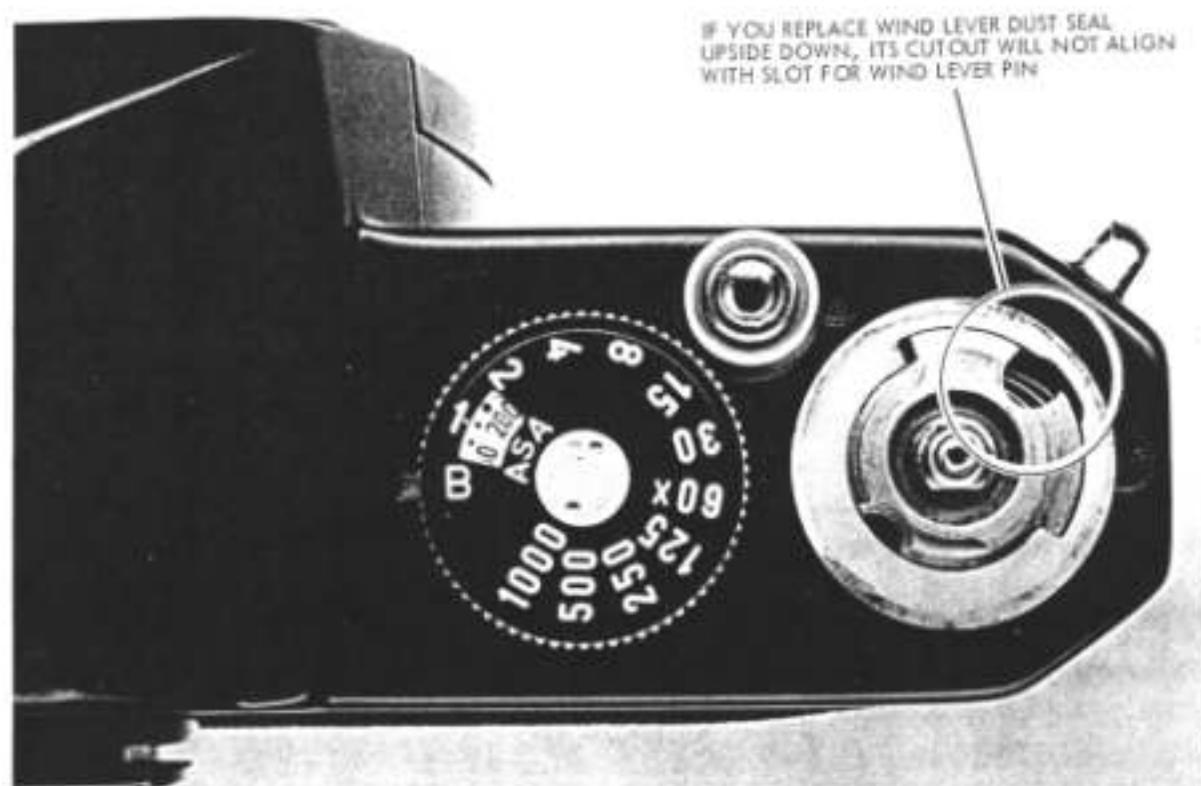
2 - TURN BAYONET RETAINING SPRING UNTIL ITS LUGS ALIGN WITH THE CUTOUTS IN WIND LEVER SEAT

3 - LIFT OFF BAYONET RETAINING SPRING AND WIND LEVER

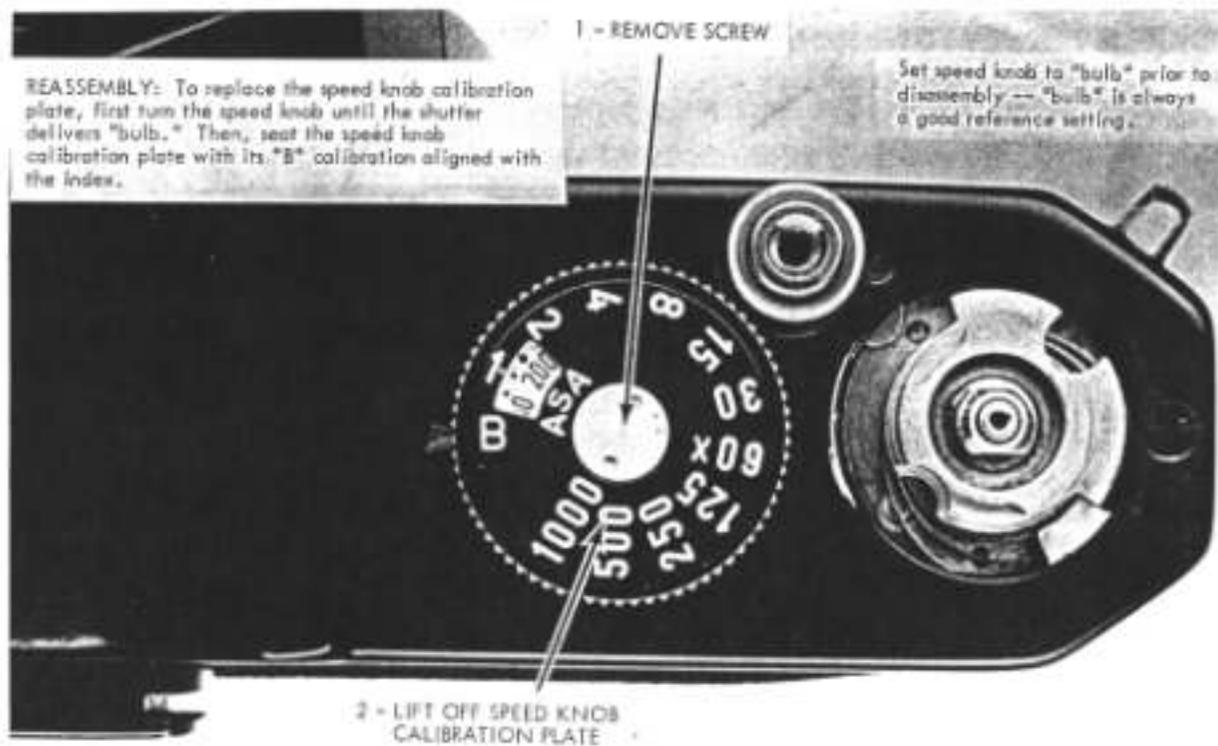
12



13

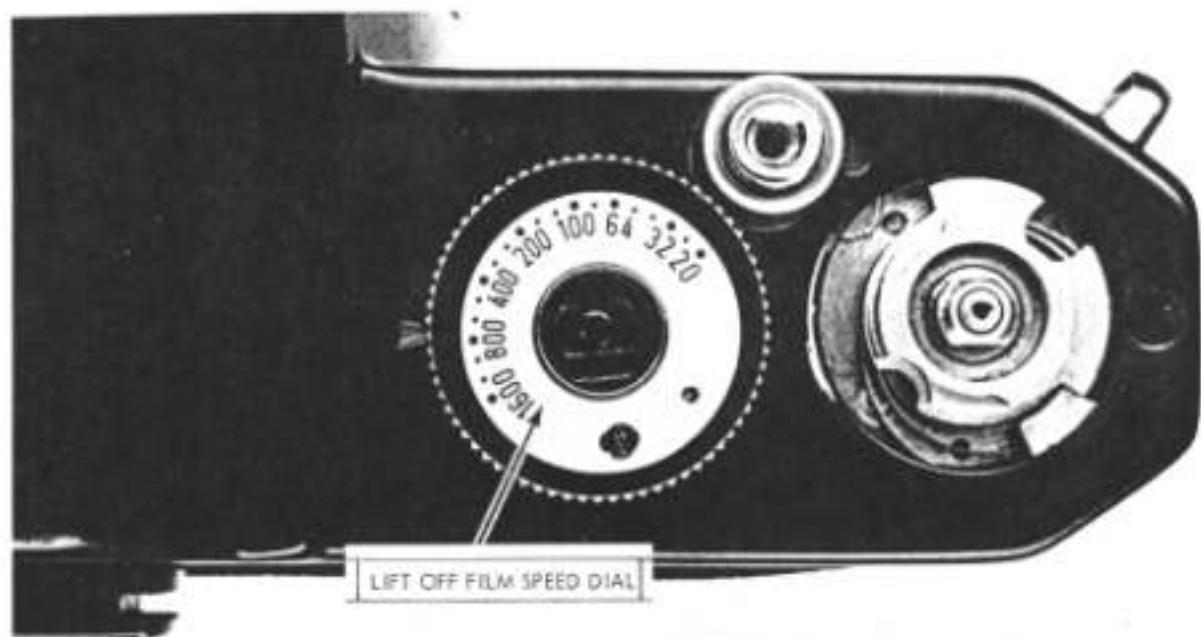


13-A



14

CAUTION: The compression spring for the speed knob (illustration 16) pushes the speed knob calibration plate up as you remove the screw.



15

REASSEMBLY: Make certain the tab on the underside of the film speed dial passes into the slot in the speed knob -- see Illustration 16.

REASSEMBLY:
To replace the speed knob, seat its slot over the tab on the potentiometer turning ring — see illustration 17.

1 - LIFT OUT COMPRESSION SPRING

SLOT IN SPEED KNOB FOR TAB ON FILM SPEED DIAL

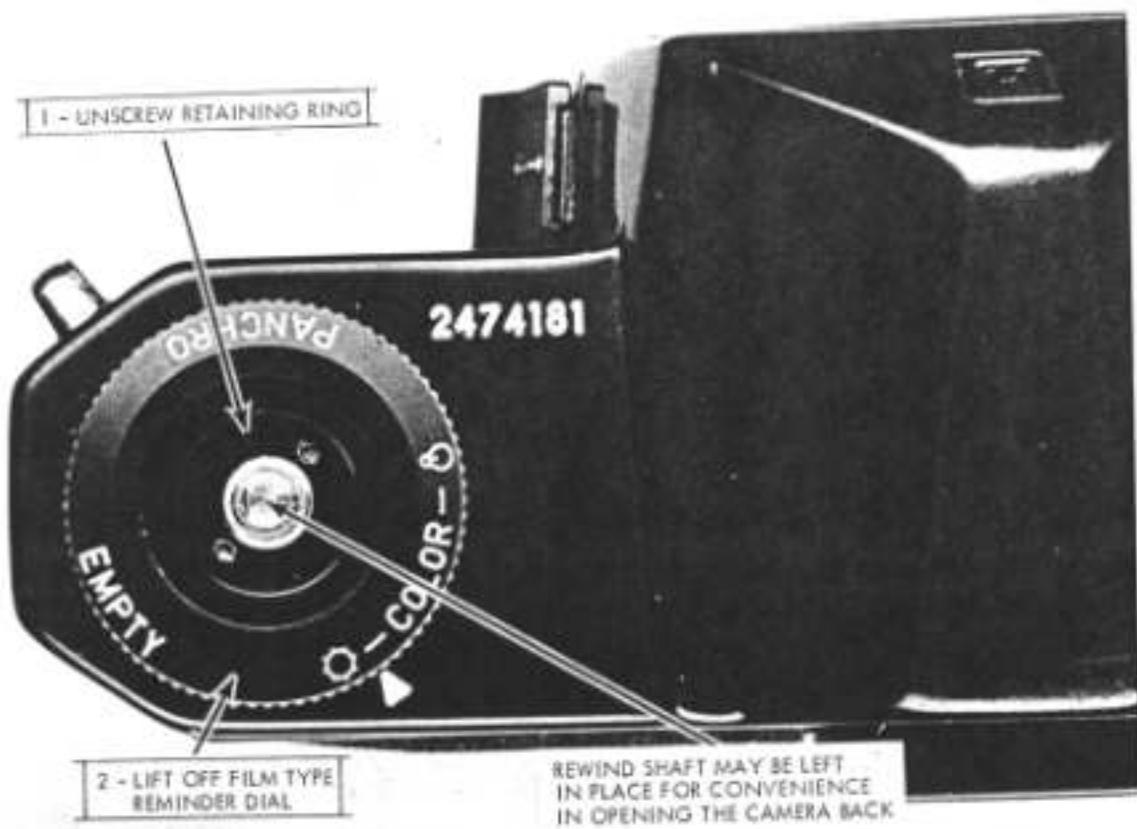
COILS OF SMALLER DIAMETER GO UP

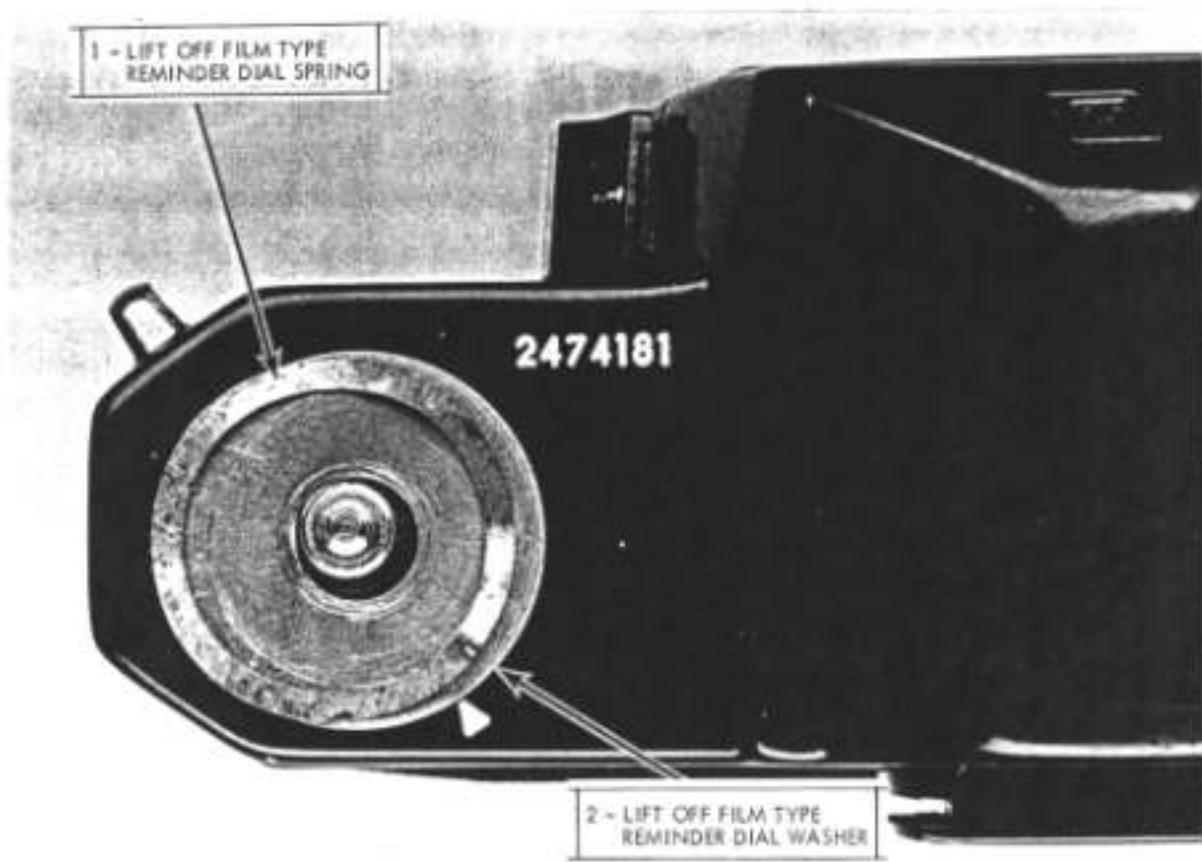
ASAHI OPT. Co., Japan

2 - LIFT OFF SPEED KNOB

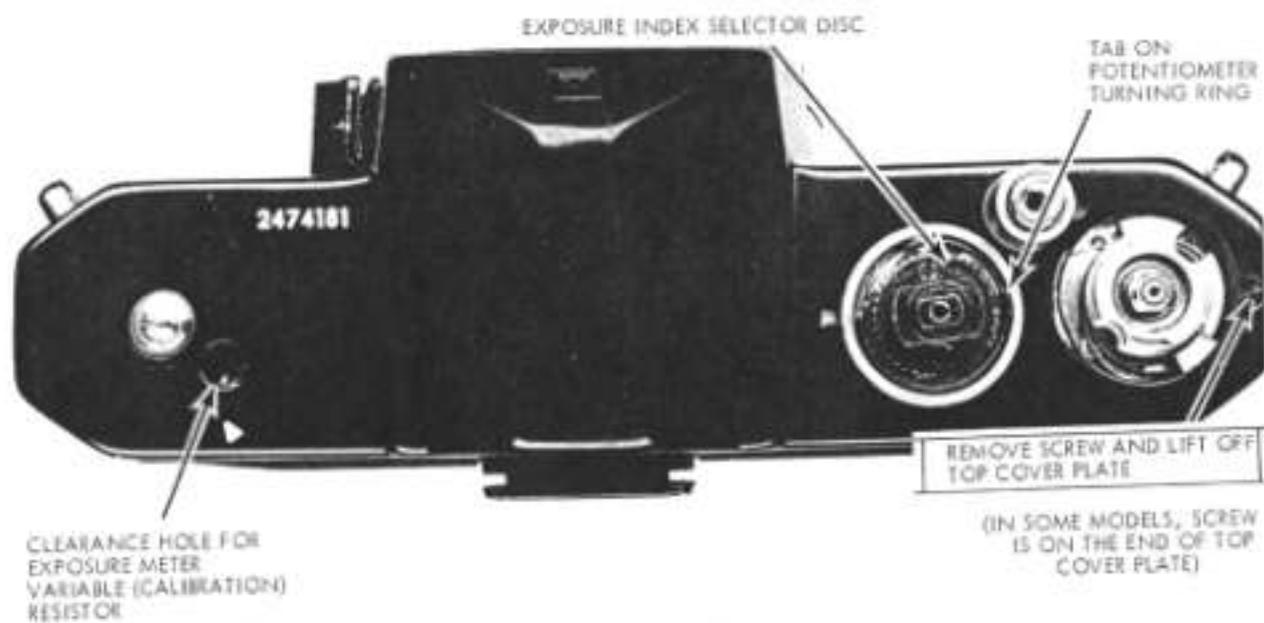
16

3 - Open the camera back by pulling up on the rewind knob. Wedge the forked end of the rewind shaft with the handle-end of your tweezers and unscrew the rewind knob.



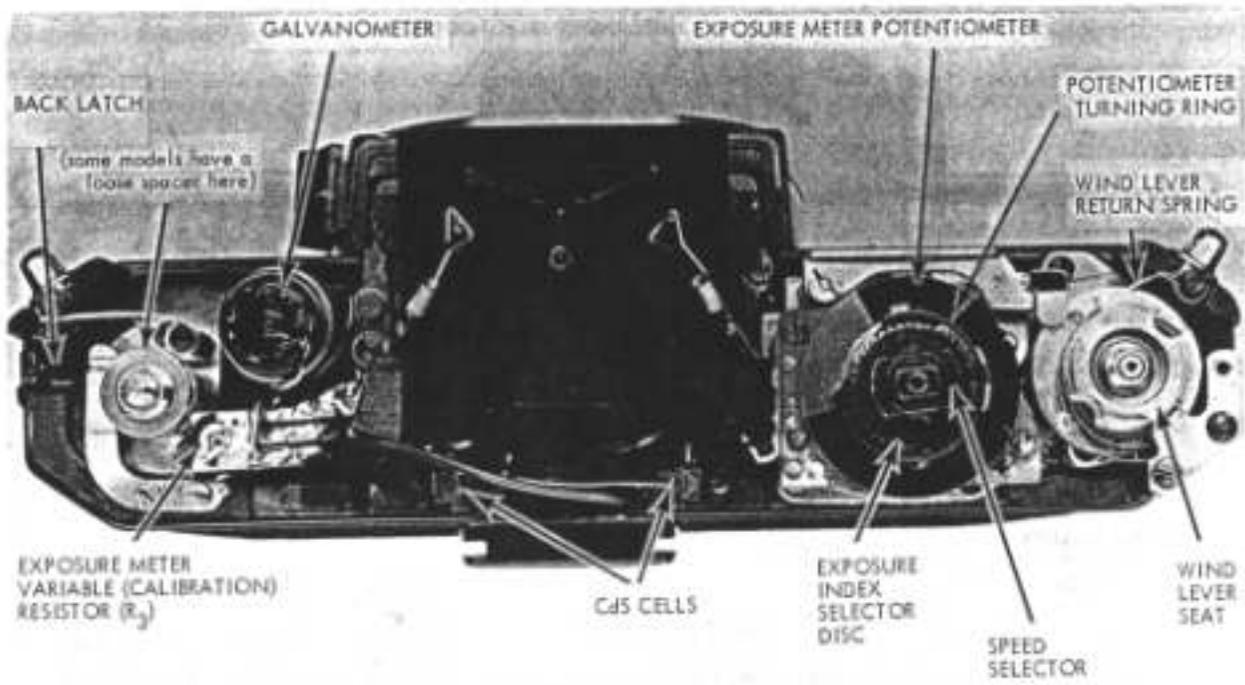


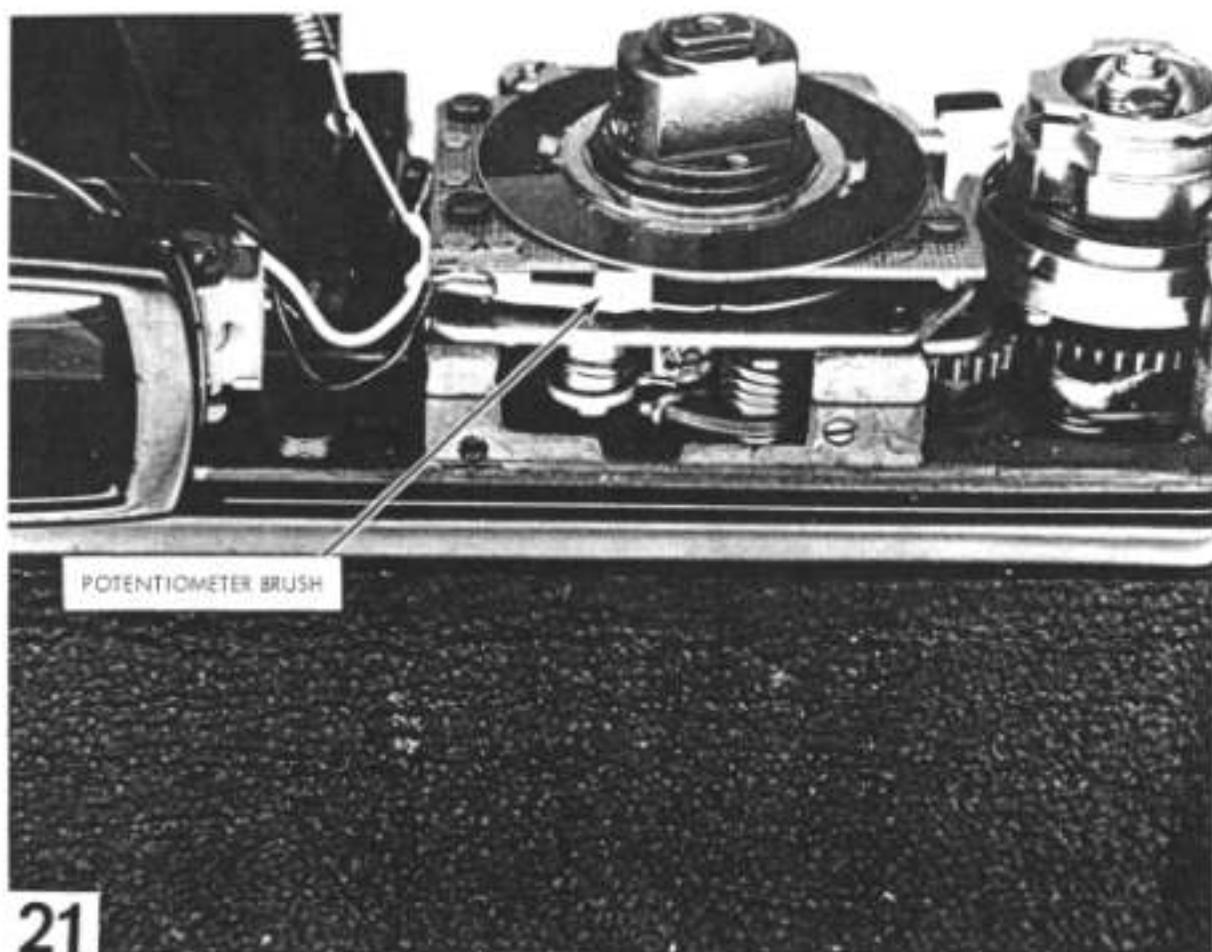
18



19

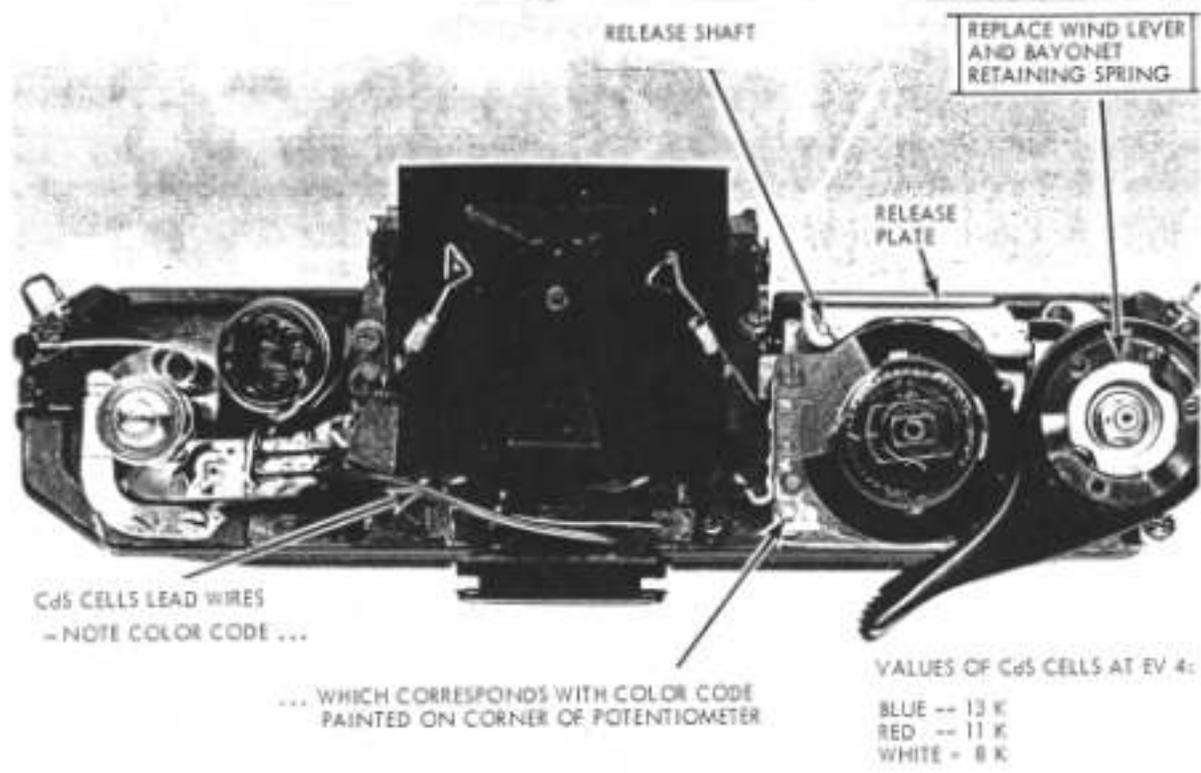
NOTE: The cable release pin (inside the release button) is loose once you remove the top cover plate.

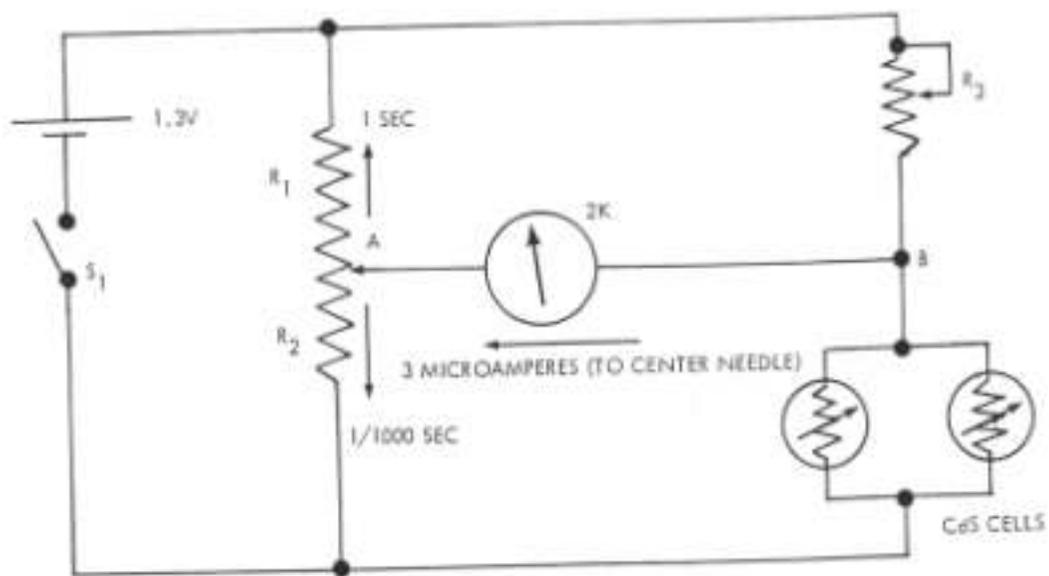




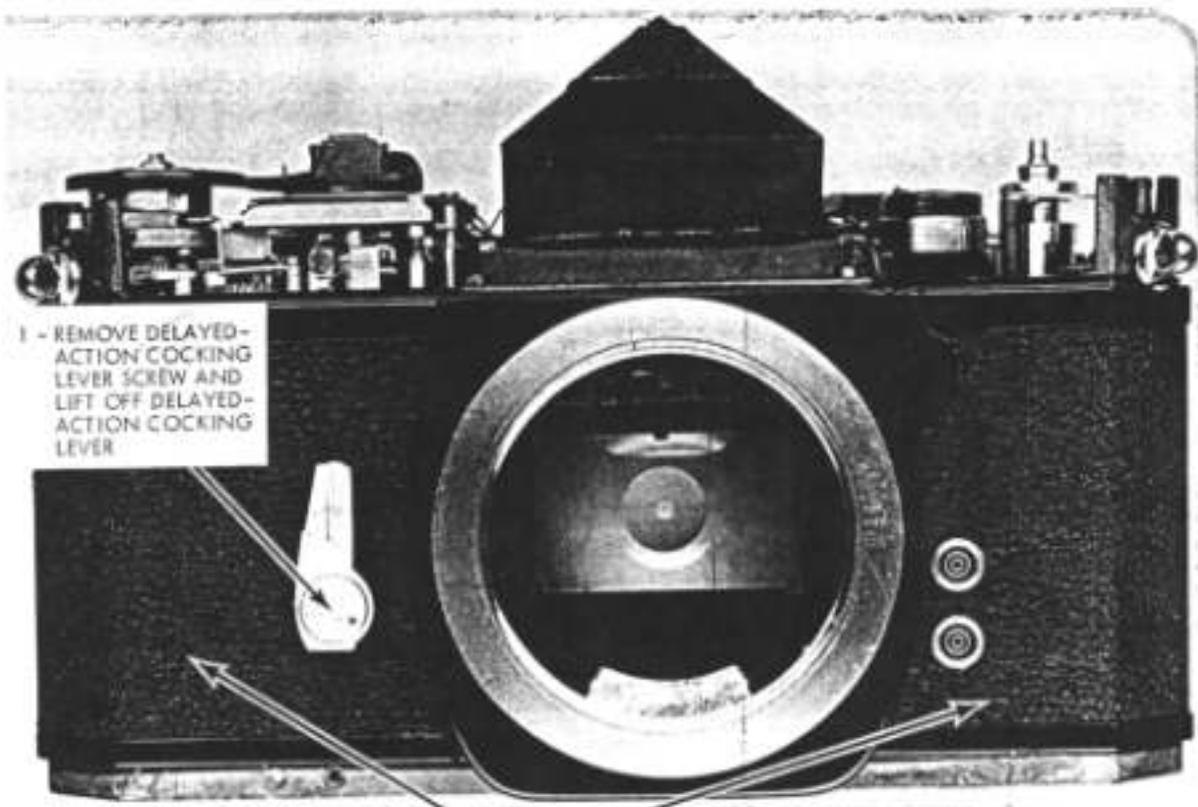
POTENTIOMETER BRUSH

21





23

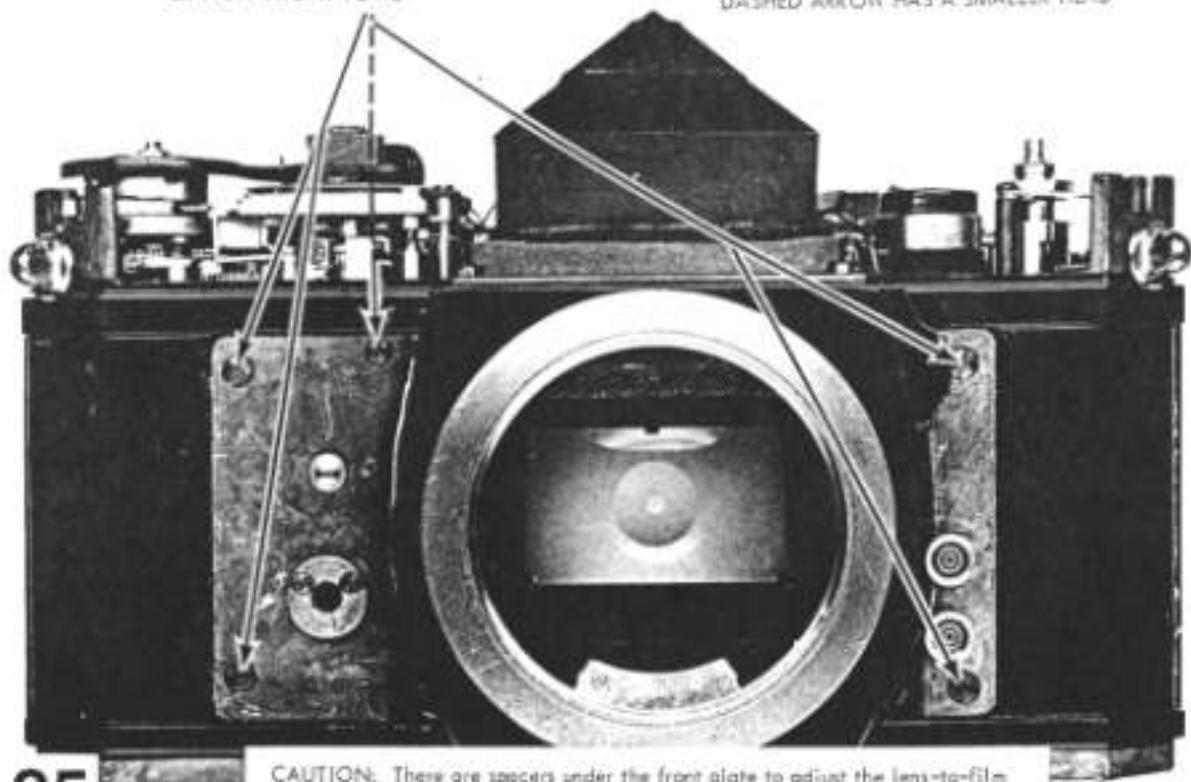


1 - REMOVE DELAYED-ACTION COCKING LEVER SCREW AND LIFT OFF DELAYED-ACTION COCKING LEVER

2 - PEEL BACK (OR REMOVE) RIGHT AND LEFT FRONT LEATHERETTE

REMOVE FIVE SCREWS AND
LIFT OFF FRONT PLATE

== NOTE THAT THE SCREW INDICATED BY A
DASHED ARROW HAS A SMALLER HEAD



25

CAUTION: There are spacers under the front plate to adjust the lens-to-film distance and the parallelism of the lens mounting ring == some of the spacers may stay with the camera body and some may adhere to the front plate. The spacers, at the screw positions, vary in size and position according to the individual camera == be sure to return the spacers to their proper positions.

Before removing the front plate, you can precheck the alignment to verify the correct spacers. Make appropriate notes for correcting the spacers if desirable.

EXPOSURE METER
ON/OFF SWITCH
SPRING

THIS SCREW
CONTACTS EXPOSURE
METER SWITCH
CLOSING LEVER
(SEE ILLUSTRATION 27)

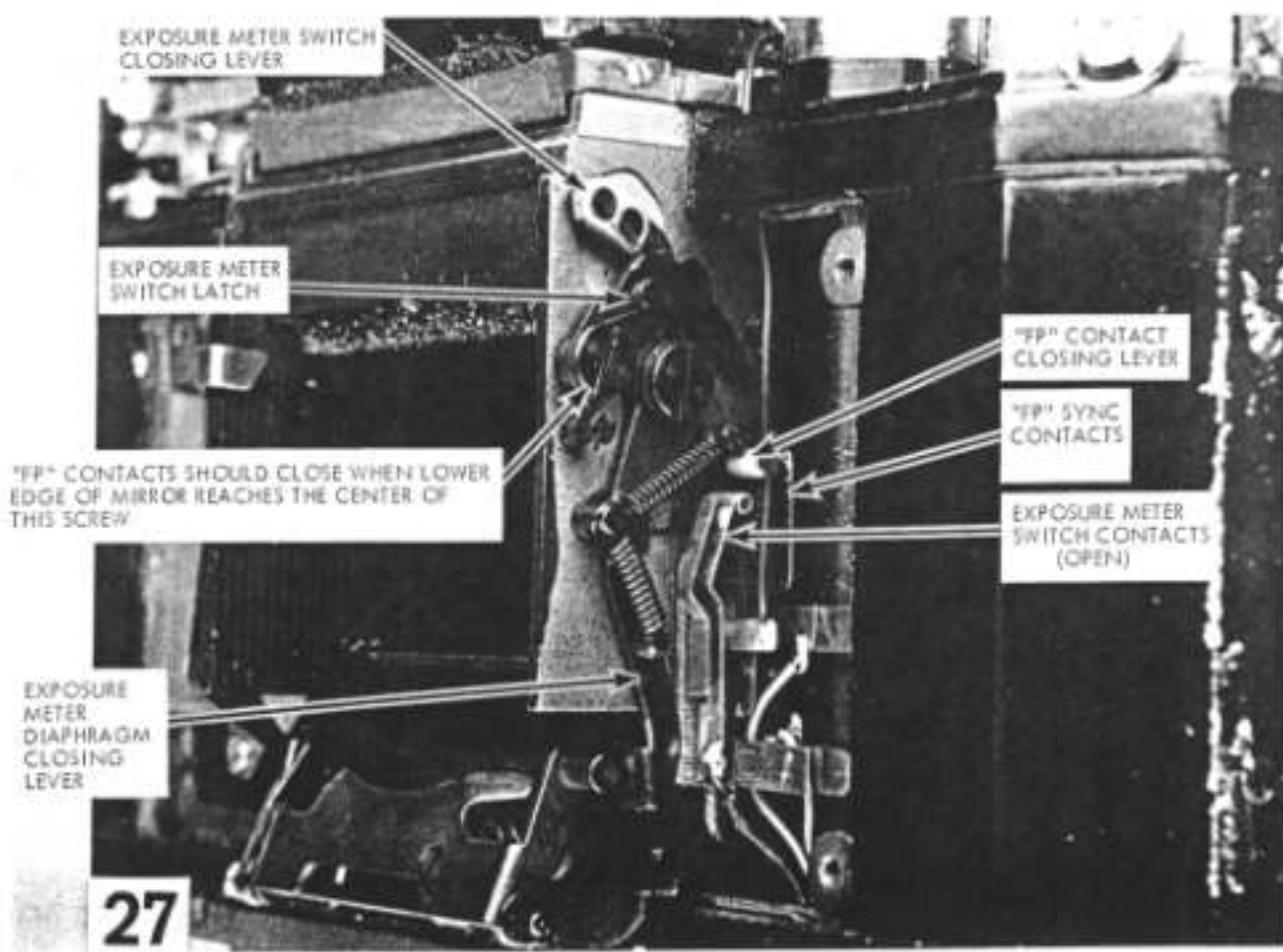
LIFT OUT DELAYED-ACTION
COUPLING JOINT

(THE COUPLING JOINT
MAY STAY WITH THE
DELAYED-ACTION
ESCAPEMENT IN THE
CAMERA BODY --
ILLUSTRATION 29)

FLASH CORD
TERMINAL
PINS



26 INSIDE OF FRONT PLATE



EXPOSURE METER SWITCH
CLOSING LEVER

EXPOSURE METER
SWITCH LATCH

"FF" CONTACTS SHOULD CLOSE WHEN LOWER
EDGE OF MIRROR REACHES THE CENTER OF
THIS SCREW

EXPOSURE
METER
DIAPHRAGM
CLOSING
LEVER

"FF" CONTACT
CLOSING LEVER

"FF" SYNC
CONTACTS

EXPOSURE METER
SWITCH CONTACTS
(OPEN)

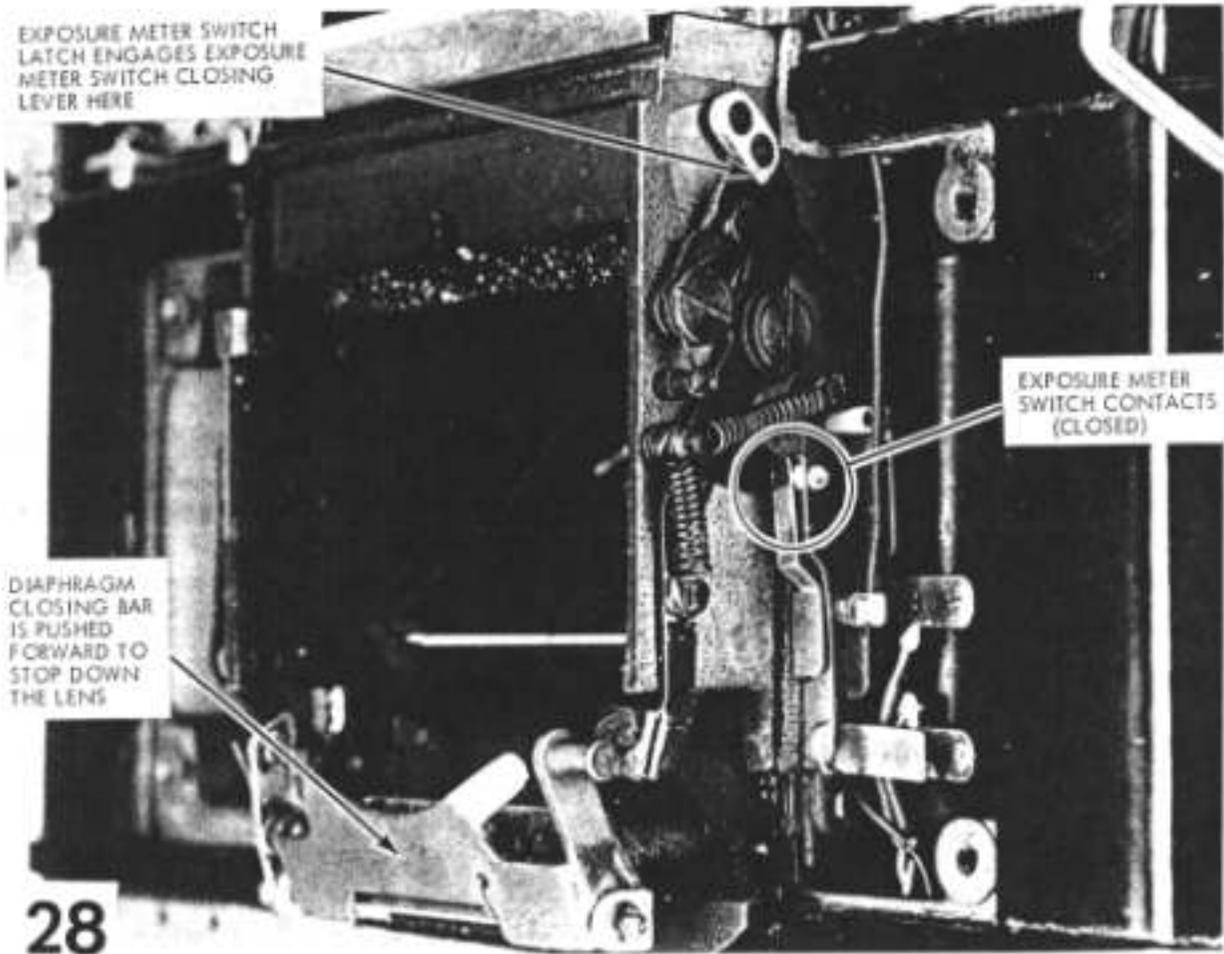
27

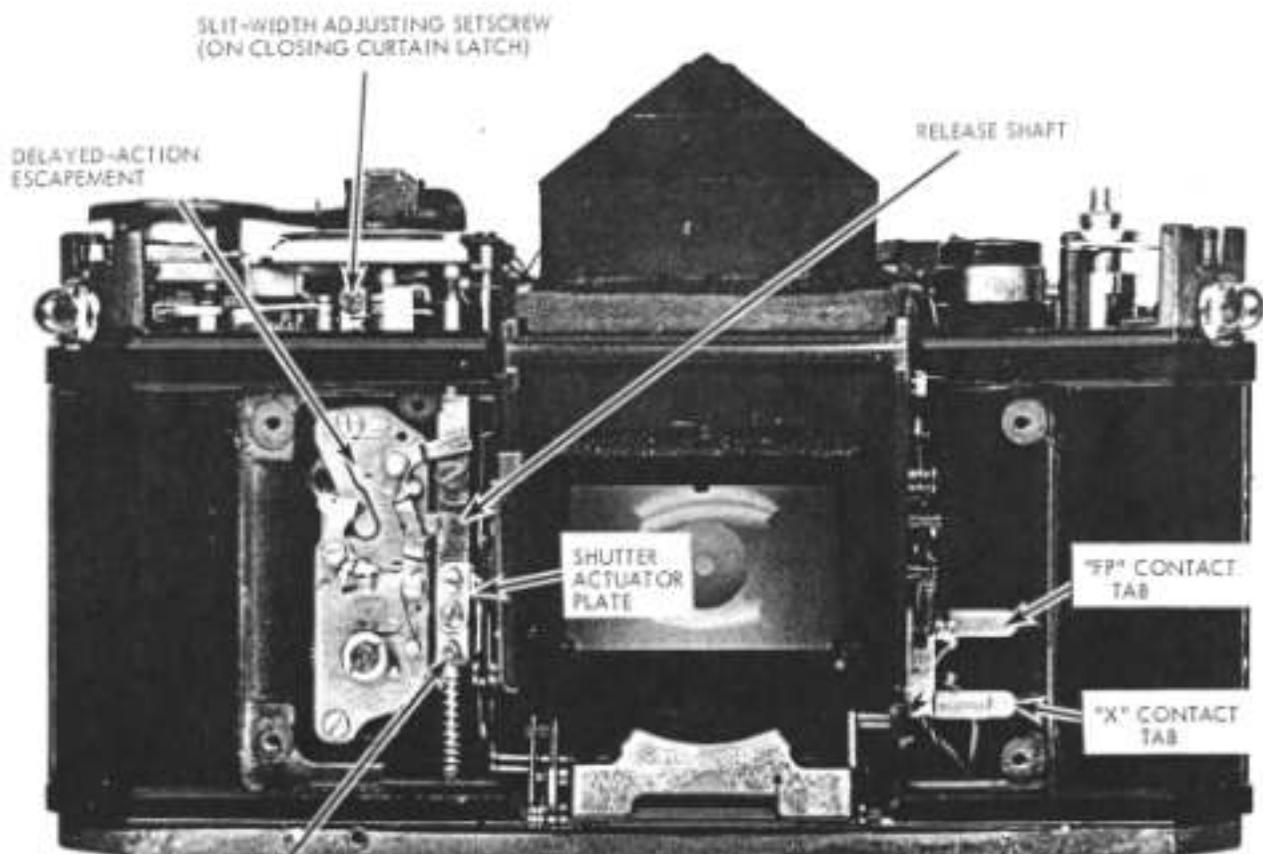
EXPOSURE METER SWITCH
LATCH ENGAGES EXPOSURE
METER SWITCH CLOSING
LEVER HERE

DIAPHRAGM
CLOSING BAR
IS PUSHED
FORWARD TO
STOP DOWN
THE LENS

EXPOSURE METER
SWITCH CONTACTS
(CLOSED)

28

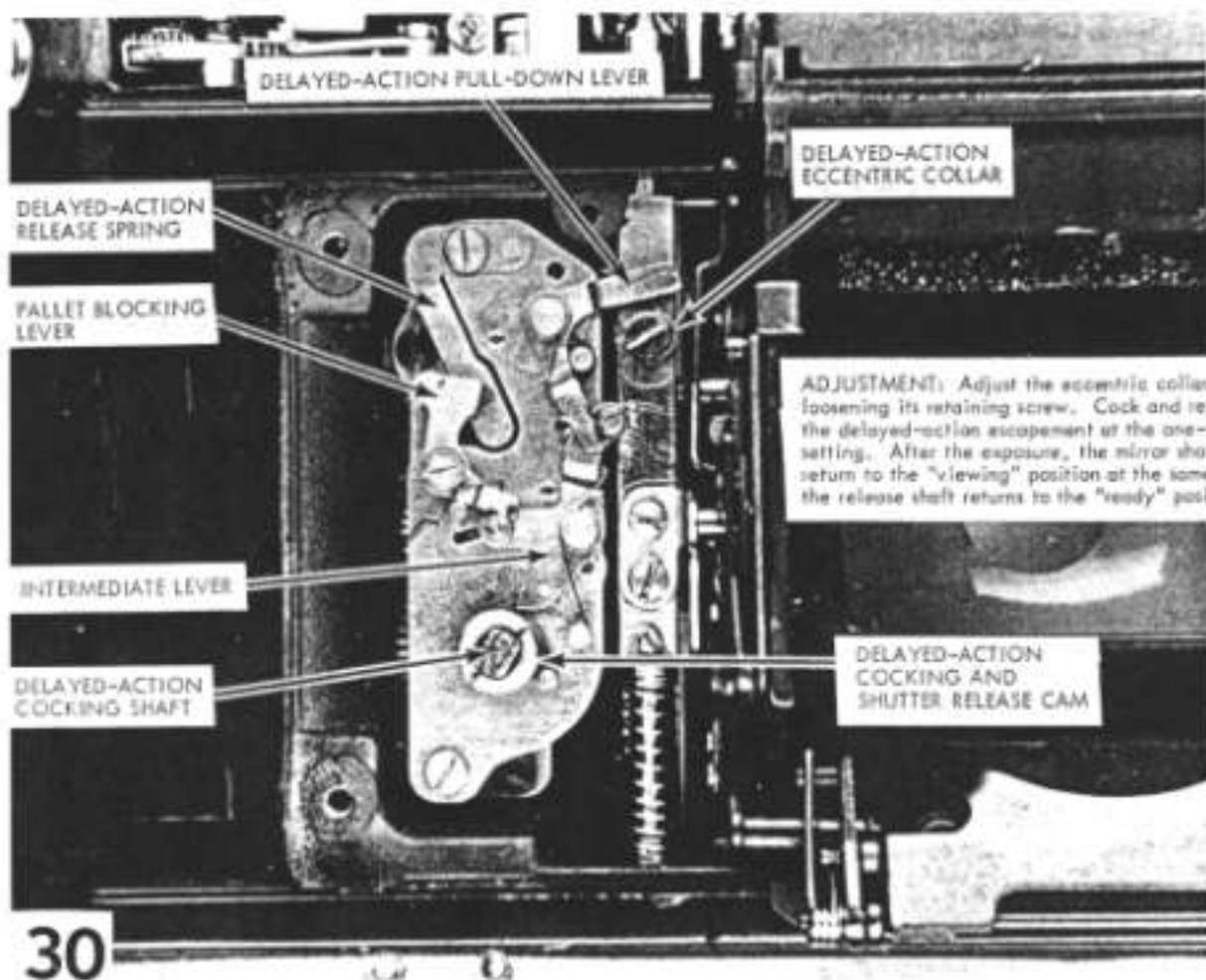


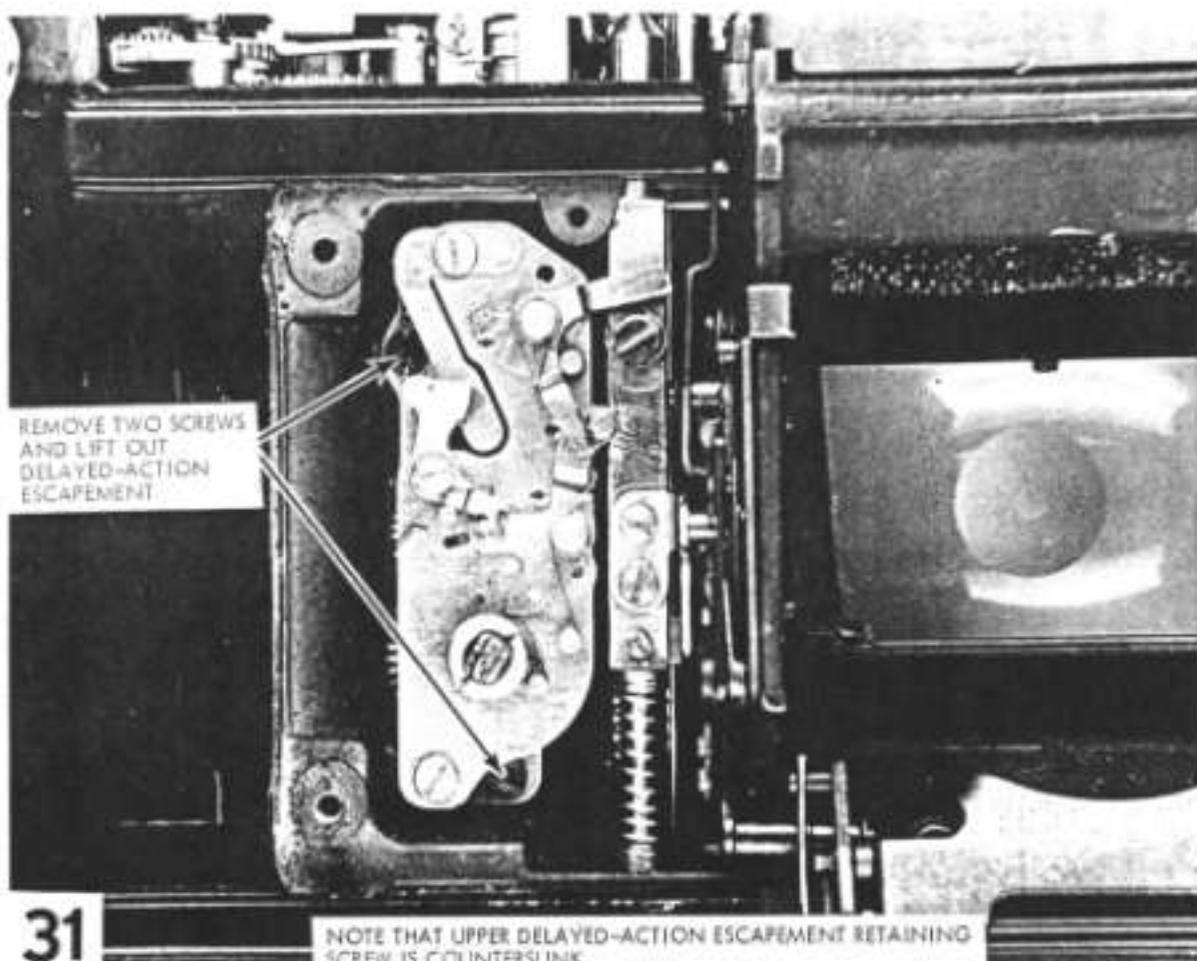


29

SETScrew ADJUSTMENT
FOR RELEASE STROKE
OVERTRAVEL
(ADJUST FOR 0.3MM OVERTRAVEL
AFTER THE MIRROR RELEASES)

VARIATION: In earlier models, the overtravel
adjustment is made by shifting the position of
the shutter actuator plate.

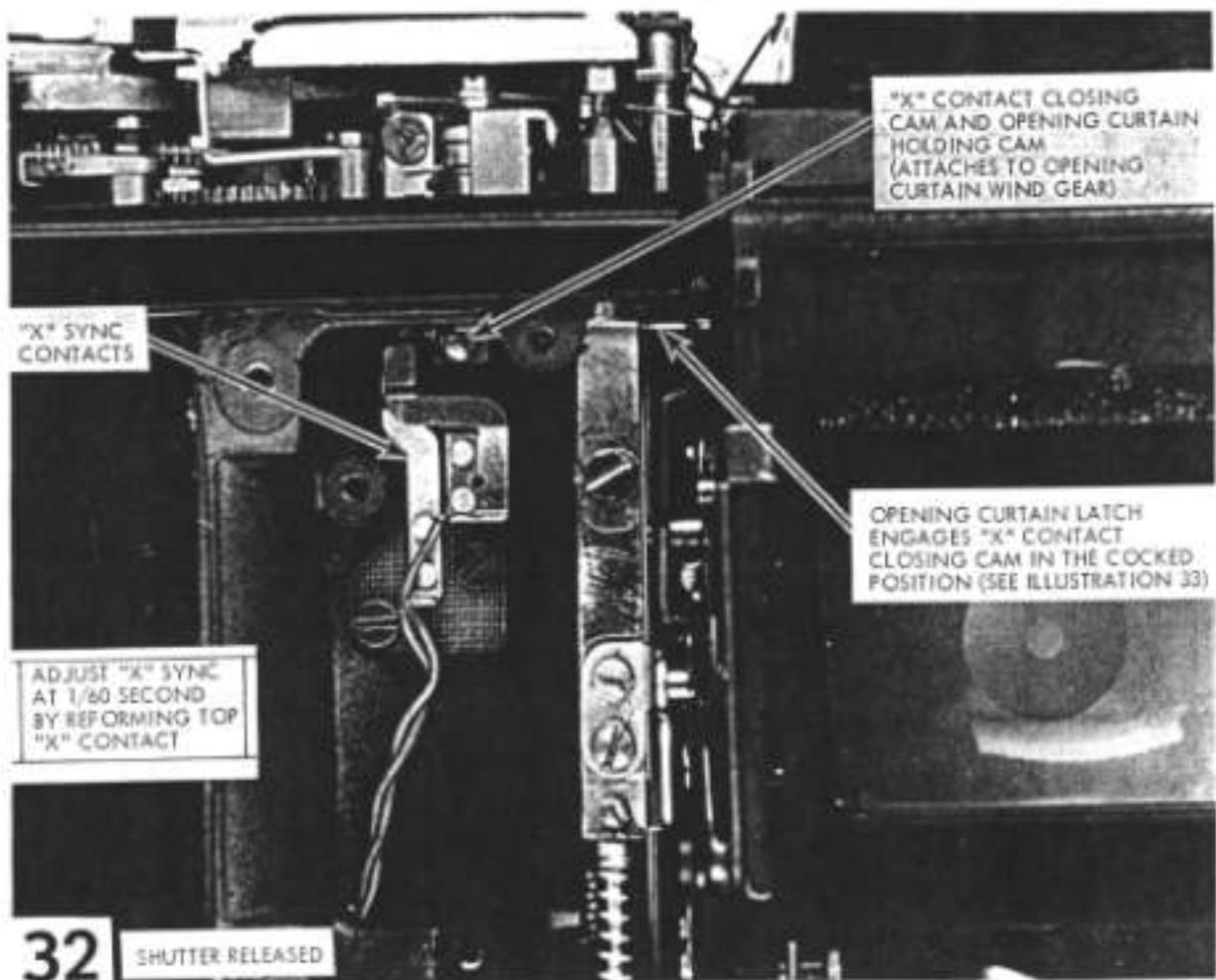


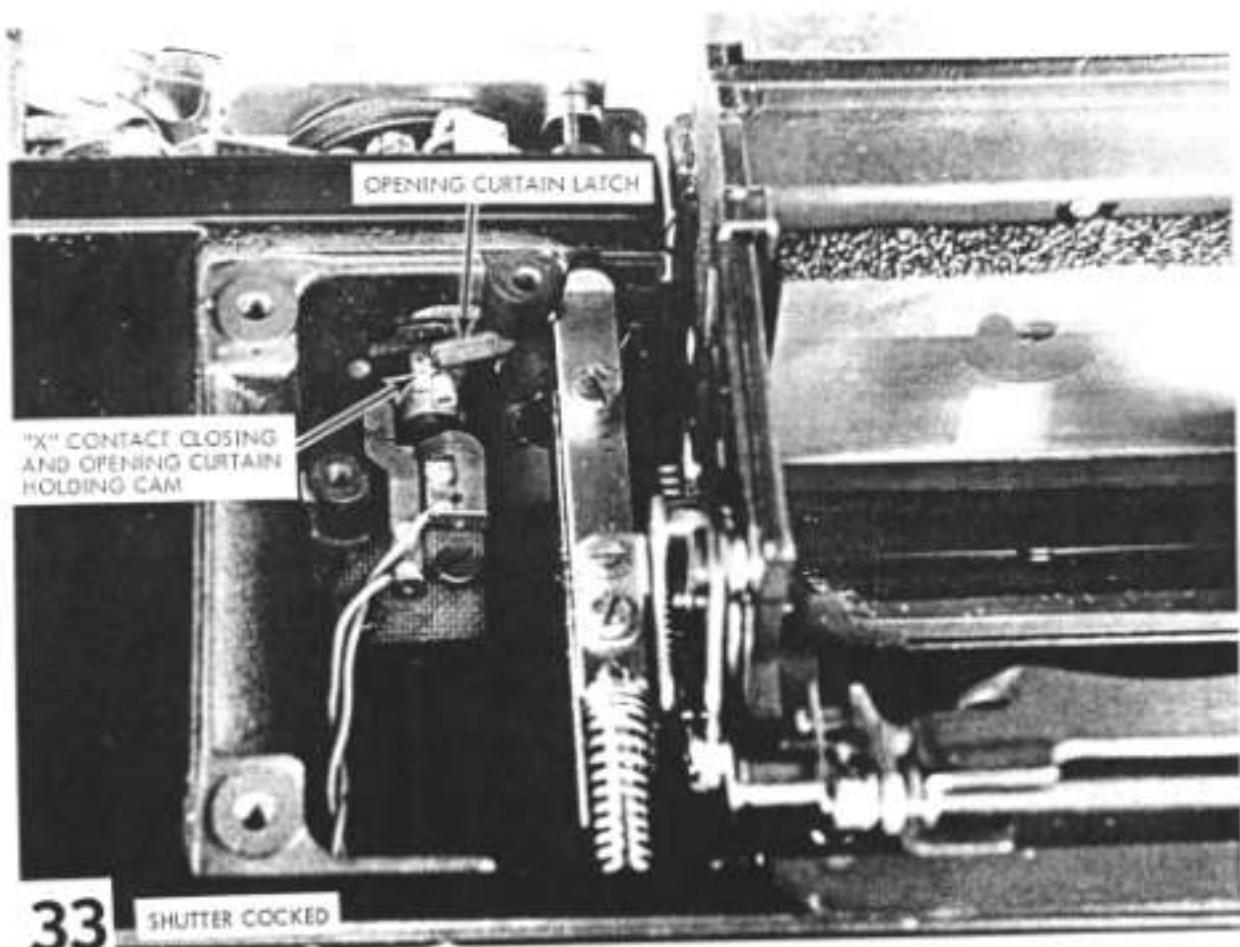


REMOVE TWO SCREWS
AND LIFT OUT
DELAYED-ACTION
ESCAPEMENT.

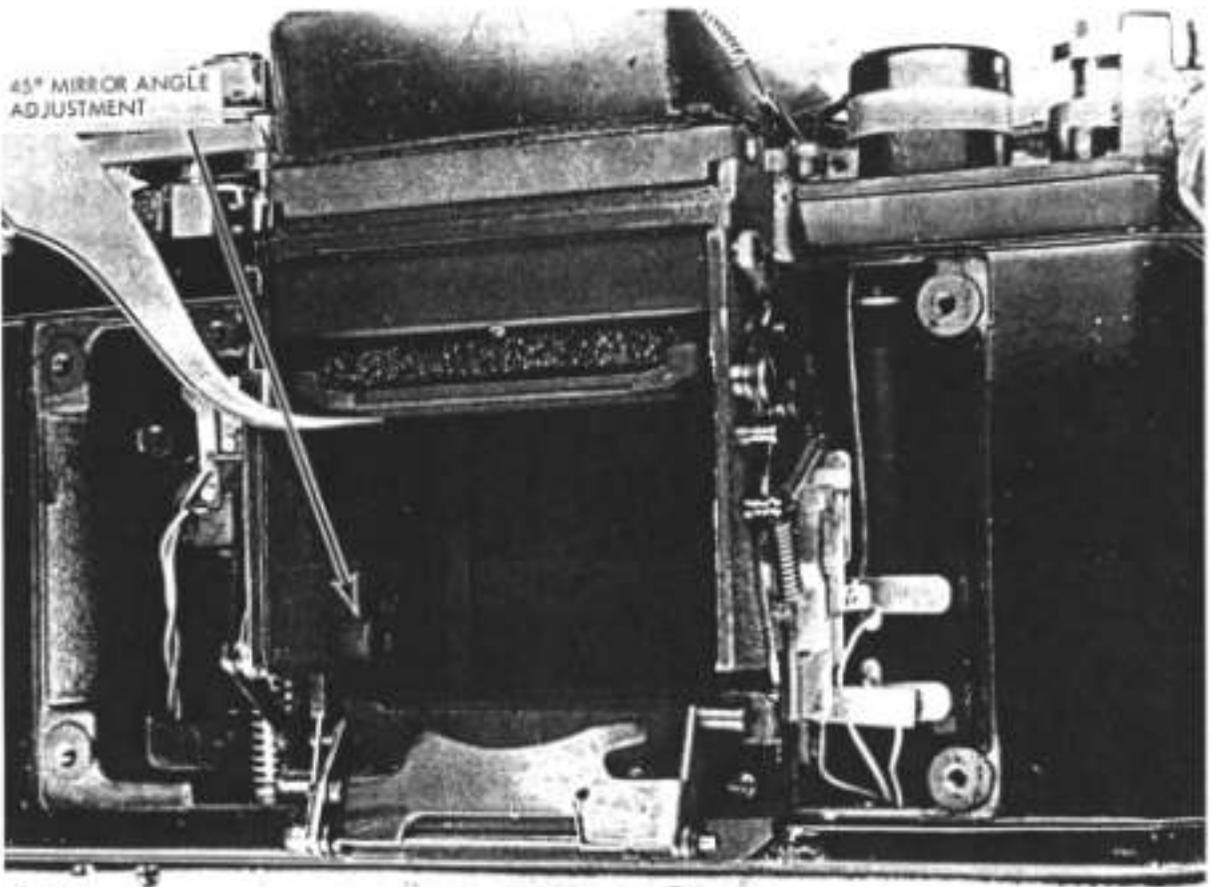
31

NOTE THAT UPPER DELAYED-ACTION ESCAPEMENT RETAINING
SCREW IS COUNTERSUNK.

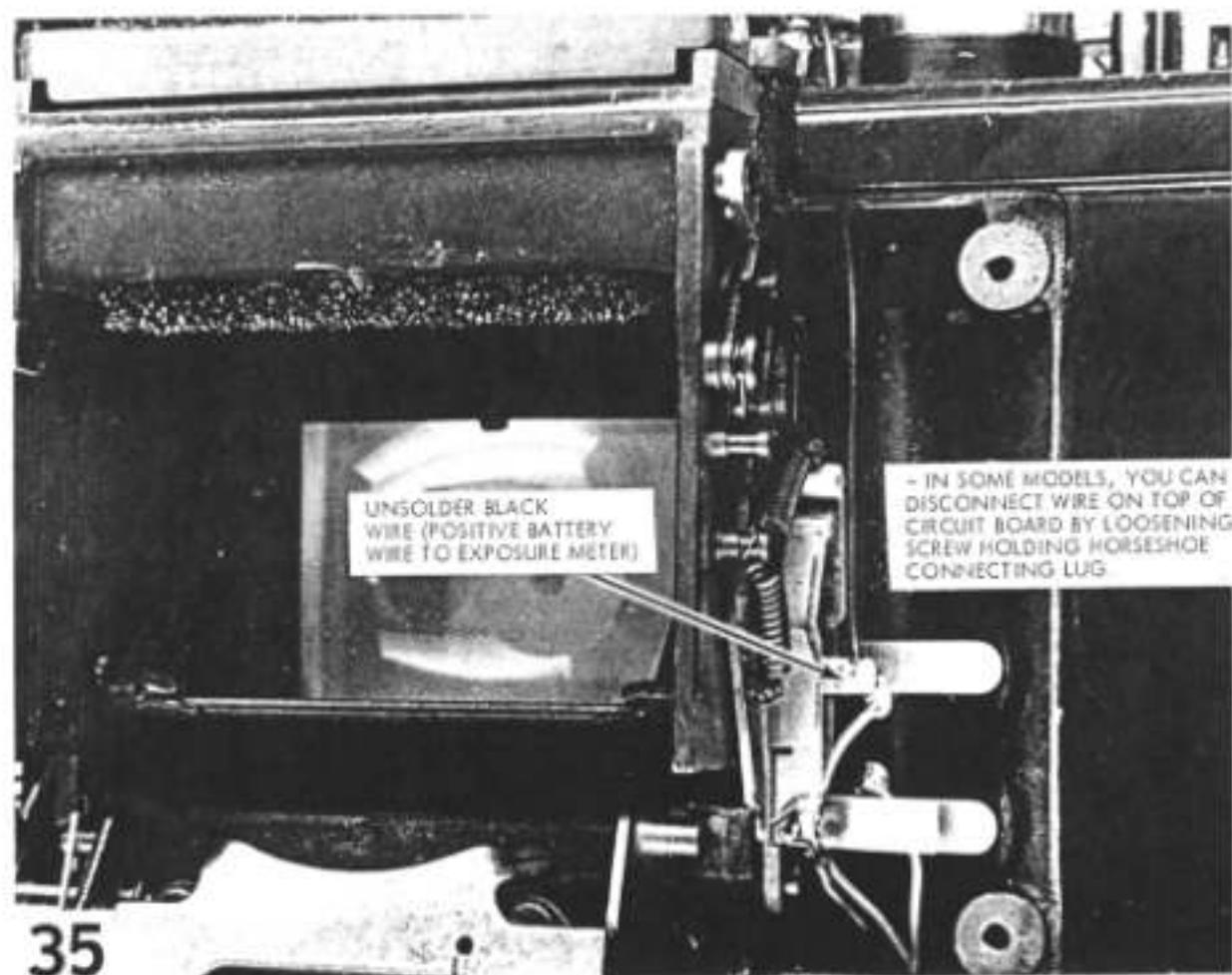




45° MIRROR ANGLE
ADJUSTMENT



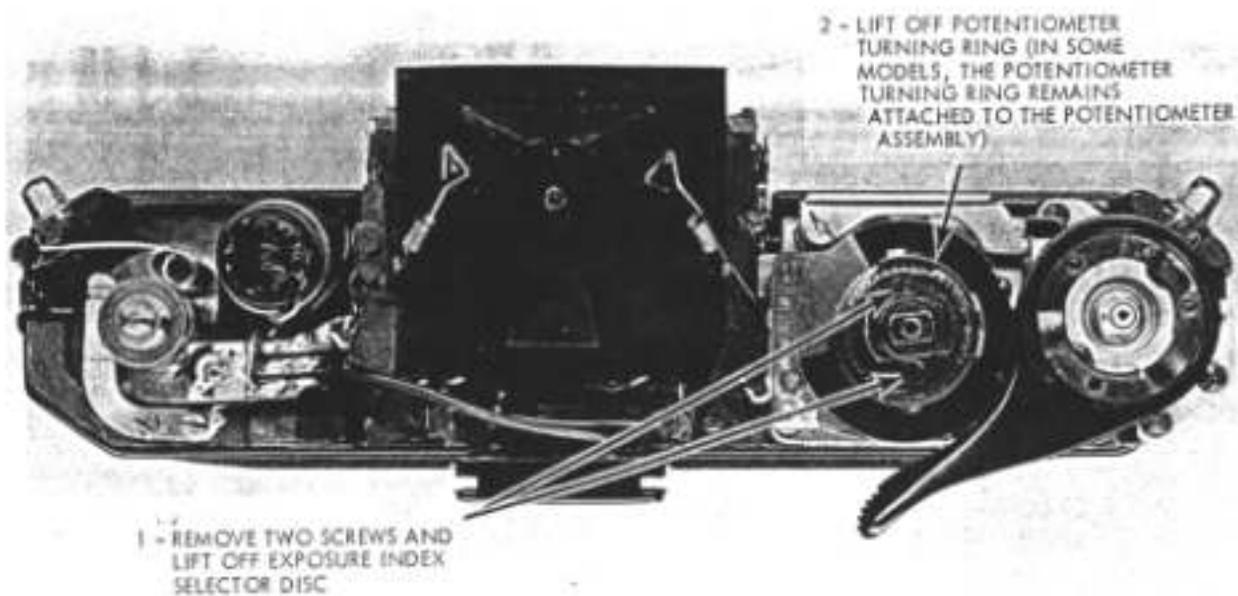
34



UNSOLDER BLACK
WIRE (POSITIVE BATTERY
WIRE TO EXPOSURE METER)

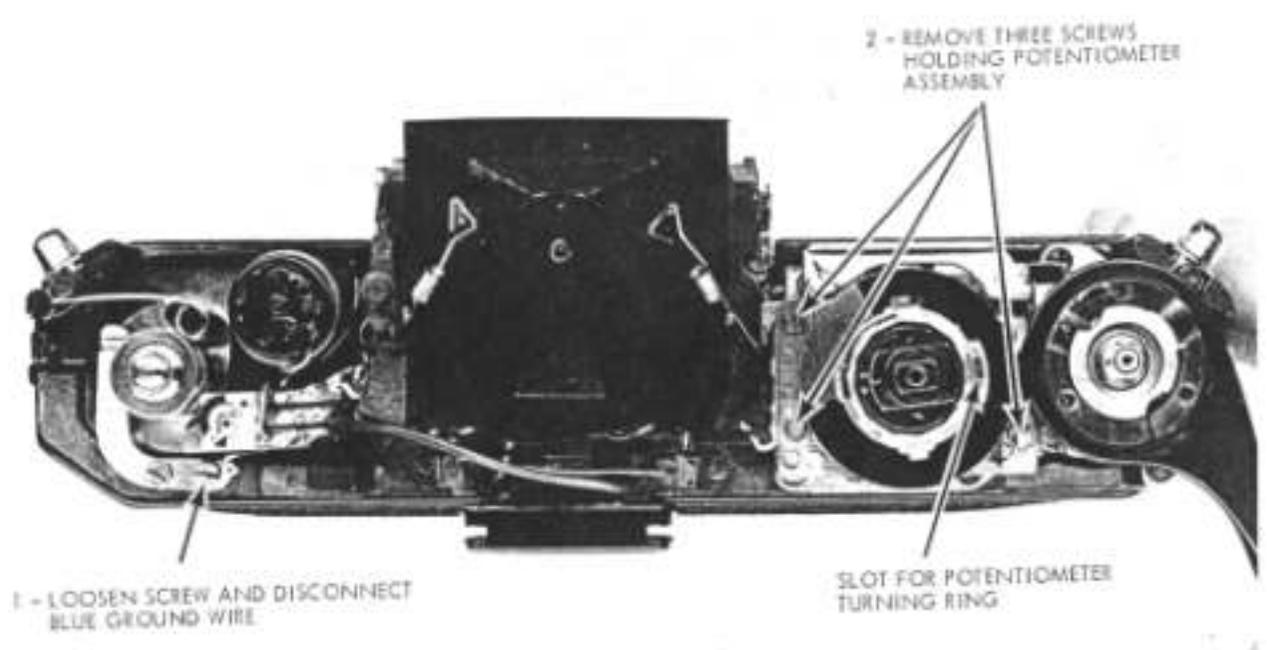
- IN SOME MODELS, YOU CAN
DISCONNECT WIRE ON TOP OF
CIRCUIT BOARD BY LOOSENING
SCREW HOLDING HORSESHOE
CONNECTING LUG

35

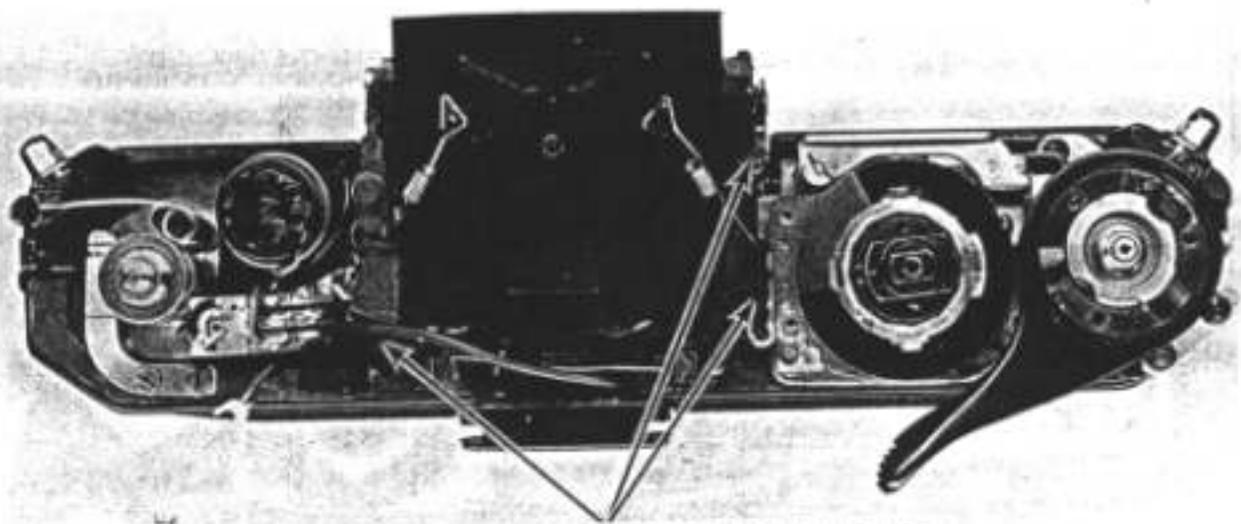


36

REASSEMBLY: The starter tab on the potentiometer turning ring passes into the slot in the potentiometer -- see Illustration 37. With the speed selector set to "bulb," replace the exposure index selector disc (countersunk screw holes facing up) with its teeth facing the pentaprism.



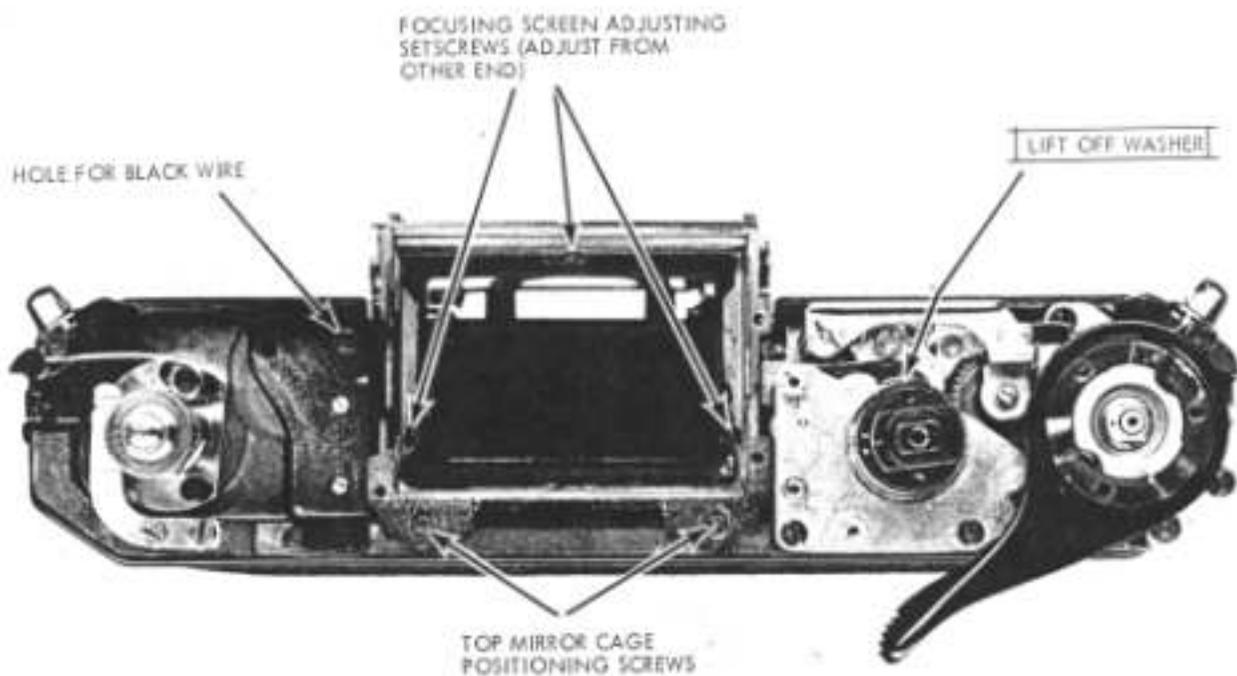
37



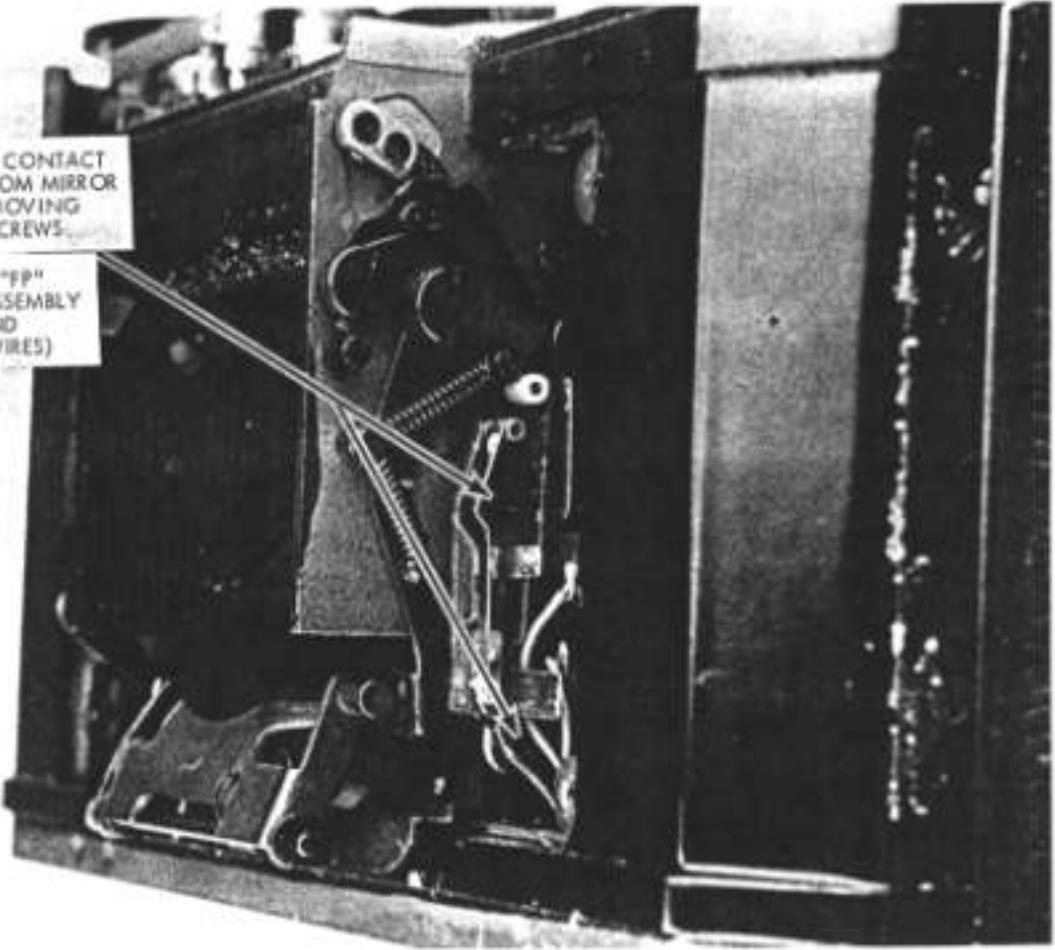
- 1 - REMOVE THREE SCREWS HOLDING FINDER ASSEMBLY
- 2 - LIFT OFF FINDER AND EXPOSURE METER AS ONE UNIT

38

COCKING LEVER MAY BE MOVED SLIGHTLY TO FACILITATE



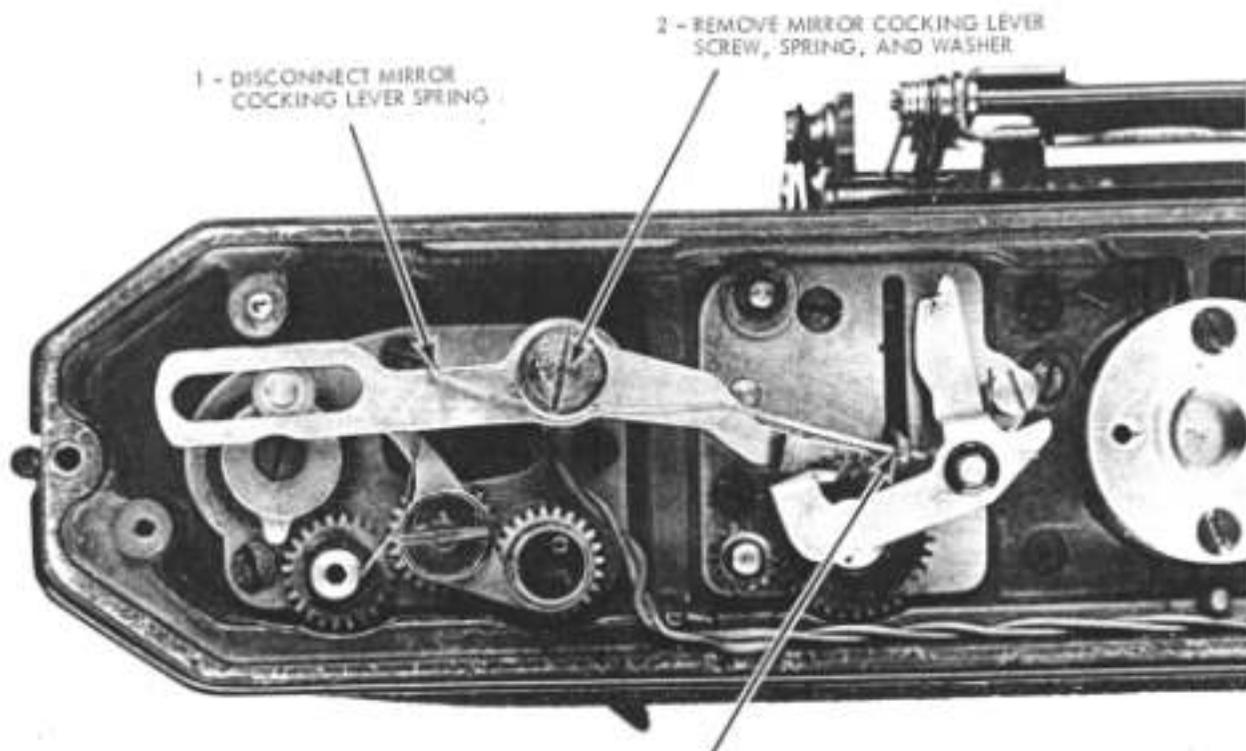
ADJUSTMENT: Adjust the focusing screen with the camera fully assembled -- remove only the lens. Reaching through the lens opening with a long screwdriver, turn the setscrews IN (to raise the focusing screen) or OUT (to lower the focusing screen). The three setscrews allow you to adjust the focus at the edges -- as well as at the center -- of the focusing screen.



DETACH "FP" CONTACT
ASSEMBLY FROM MIRROR
CAGE BY REMOVING
THESE TWO SCREWS.

(OR - LEAVE "FP"
CONTACT ASSEMBLY
IN PLACE AND
UNSOLDER WIRES)

40



1 - DISCONNECT MIRROR
COCKING LEVER SPRING

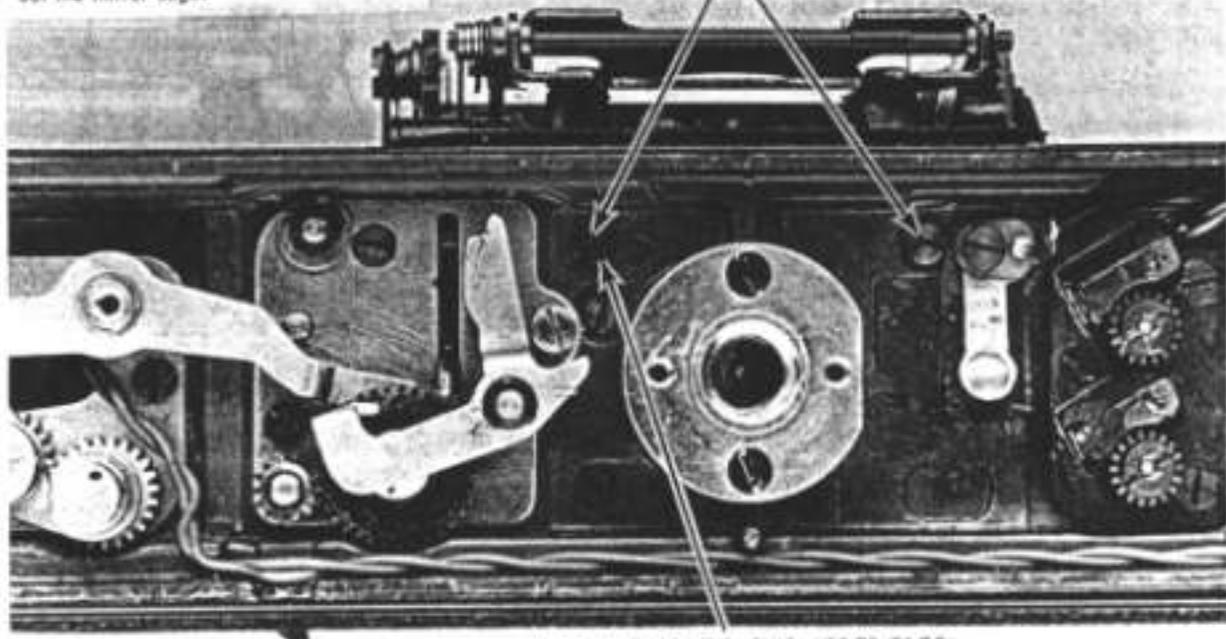
2 - REMOVE MIRROR COCKING LEVER
SCREW, SPRING, AND WASHER

41

NOTE THAT MIRROR COCKING LEVER SPRING
PASSES THROUGH HOLE IN MIRROR TENSIONING
LEVER

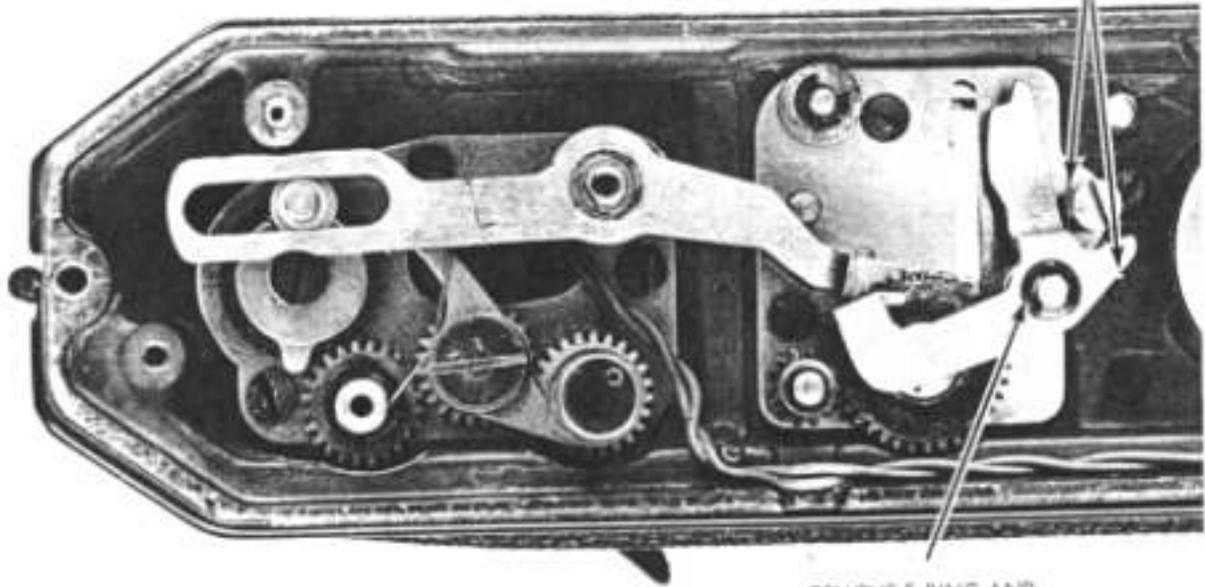
NOTE: In earlier models, remove the top mirror cage positioning screws and the shutter actuator plate before lifting out the mirror cage.

REMOVE THESE TWO SCREWS
AND LIFT OUT MIRROR CAGE



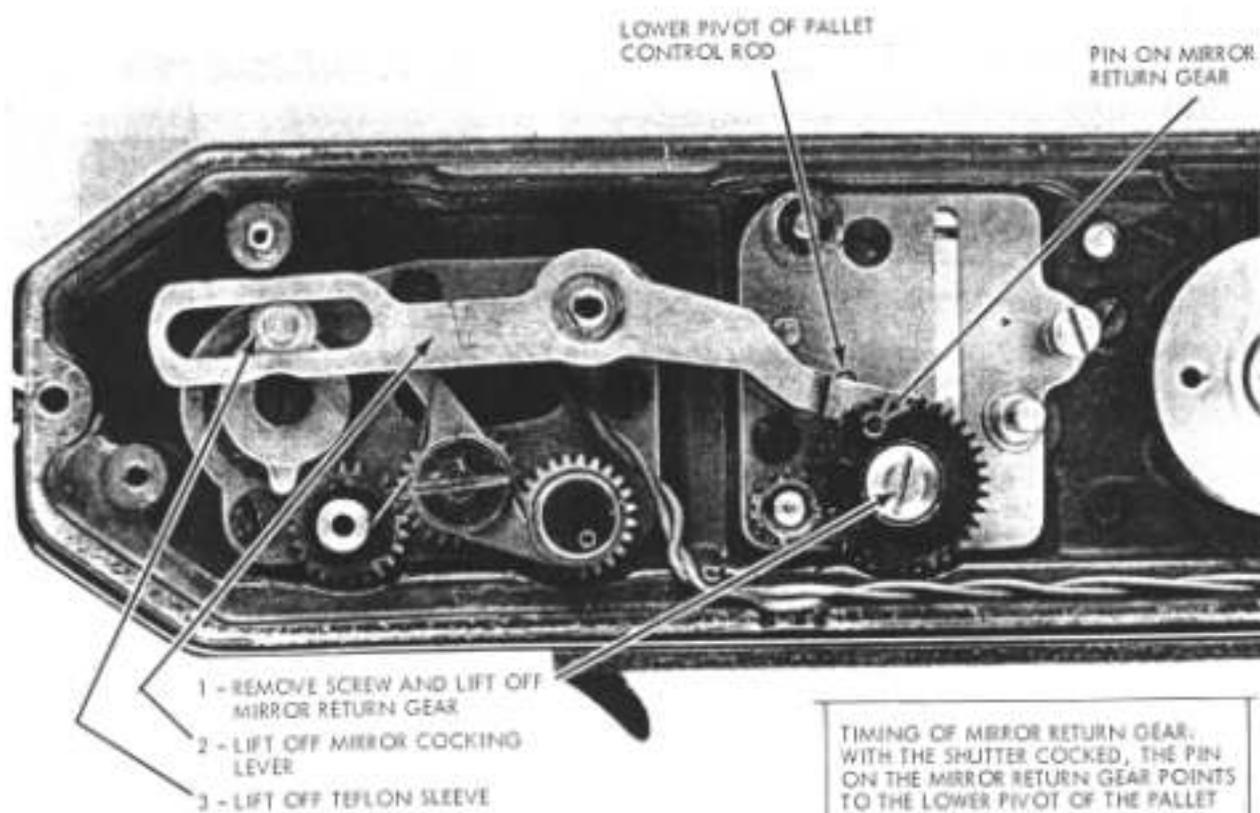
(IN SOME MODELS, THIS MIRROR CAGE
RETAINING SCREW IS COUNTERSUNK)

NOTE POSITION OF MIRROR
CATCH LEVER SPRING

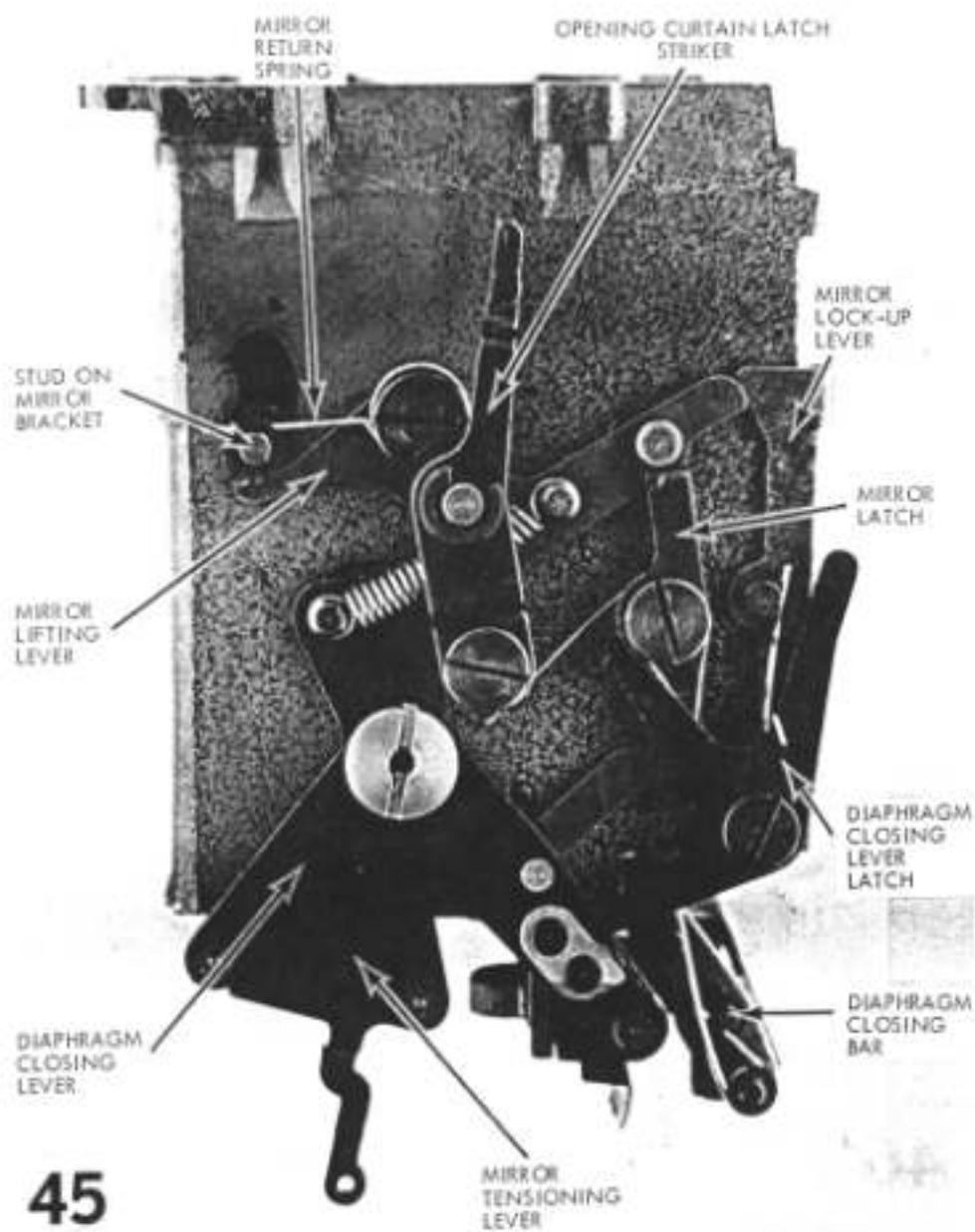


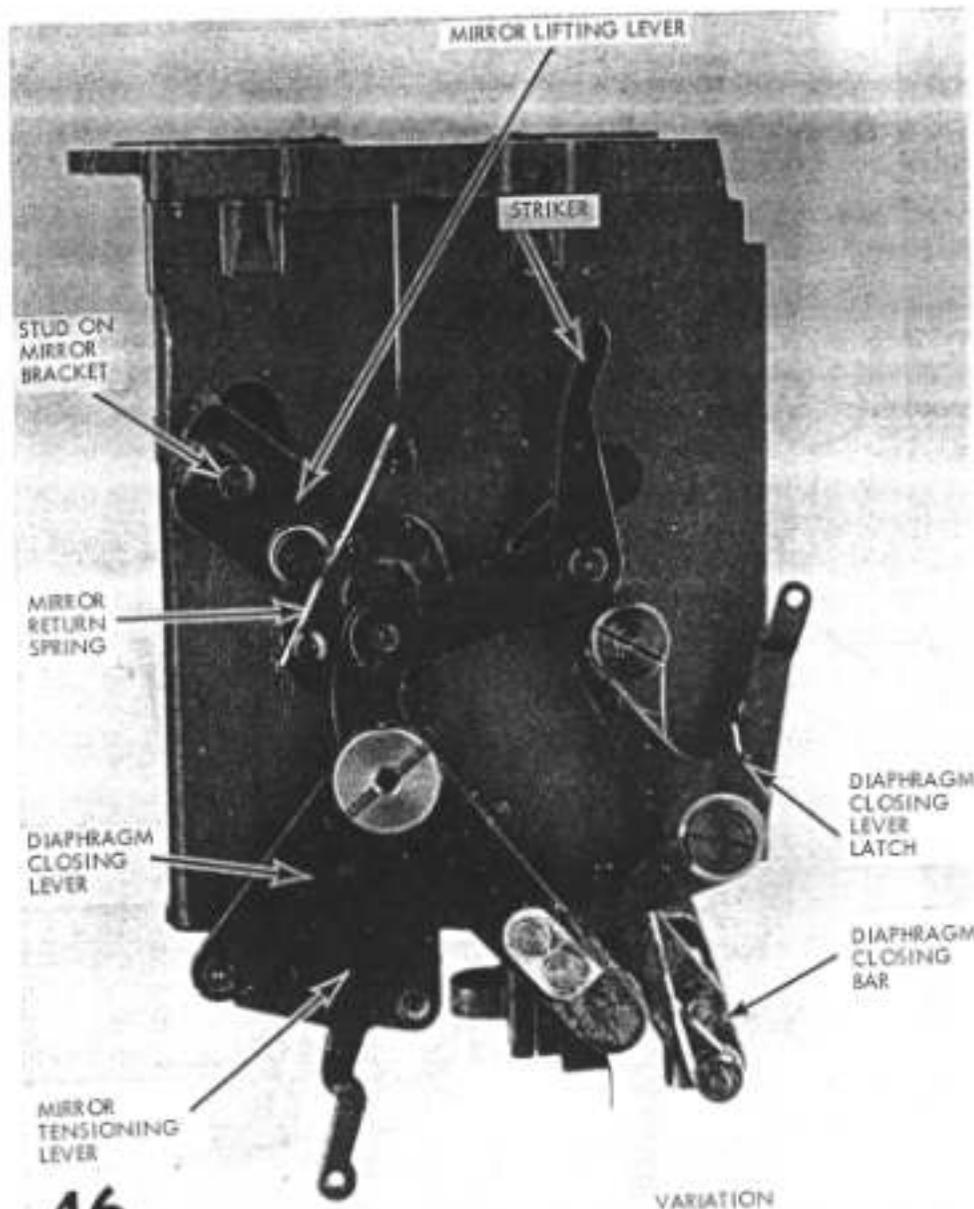
REMOVE E-RING AND
LIFT OFF MIRROR
CATCH LEVER

43



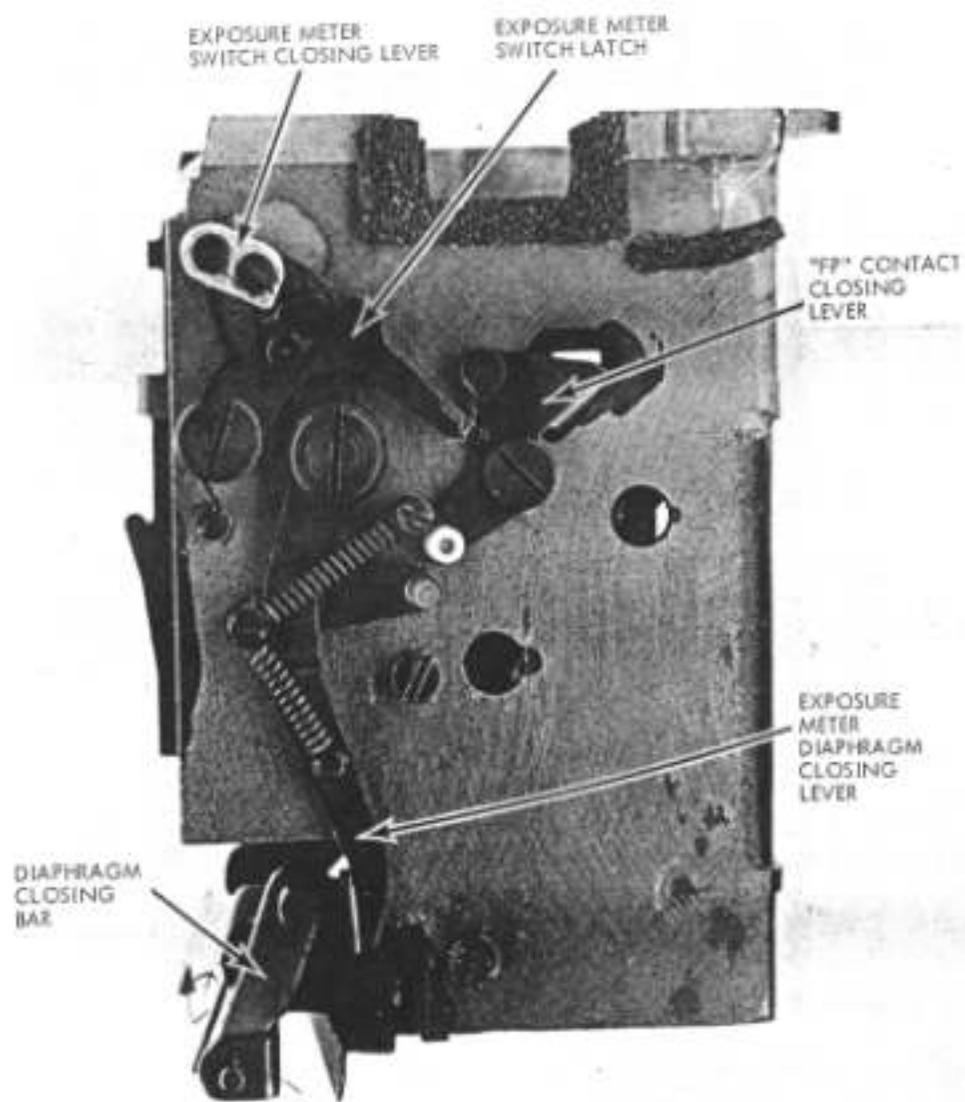
44 SHUTTER COCKED



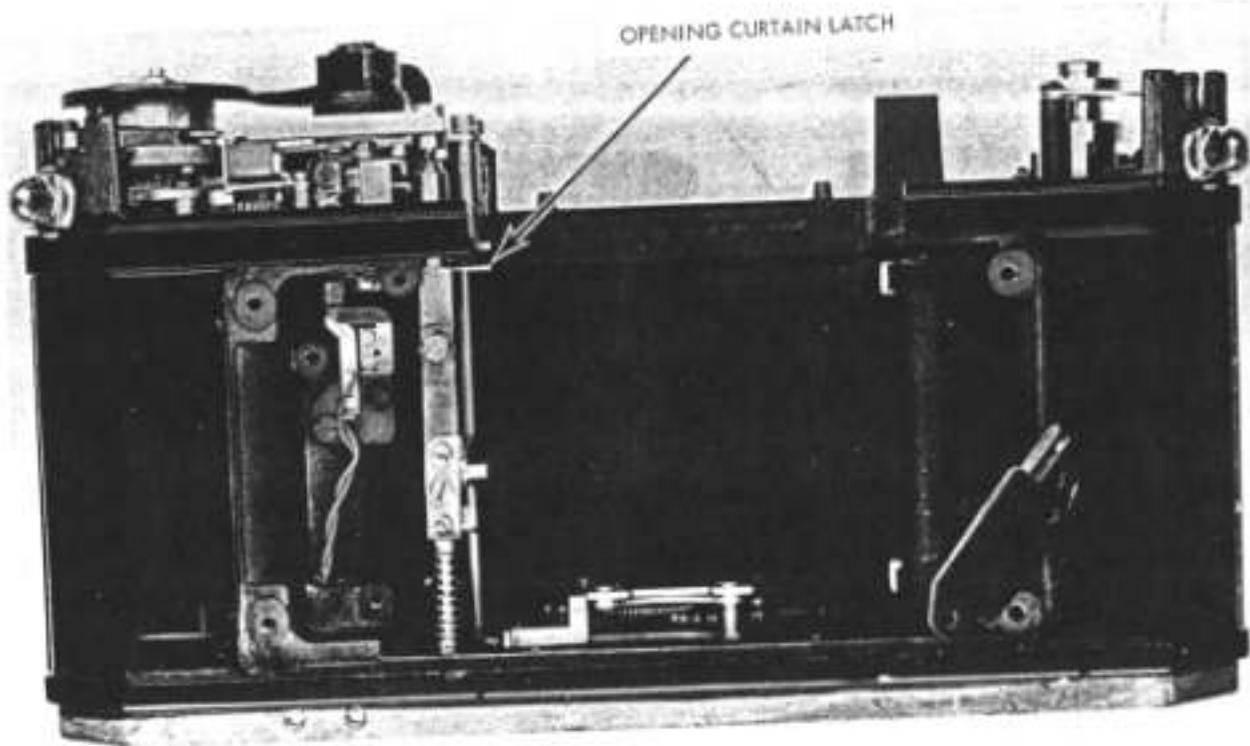


46

VARIATION



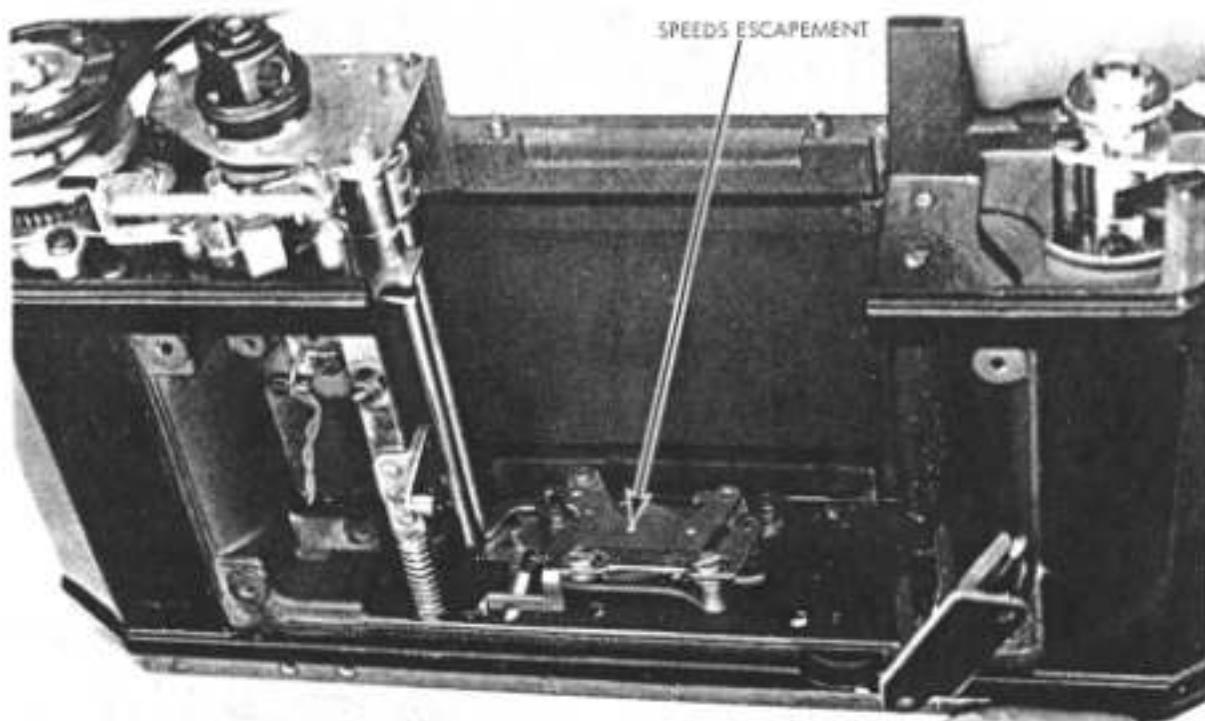
47



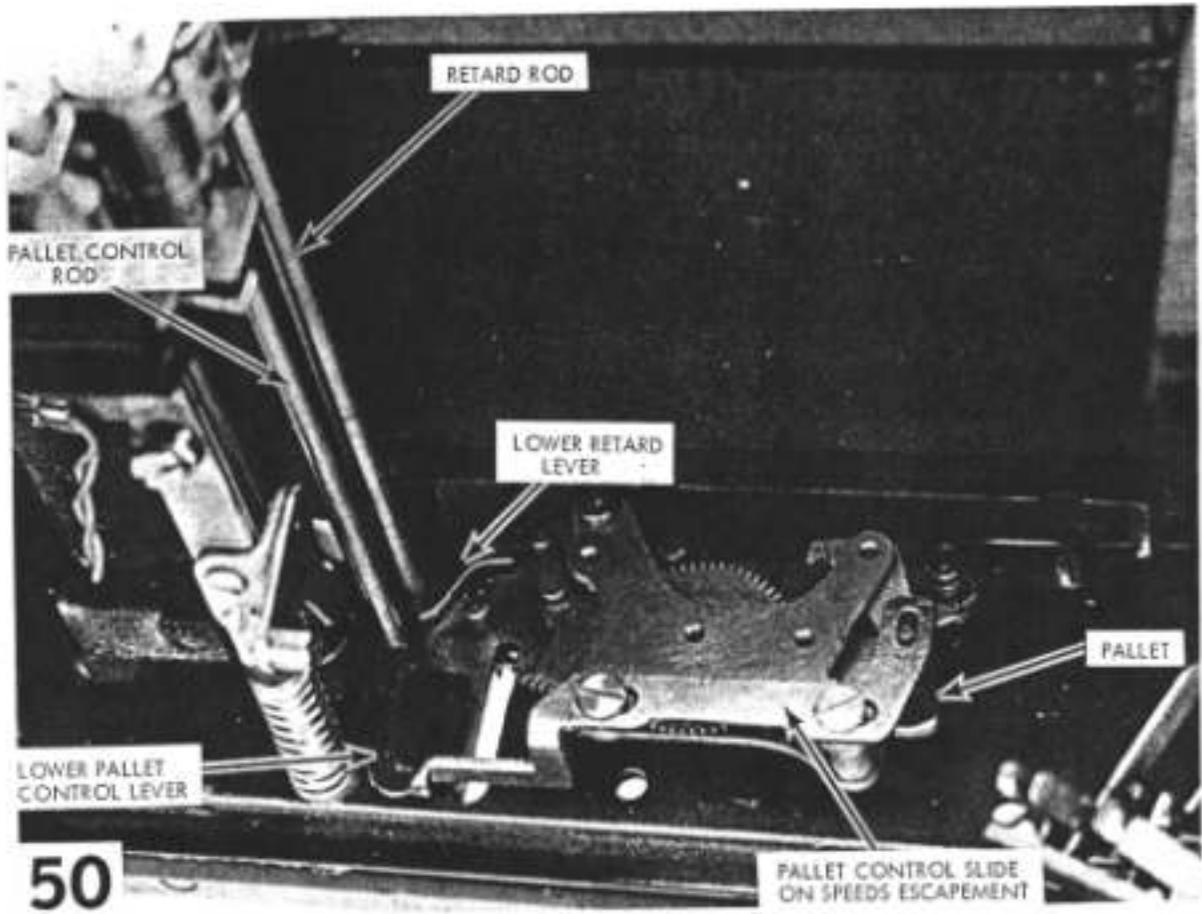
48

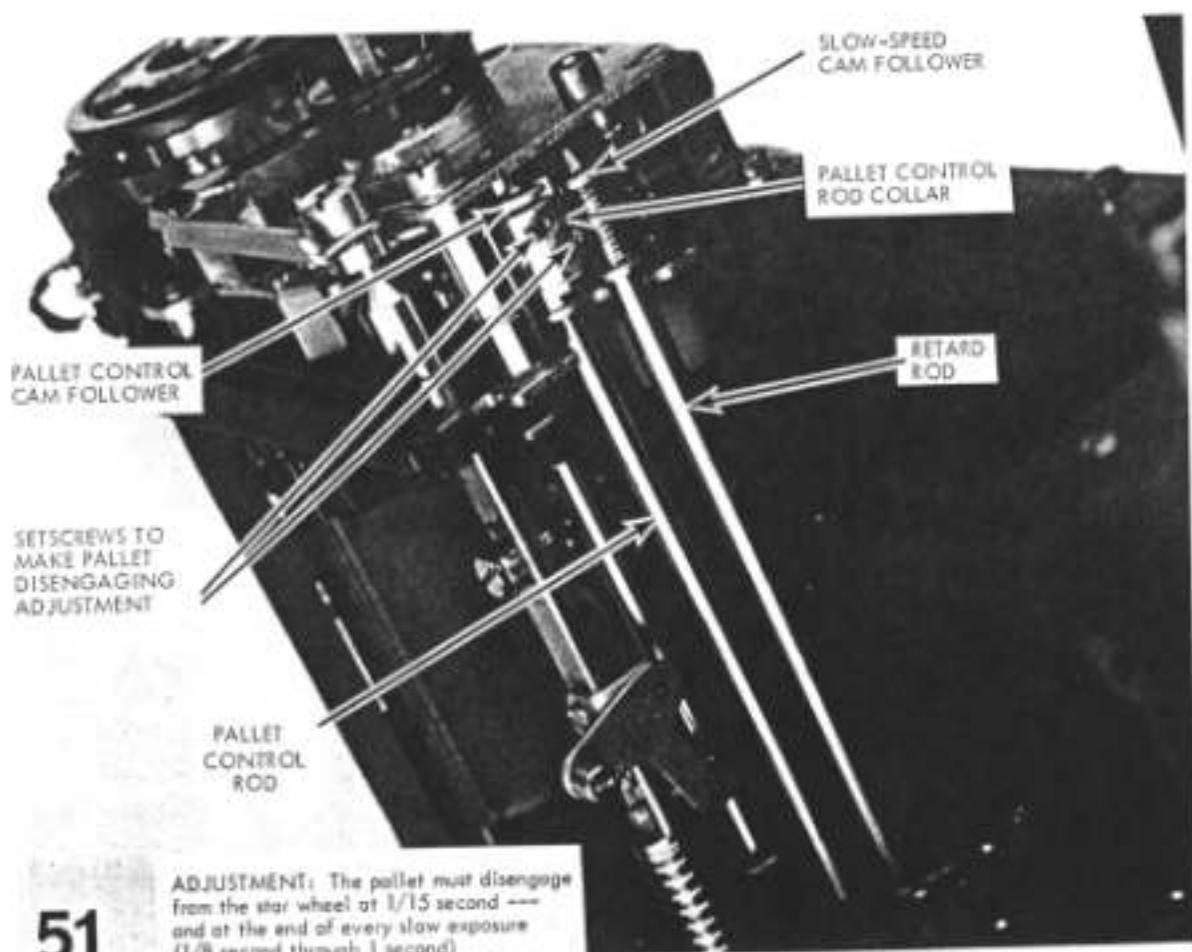
To operate shutter:

- cock the shutter -- note the curtain overlap during the cocking cycle
- hold down the release shaft and push the opening curtain latch toward the back of the camera



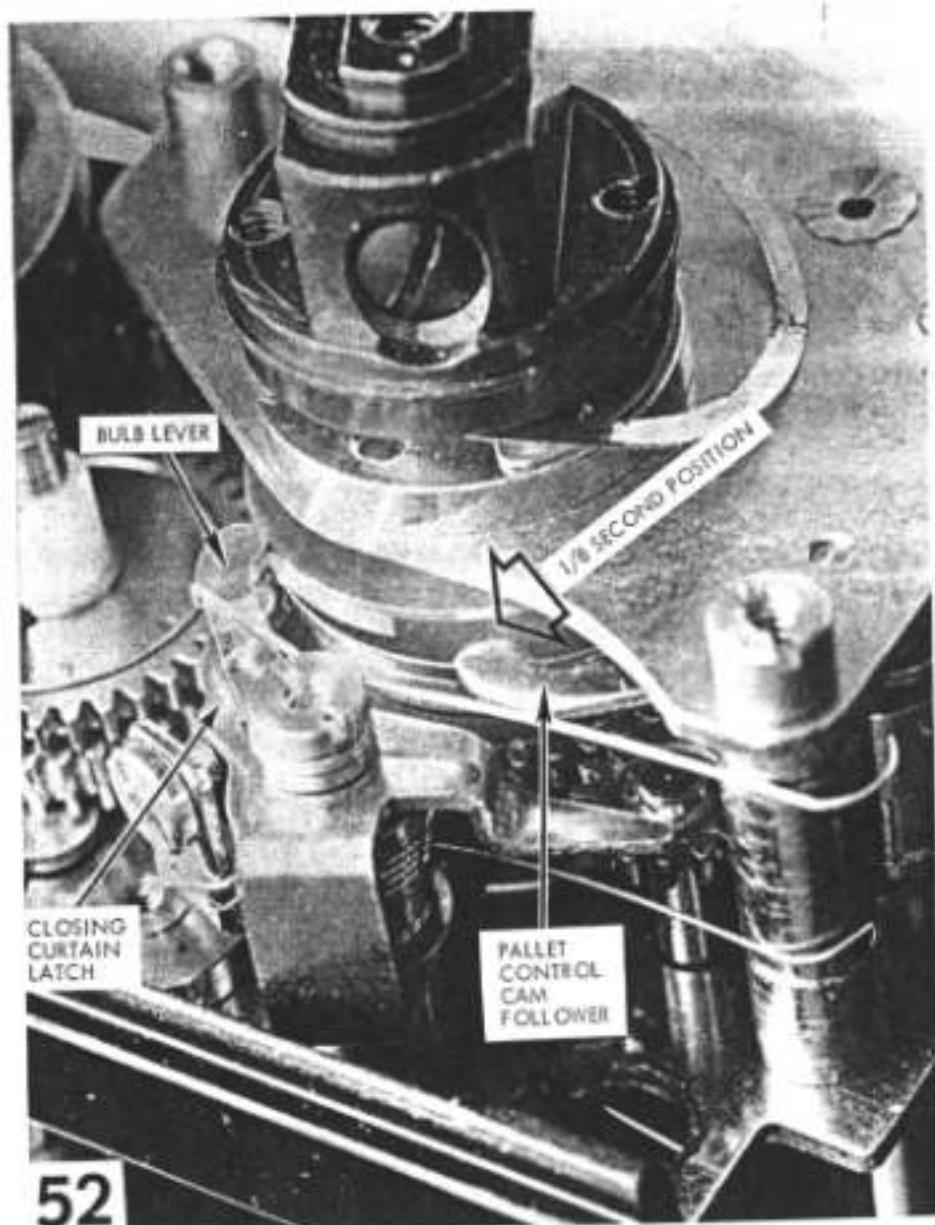
49

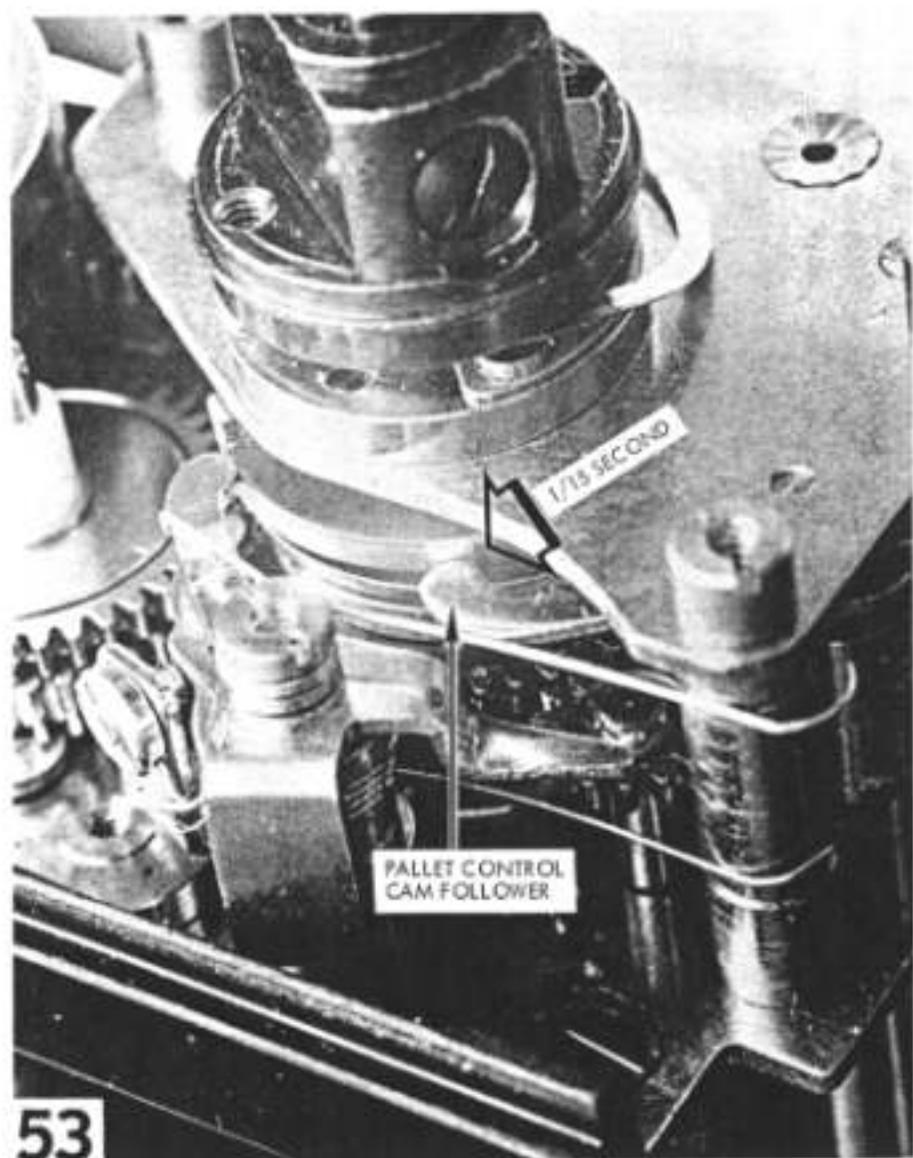




51

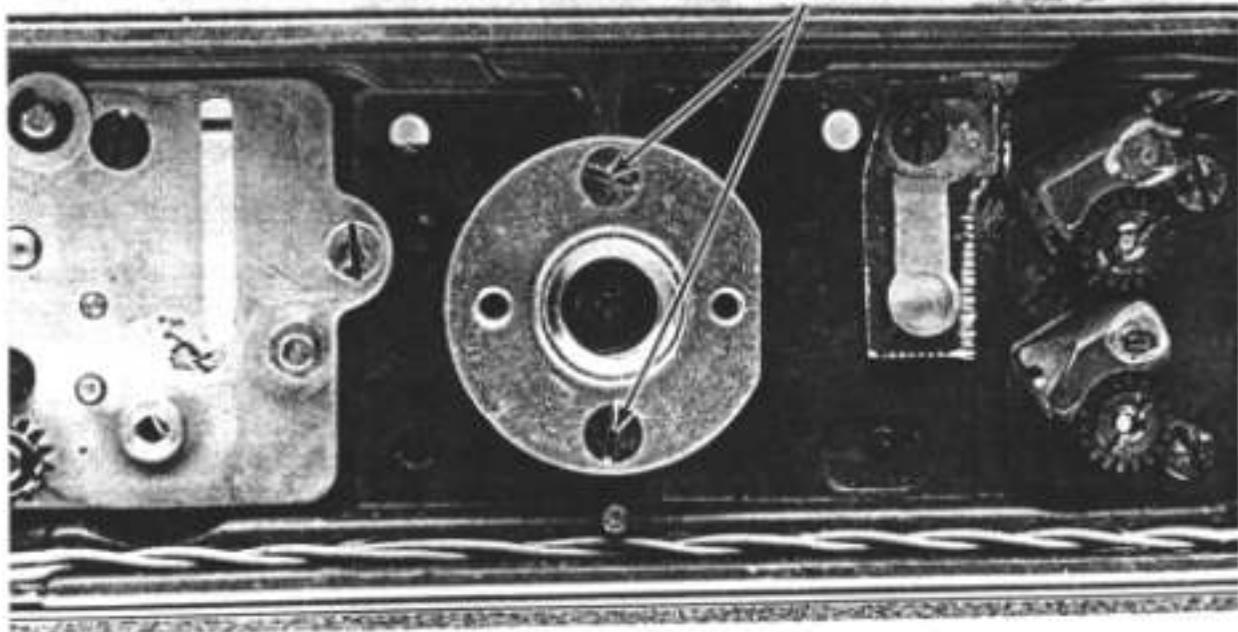
ADJUSTMENT: The pallet must disengage from the star wheel at $1/15$ second --- and at the end of every slow exposure ($1/8$ second through 1 second)





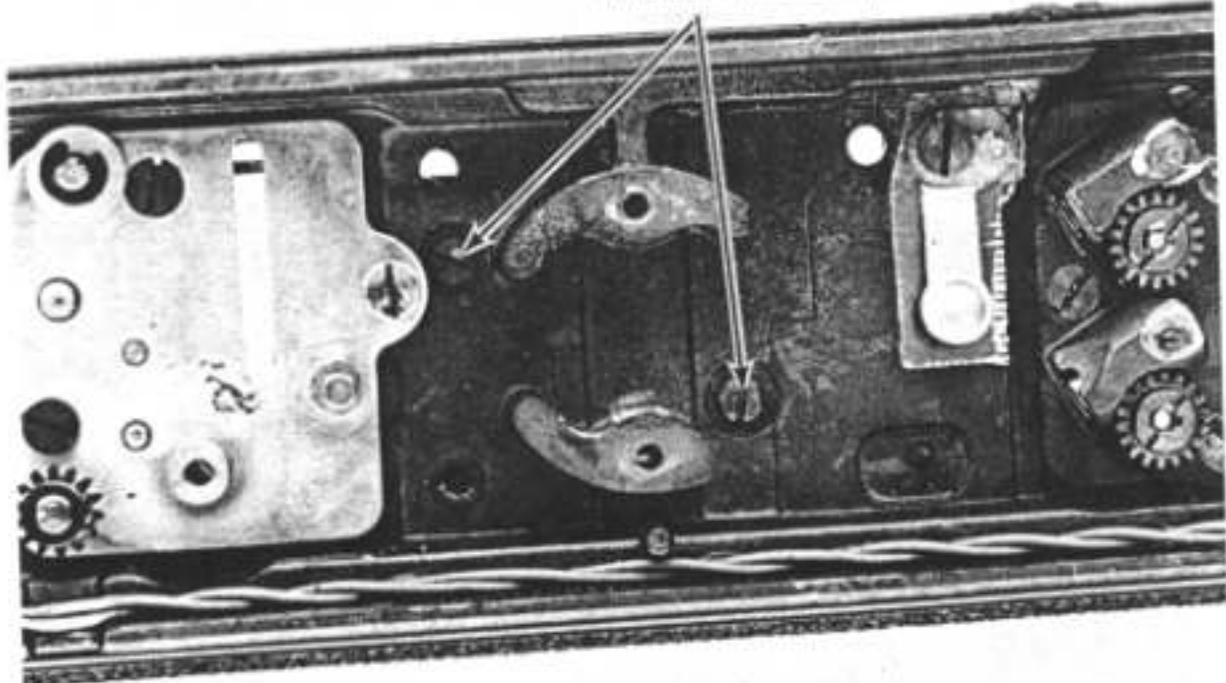
53

REMOVE TWO SCREWS
AND LIFT OFF TRIPOD
SOCKET



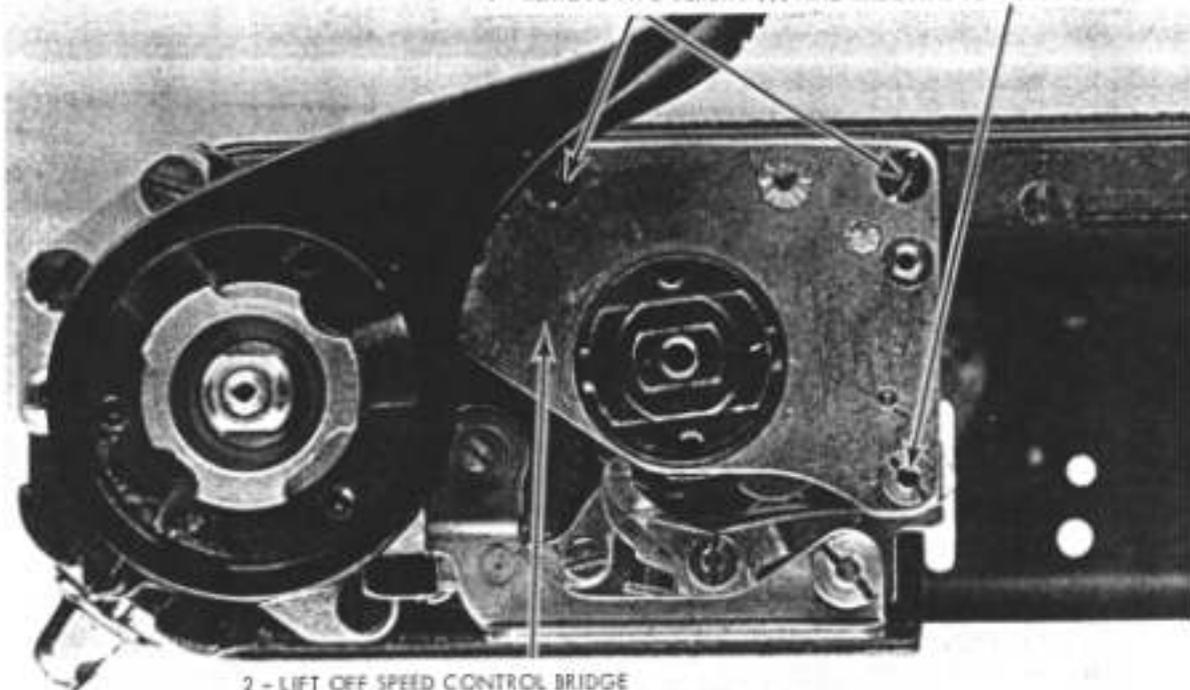
54

REMOVE TWO SCREWS AND SLIDE
OUT SPEEDS ESCAPEMENT (HOLD TO PREVENT DROPPING)



55

1 - REMOVE TWO SCREWS ... AND RHEOSTAT SUPPORT POST



2 - LIFT OFF SPEED CONTROL BRIDGE

56

CAUTION: Keep the camera upright as you remove the speed control bridge. Three parts are loose once the speed control bridge is lifted from the camera body. These are: the release cam, ILLUSTRATION 58, the spring on top of the retard rod, ILLUSTRATION 59, and the pellet control cam follower, ILLUSTRATION 59.

UNDERSIDE OF SPEED CONTROL BRIDGE

RETARD
CONTROL LEVER

SLOW-SPEED CAM
FOLLOWER

PALLET CONTROL CAM

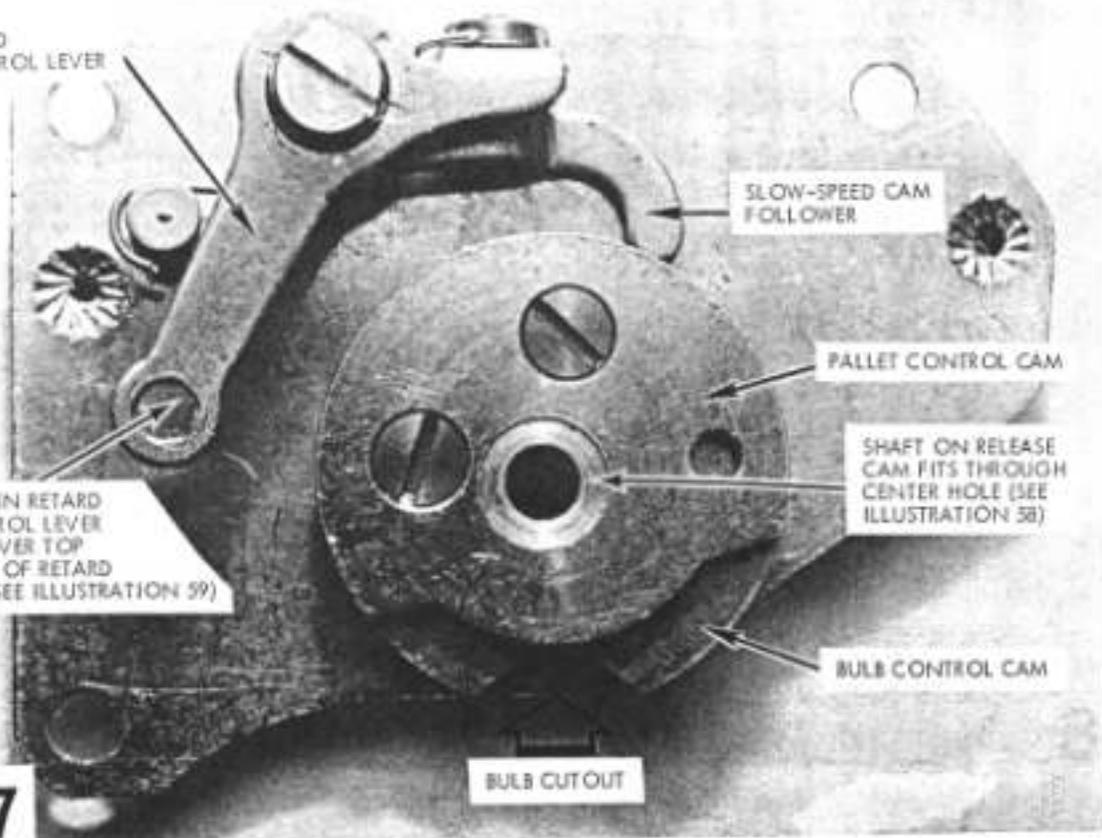
HOLE IN RETARD
CONTROL LEVER
FITS OVER TOP
PIVOT OF RETARD
ROD (SEE ILLUSTRATION 59)

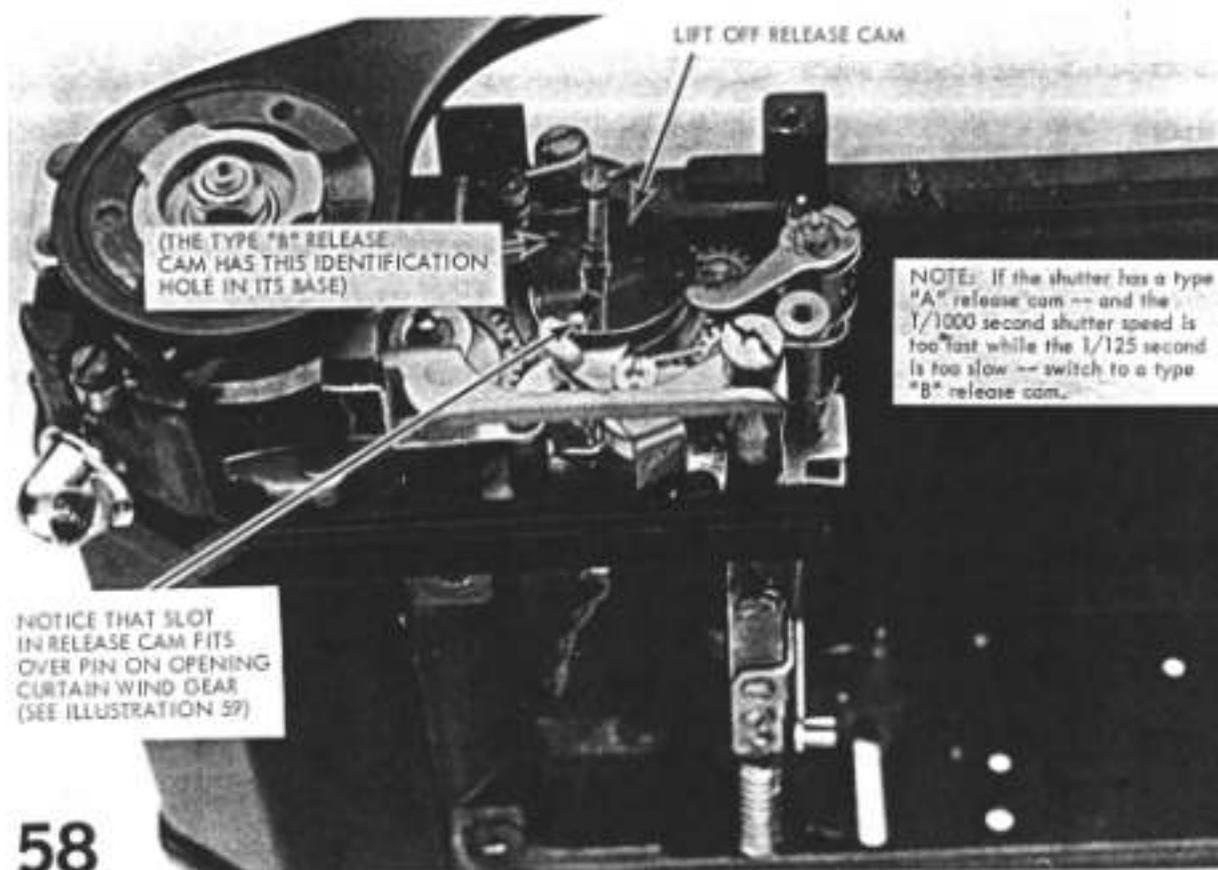
SHAFT ON RELEASE
CAM FITS THROUGH
CENTER HOLE (SEE
ILLUSTRATION 58)

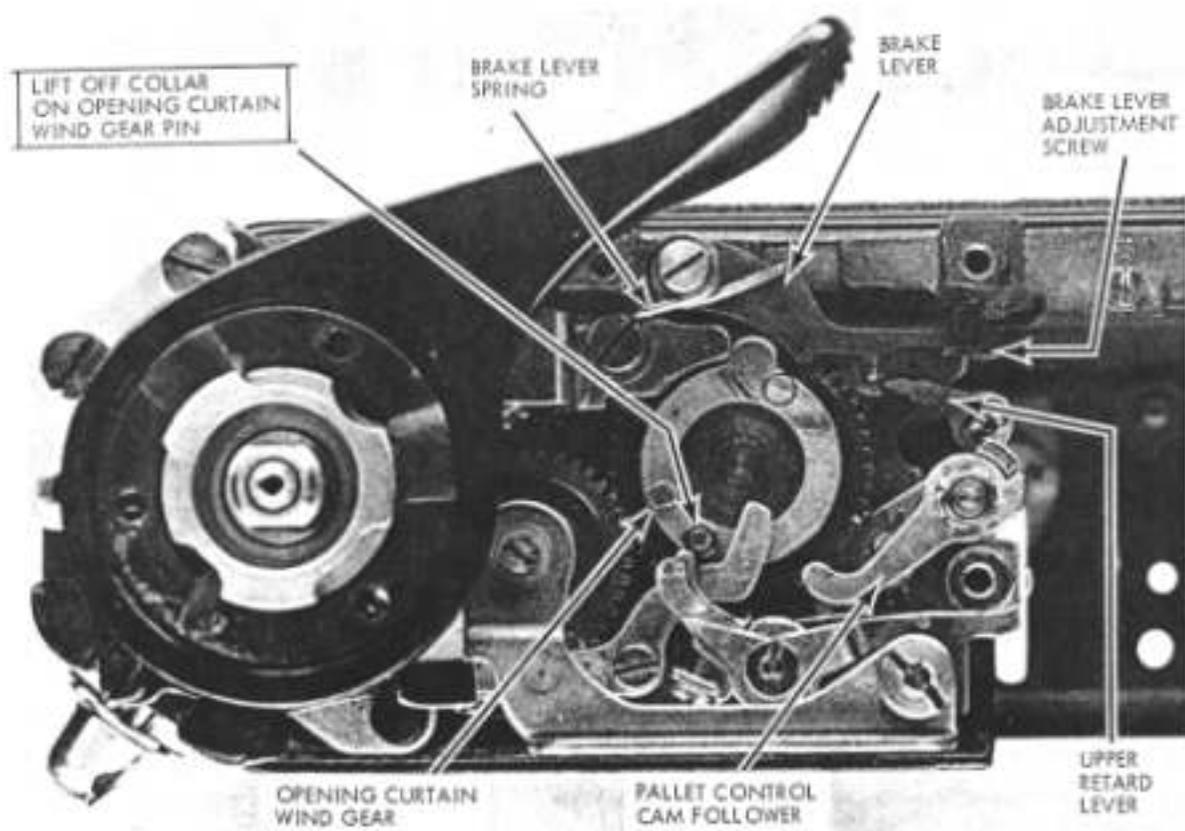
BULB CONTROL CAM

BULB CUT OUT

57



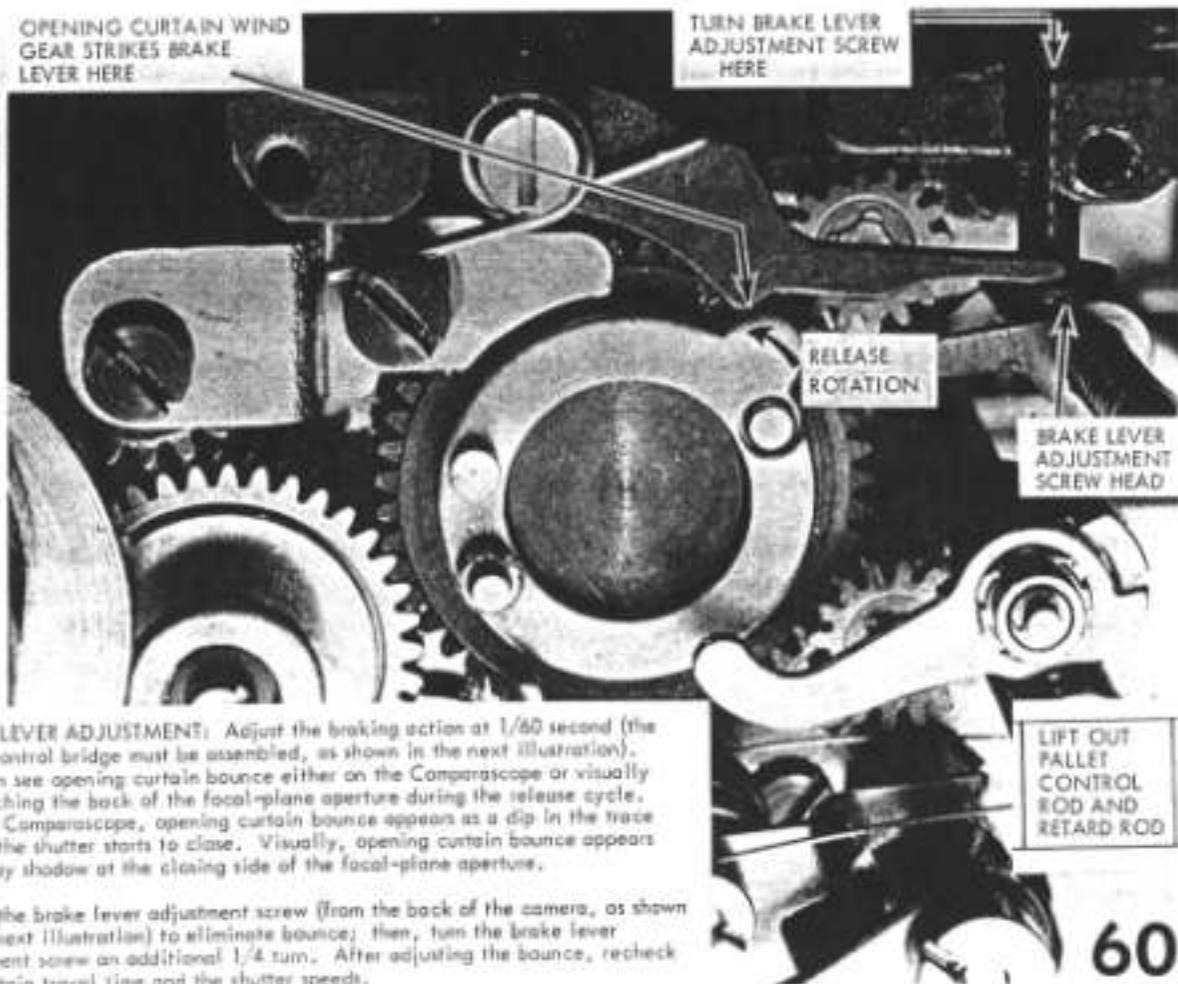




59

OPENING CURTAIN WIND
GEAR STRIKES BRAKE
LEVER HERE

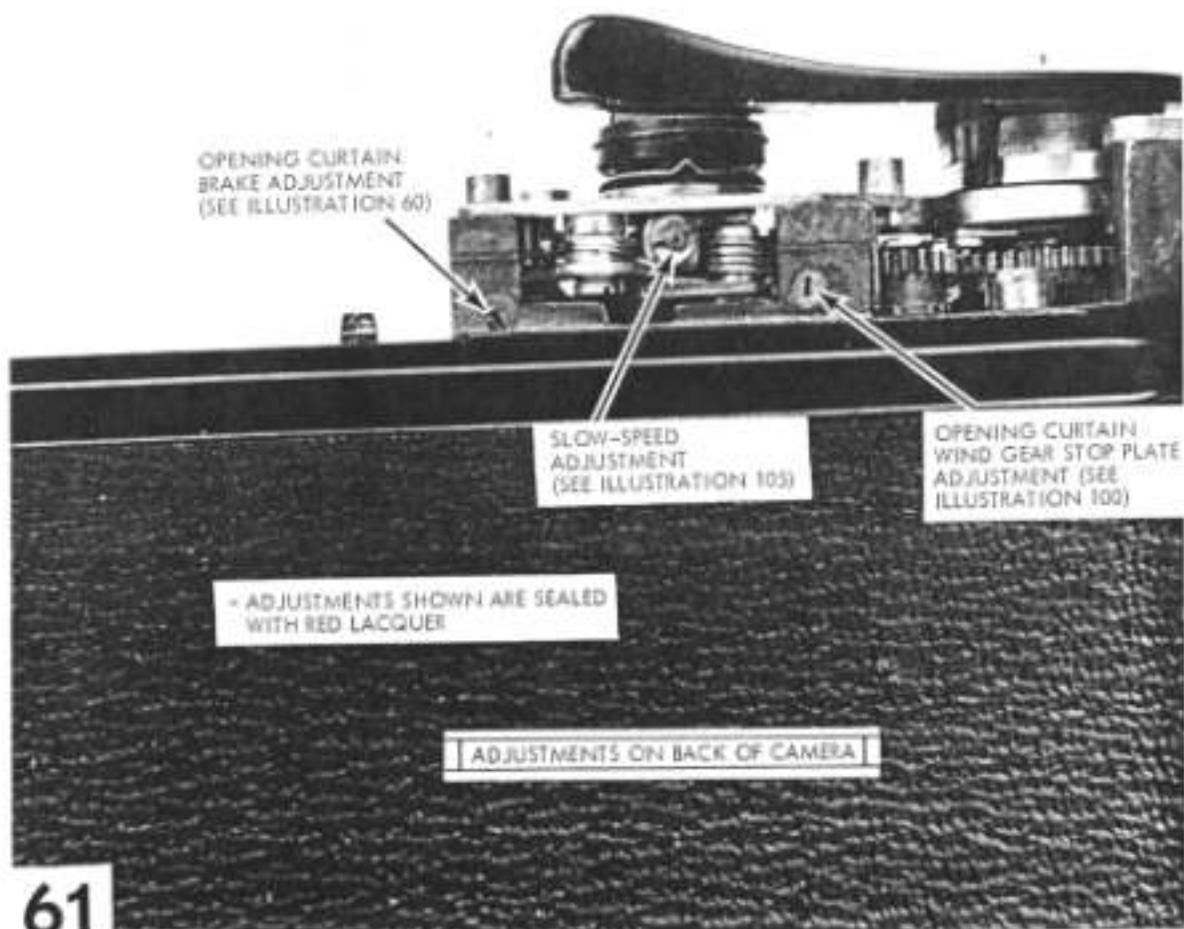
TURN BRAKE LEVER
ADJUSTMENT SCREW
HERE

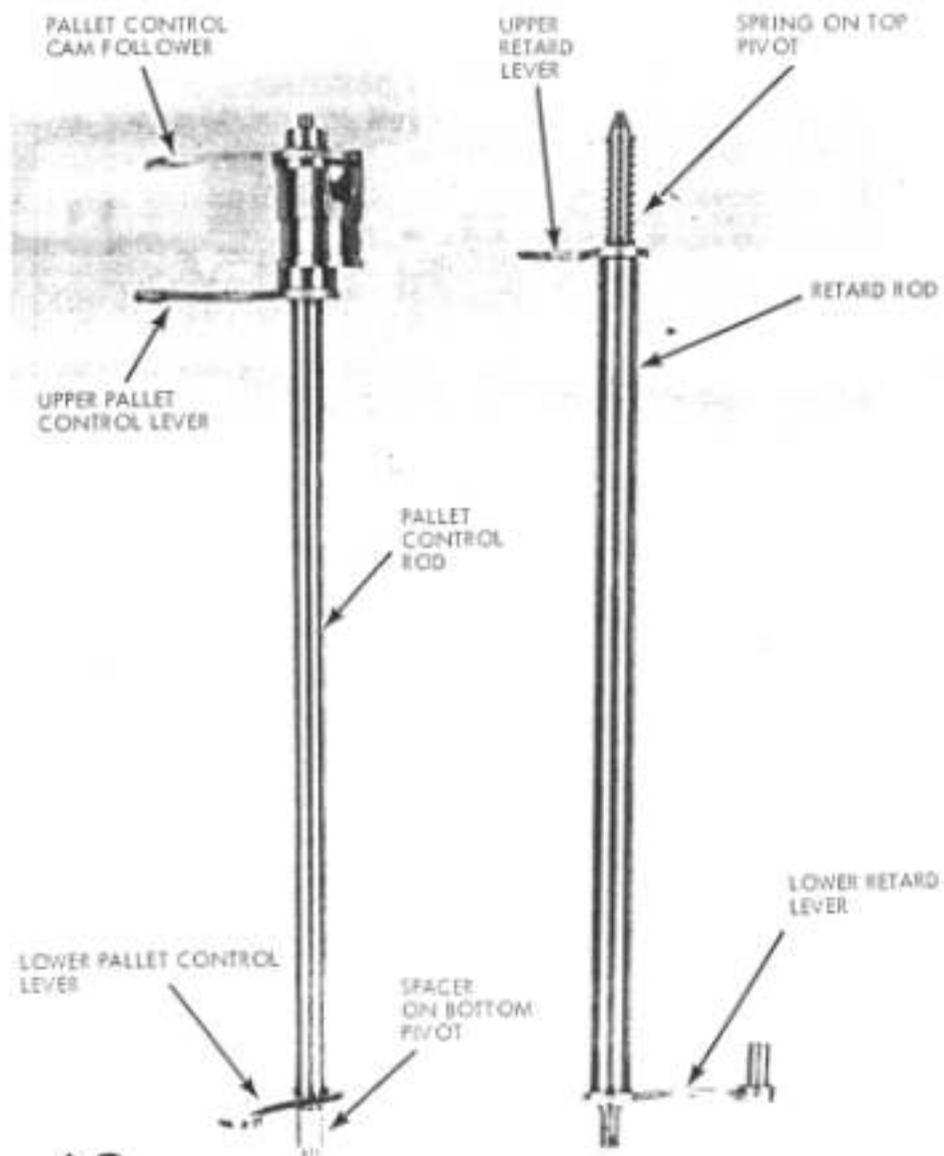


BRAKE LEVER ADJUSTMENT: Adjust the braking action at 1/60 second (the speed control bridge must be assembled, as shown in the next illustration). You can see opening curtain bounce either on the Comparascope or visually by watching the back of the focal-plane aperture during the release cycle. On the Comparascope, opening curtain bounce appears as a dip in the trace before the shutter starts to close. Visually, opening curtain bounce appears as a gray shadow at the closing side of the focal-plane aperture.

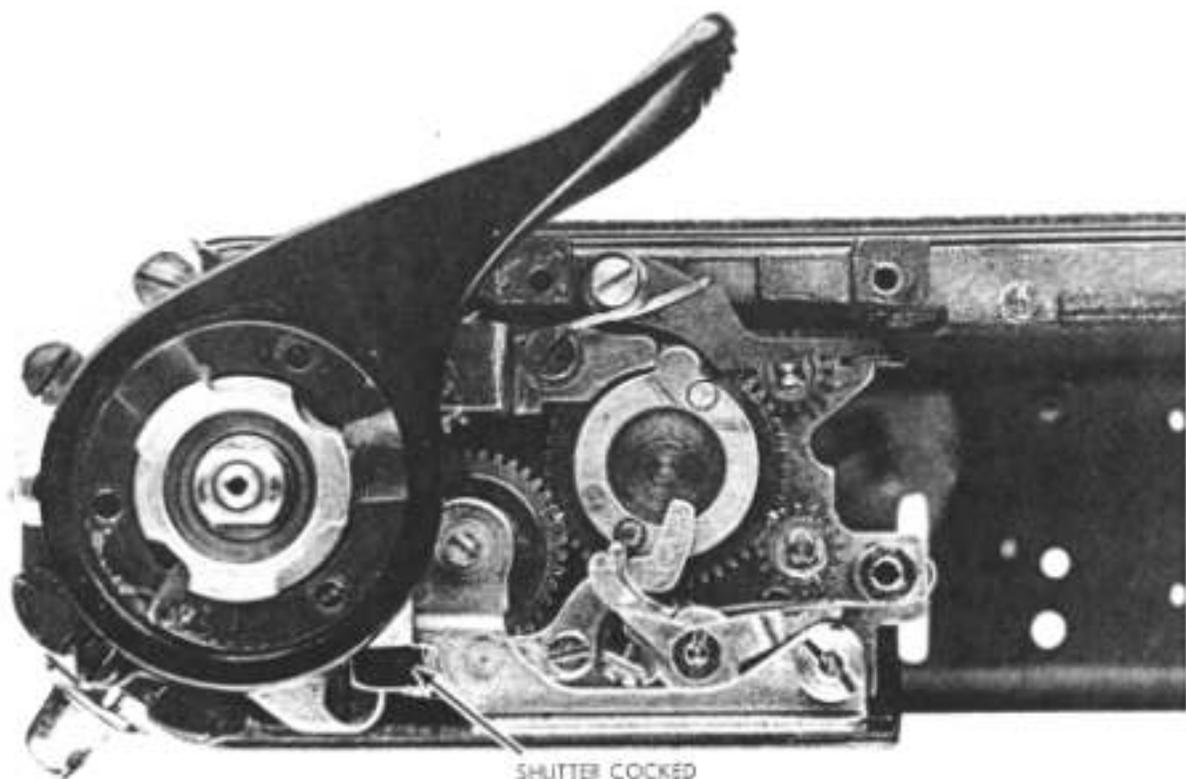
Adjust the brake lever adjustment screw (from the back of the camera, as shown in the next illustration) to eliminate bounce; then, turn the brake lever adjustment screw an additional 1/4 turn. After adjusting the bounce, recheck the curtain travel time and the shutter speeds.

60



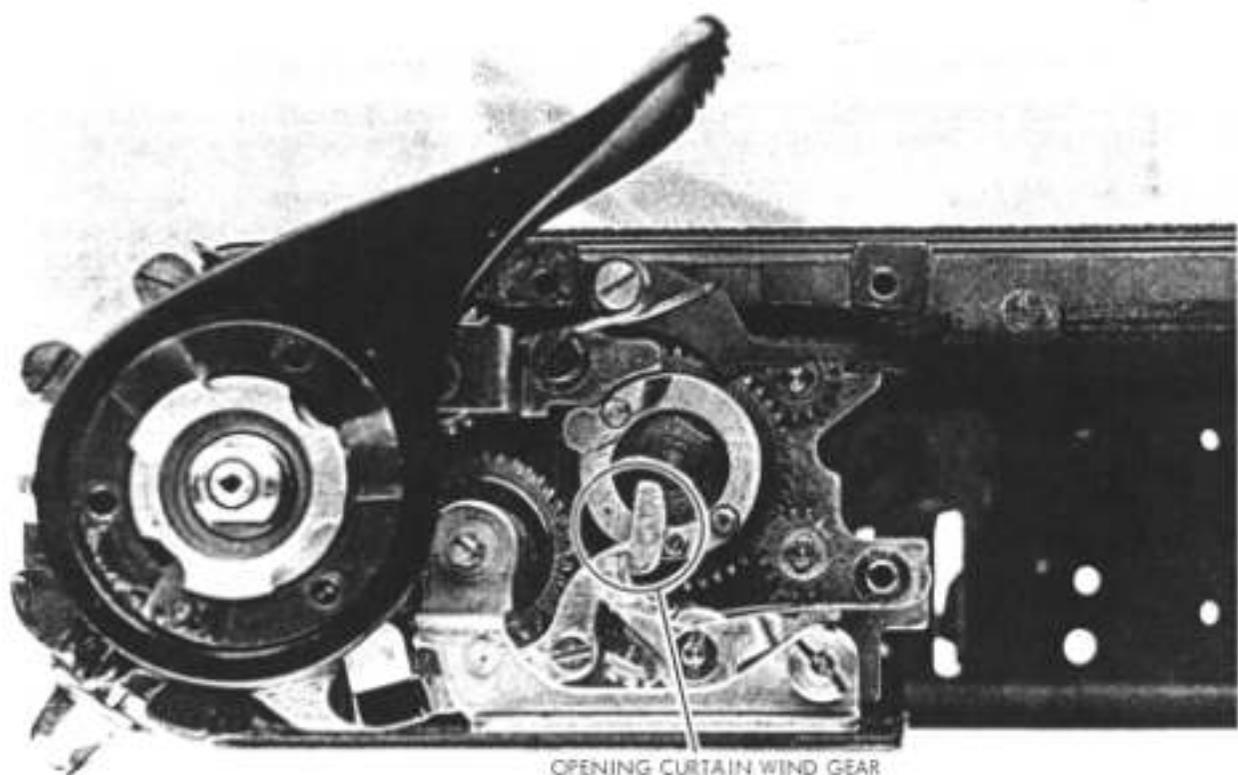


62



SHUTTER COCKED
INDICATOR

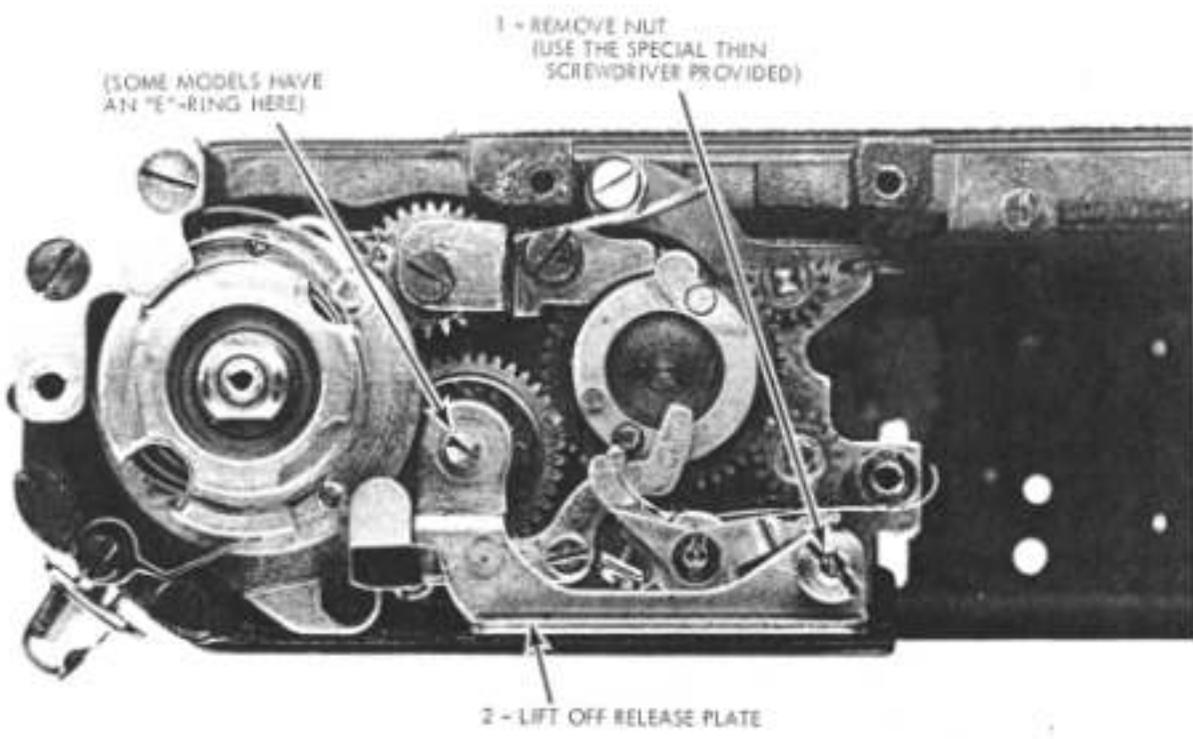
63 SHUTTER RELEASED



OPENING CURTAIN WIND GEAR
CONTACTS SHUTTER COCKED
INDICATOR HERE

64 SHUTTER COCKED

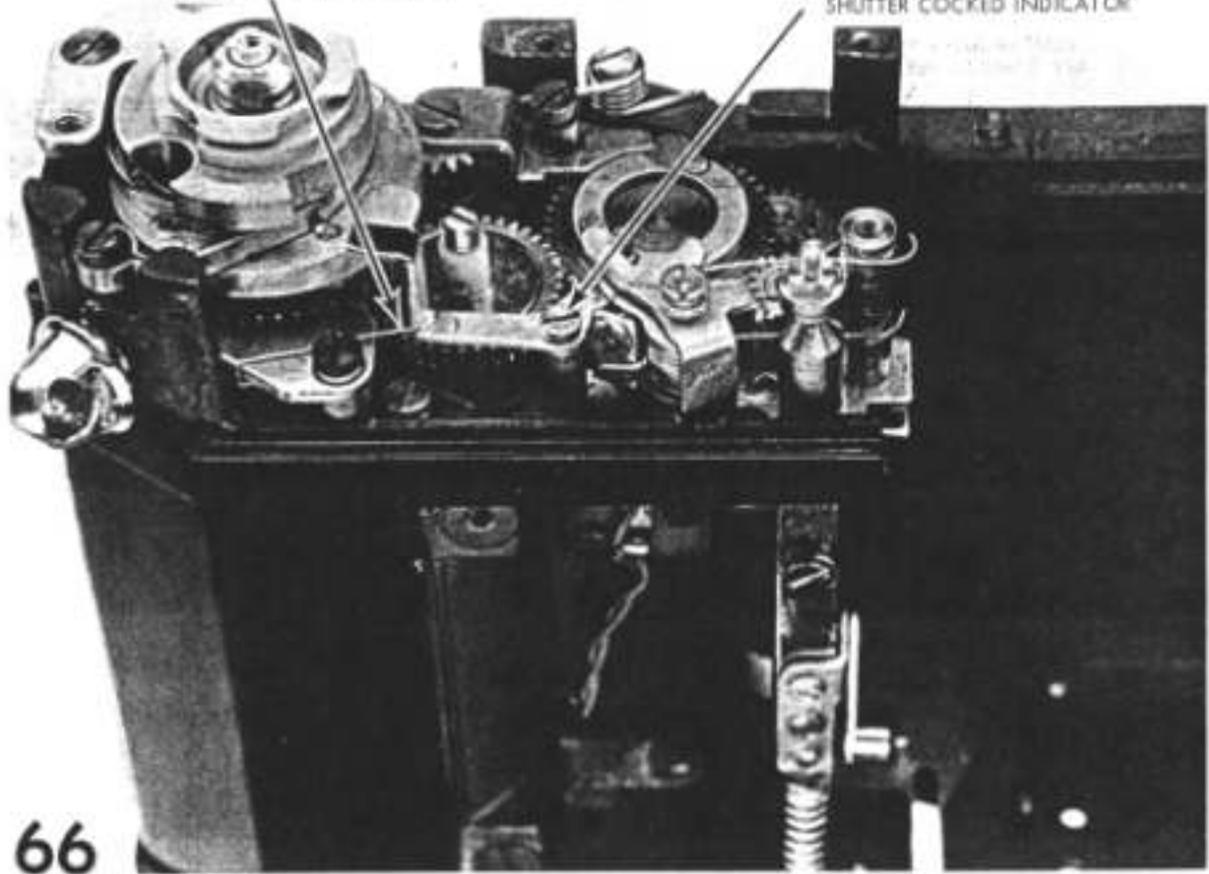
- | |
|-----------------------|
| 1 - RELEASE SHUTTER |
| 2 - REMOVE WIND LEVER |



65

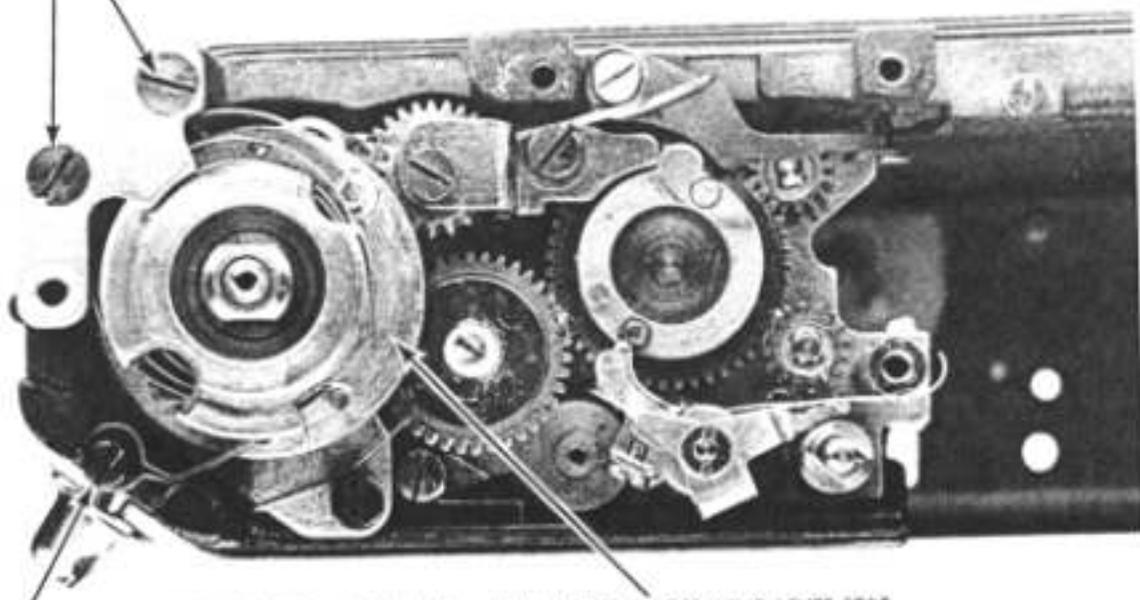
1 - DISCONNECT SHUTTER
COCKED INDICATOR SPRING

2 - REMOVE SCREW AND LIFT OUT
SHUTTER COCKED INDICATOR



66

1 - REMOVE SCREWS AND LIFT OFF WIND LEVER SEAT
STOP PLATE



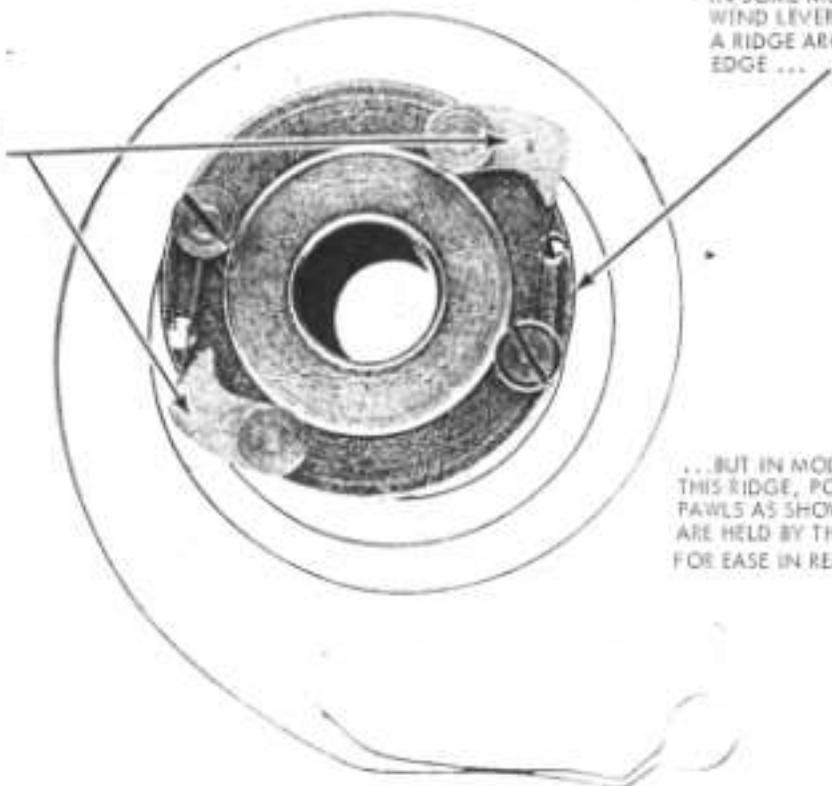
2 - DISCONNECT WIND LEVER RETURN SPRING ... WHILE LIFTING OFF WIND LEVER SEAT

67

CAUTION: There is initial tension on the wind lever return spring. Once you remove the wind lever seat stop plate, you will lose this initial tension. There are approximately 3 1/2 turns of initial tension on the spring which can be replaced during reassembly.

UNDERSIDE OF WIND LEVER SEAT

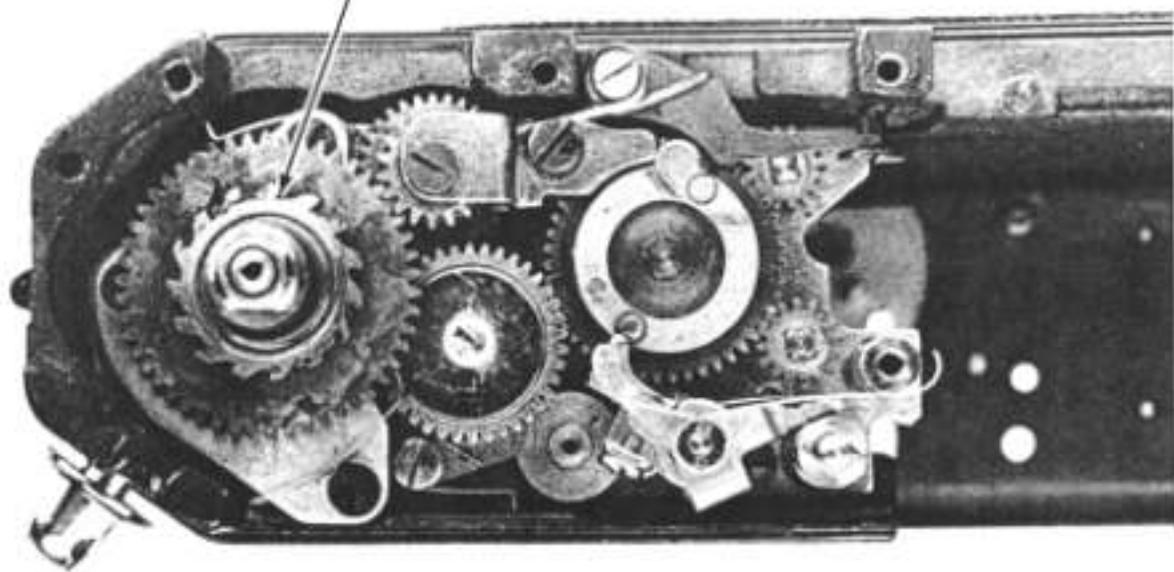
MAIN WIND GEAR
DRIVING PAWLS



- IN SOME MODELS, THE
WIND LEVER SEAT HAS
A RIDGE AROUND THE
EDGE ...

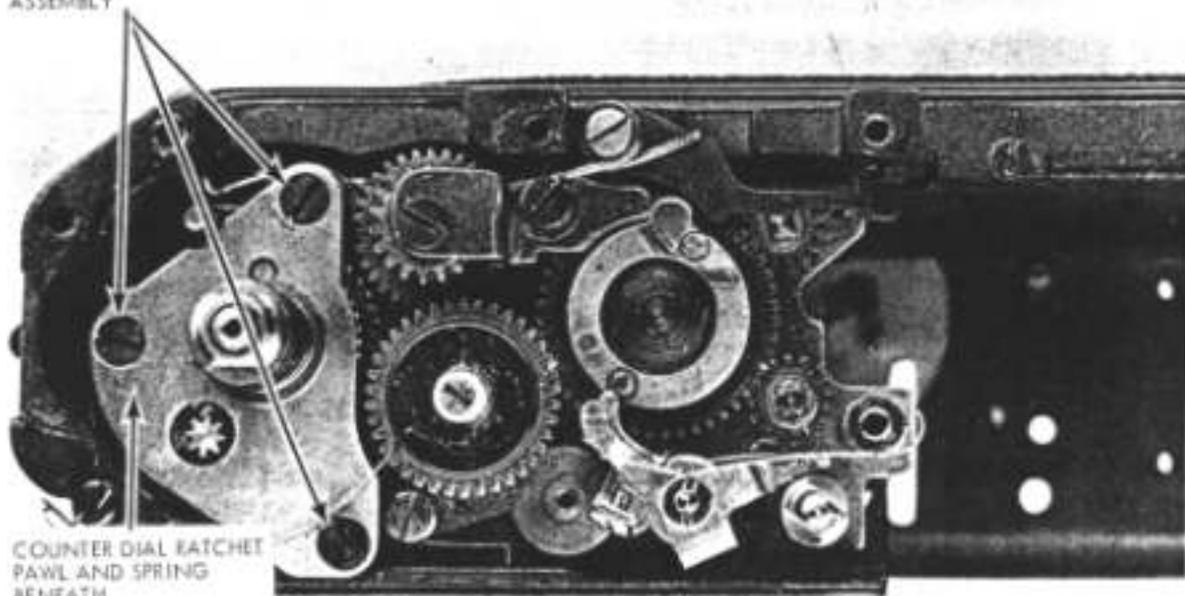
... BUT IN MODELS WITHOUT
THIS RIDGE, POSITION THE
PAWLS AS SHOWN (THE PAWLS
ARE HELD BY THEIR SPRINGS)
FOR EASE IN REASSEMBLY

LIFT OFF MAIN WIND GEAR
(NO TIMING INVOLVED)



69

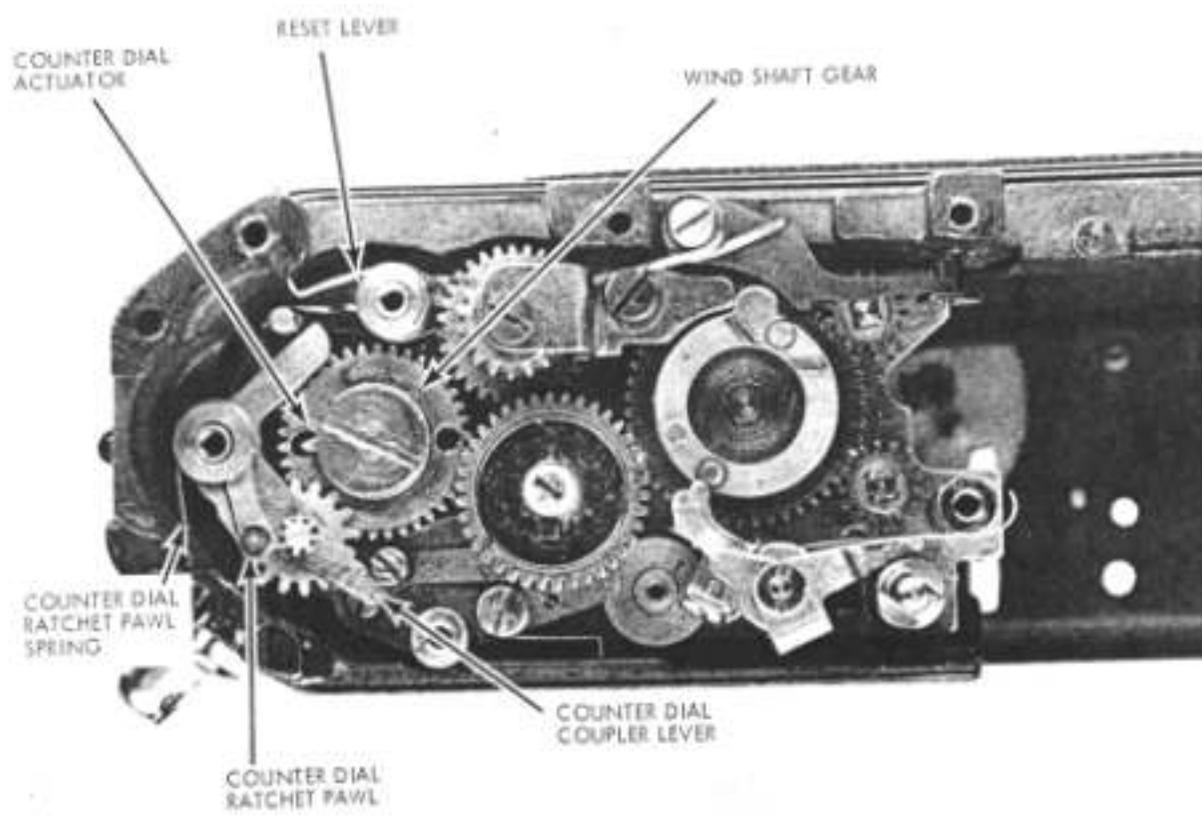
REMOVE THREE SCREWS AND
LIFT OFF WIND LEVER SHAFT
ASSEMBLY



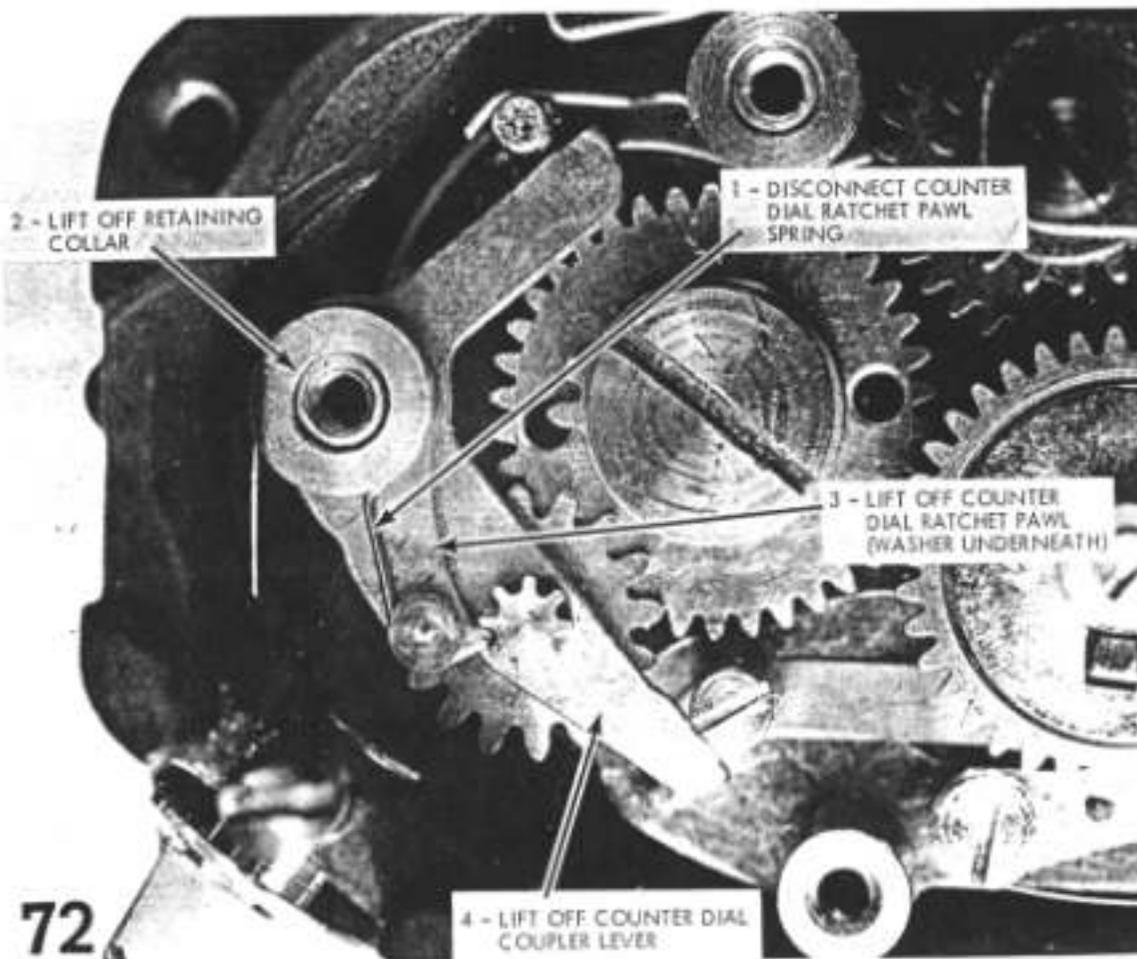
COUNTER DIAL FATCHET
PAWL AND SPRING
BENEATH

RETAINER MAY LIFT
WITH WIND LEVER
SHAFT ASSEMBLY.

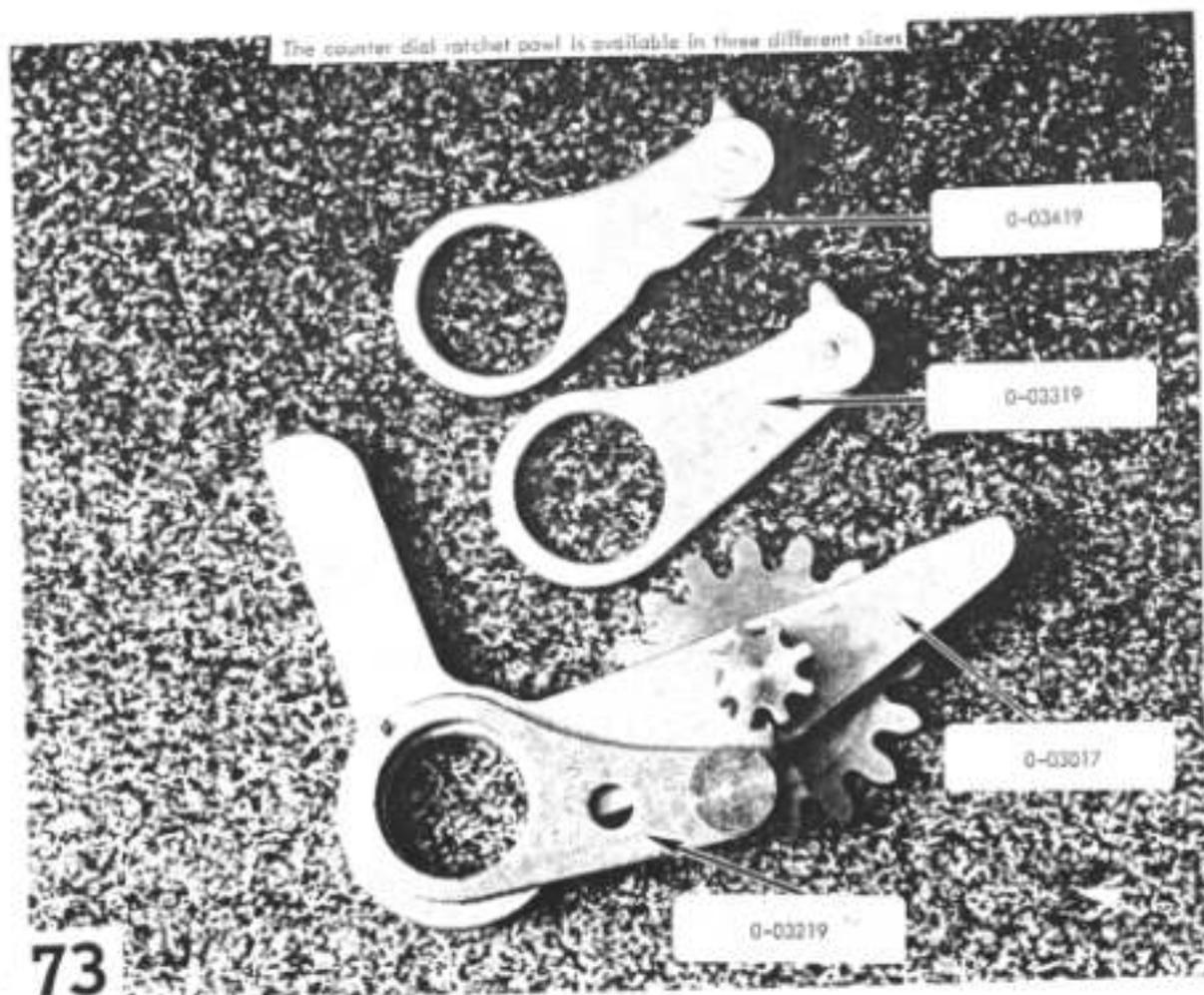
70



71



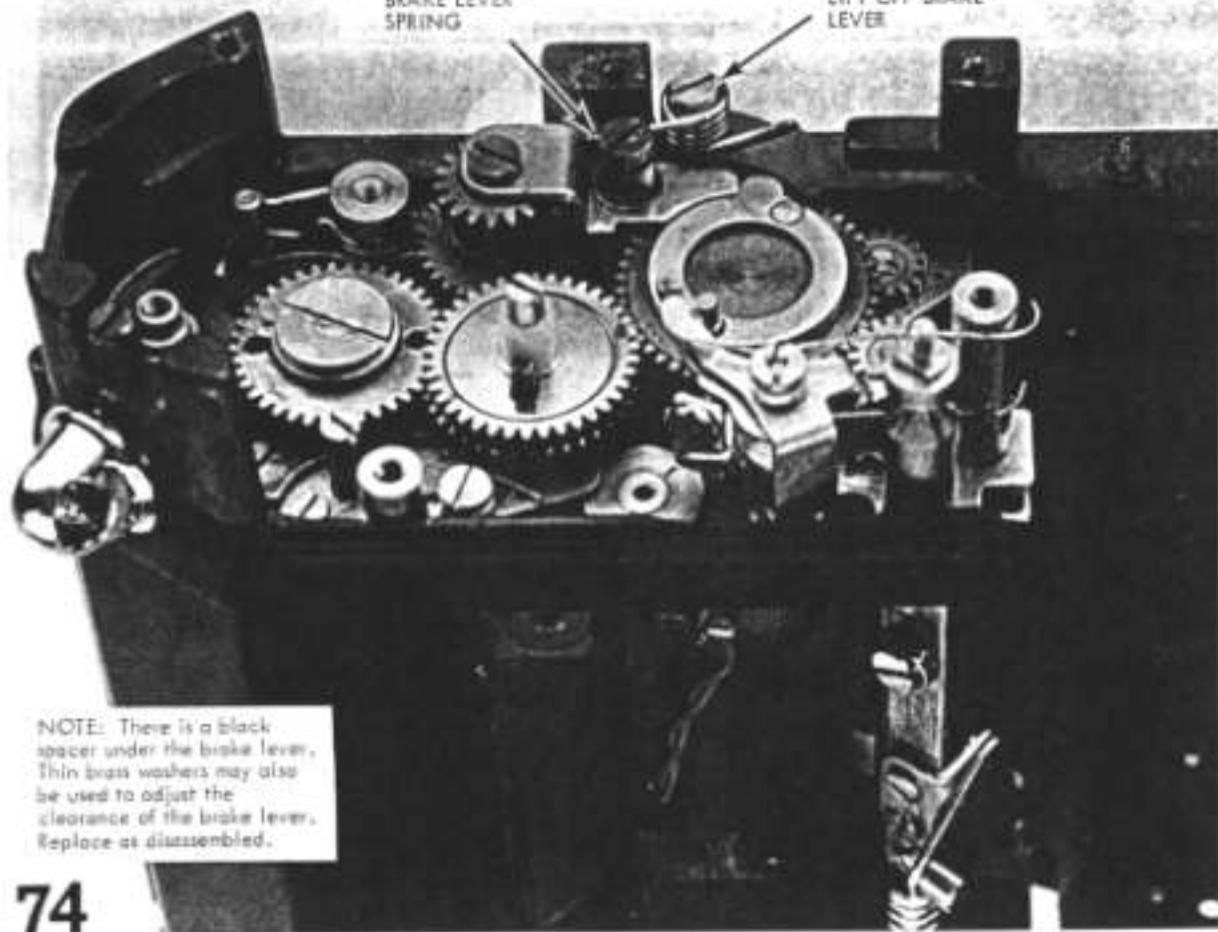
The counter dial ratchet pawl is available in three different sizes.



73

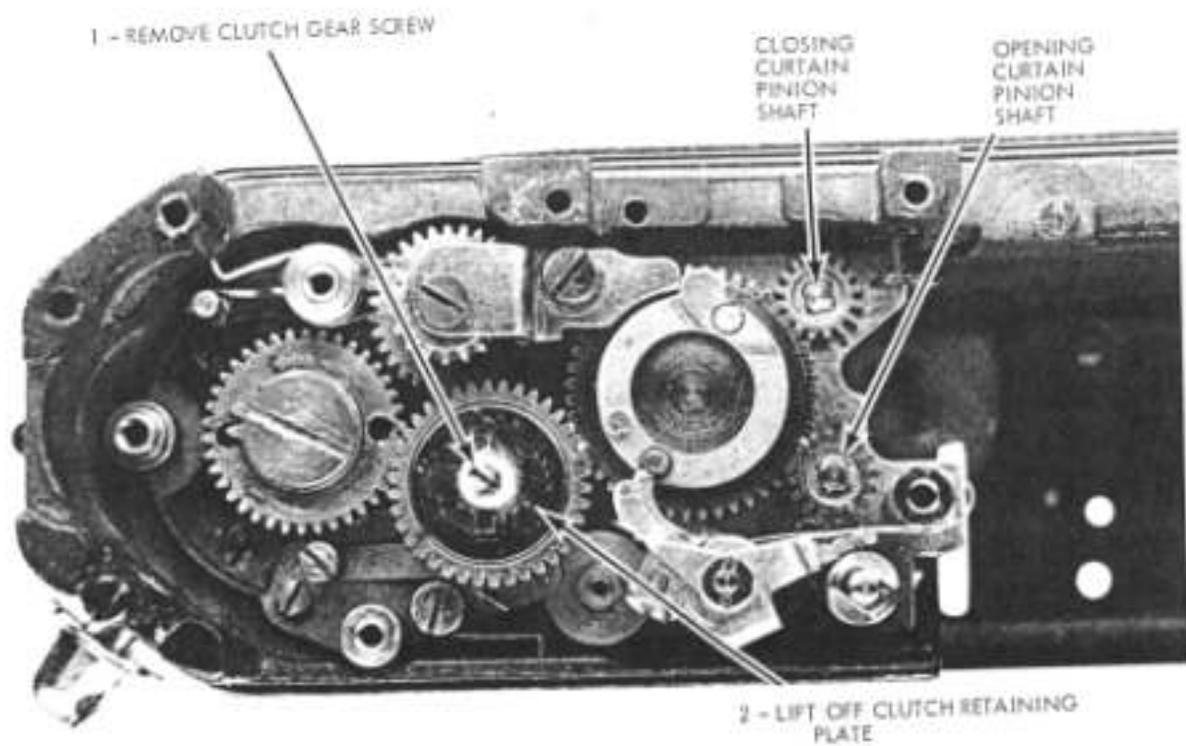
1 - DISCONNECT
BRAKE LEVER
SPRING

2 - REMOVE SCREW AND
LIFT OFF BRAKE
LEVER



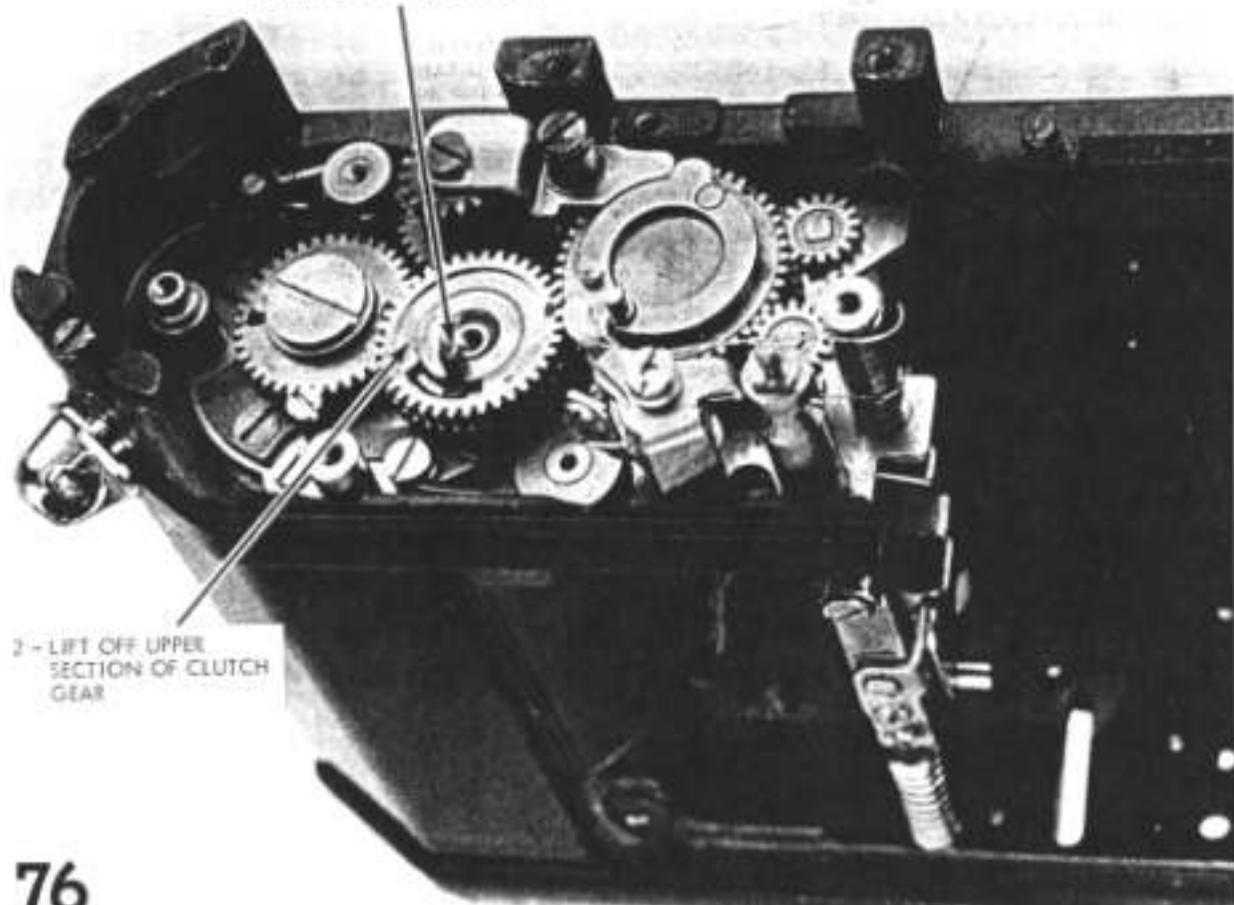
NOTE: There is a black spacer under the brake lever. Thin brass washers may also be used to adjust the clearance of the brake lever. Replace as disassembled.

74



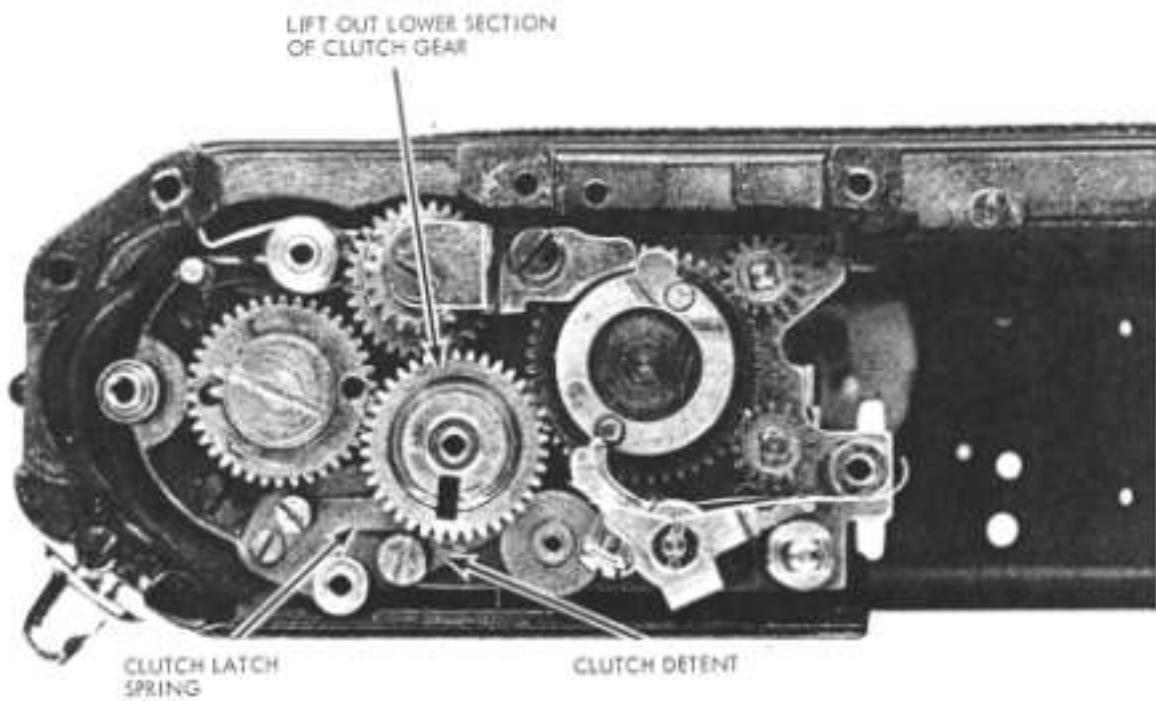
75

1 - LIFT OUT CLUTCH LATCH

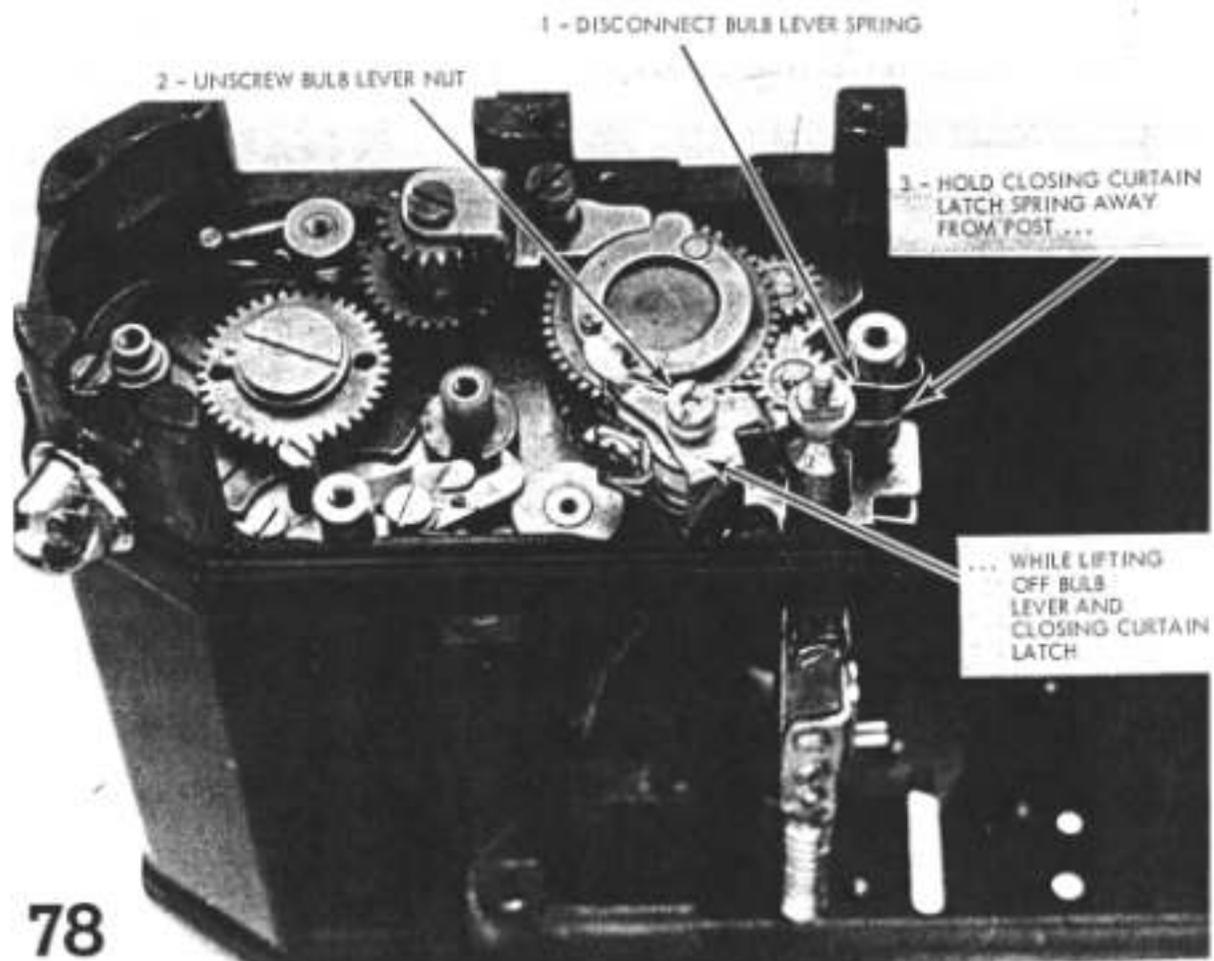


2 - LIFT OFF UPPER
SECTION OF CLUTCH
GEAR

76



77



TO REMOVE
RELEASE SHAFT:

1 - REMOVE SCREW AND
DELAYED-ACTION
ECCENTRIC COLLAR (SEE
ILLUSTRATION 31 FOR
ADJUSTMENT)

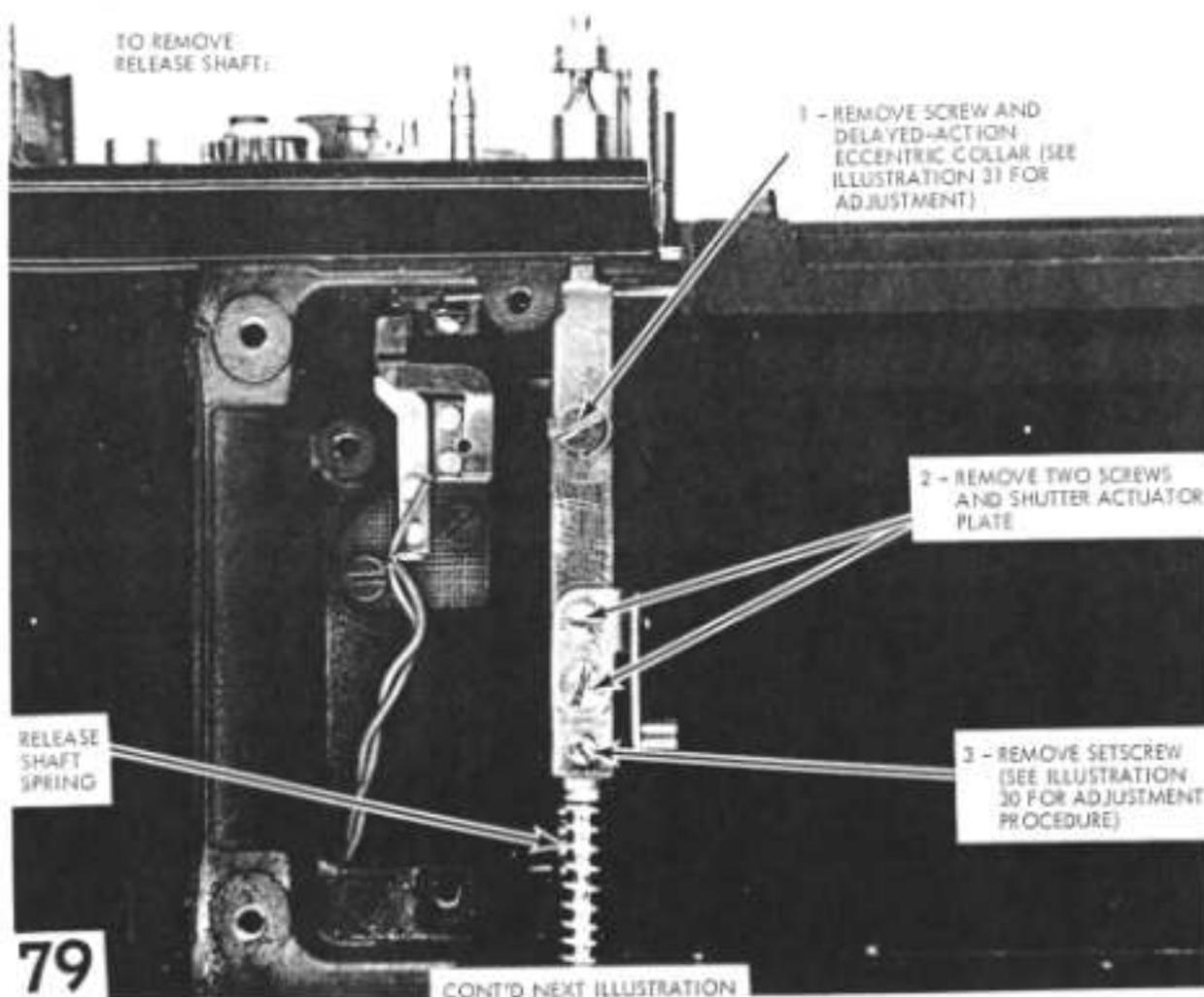
2 - REMOVE TWO SCREWS
AND SHUTTER ACTUATOR
PLATE

3 - REMOVE SETSCREW
(SEE ILLUSTRATION
30 FOR ADJUSTMENT
PROCEDURE)

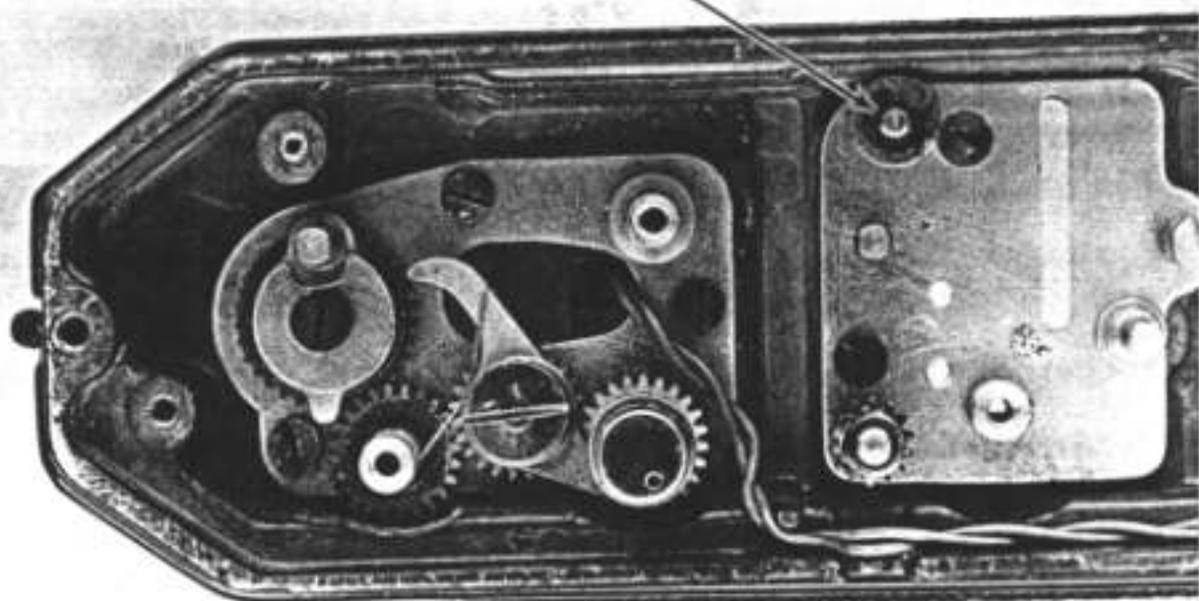
RELEASE
SHAFT
SPRING

79

CONT'D NEXT ILLUSTRATION



4 - REMOVE E-RING AND WASHER

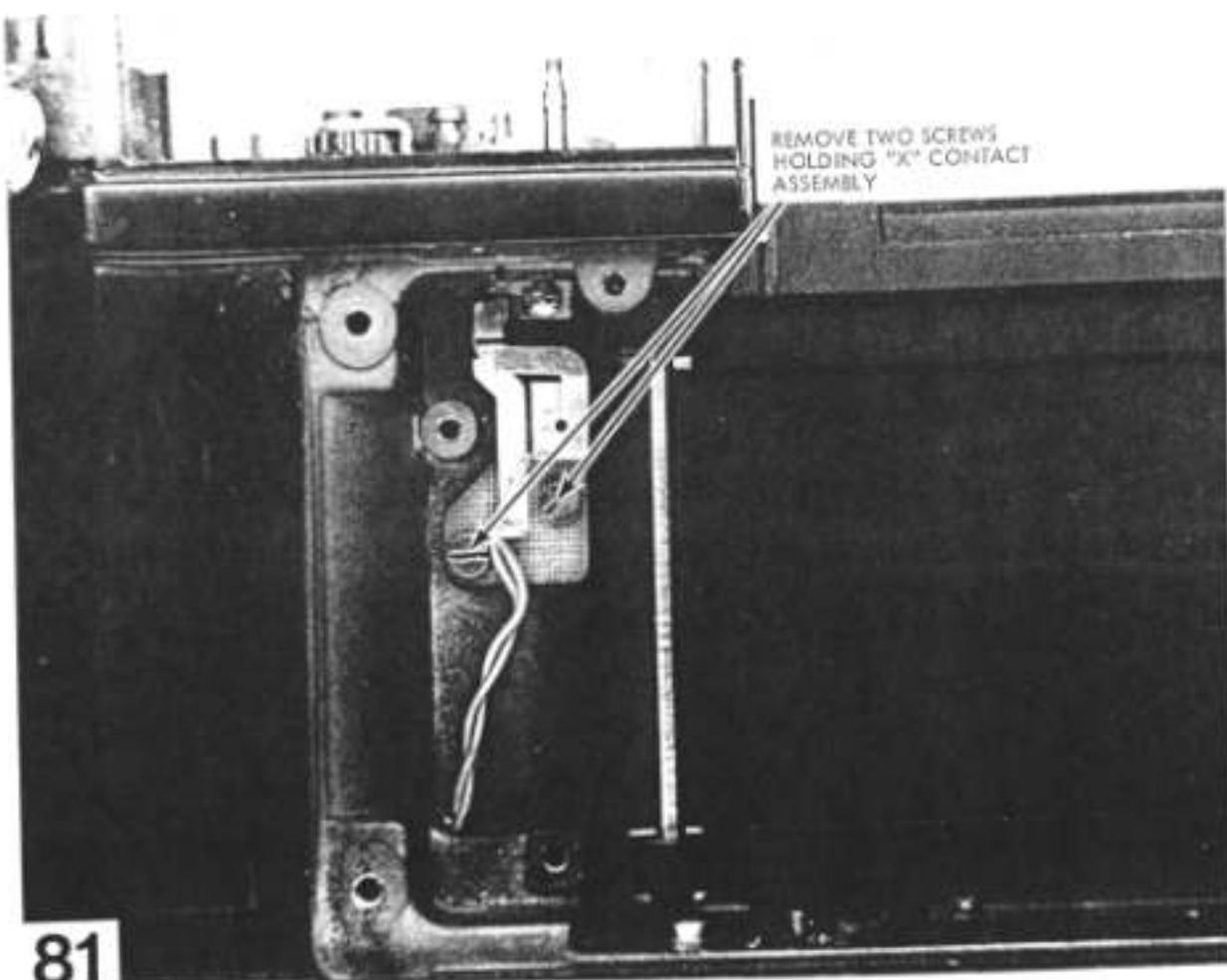


5 - LIFT OUT RELEASE SHAFT TOWARD TOP OF CAMERA -- REMOVE THE
RELEASE SHAFT SPRING WHILE LIFTING OUT THE RELEASE SHAFT

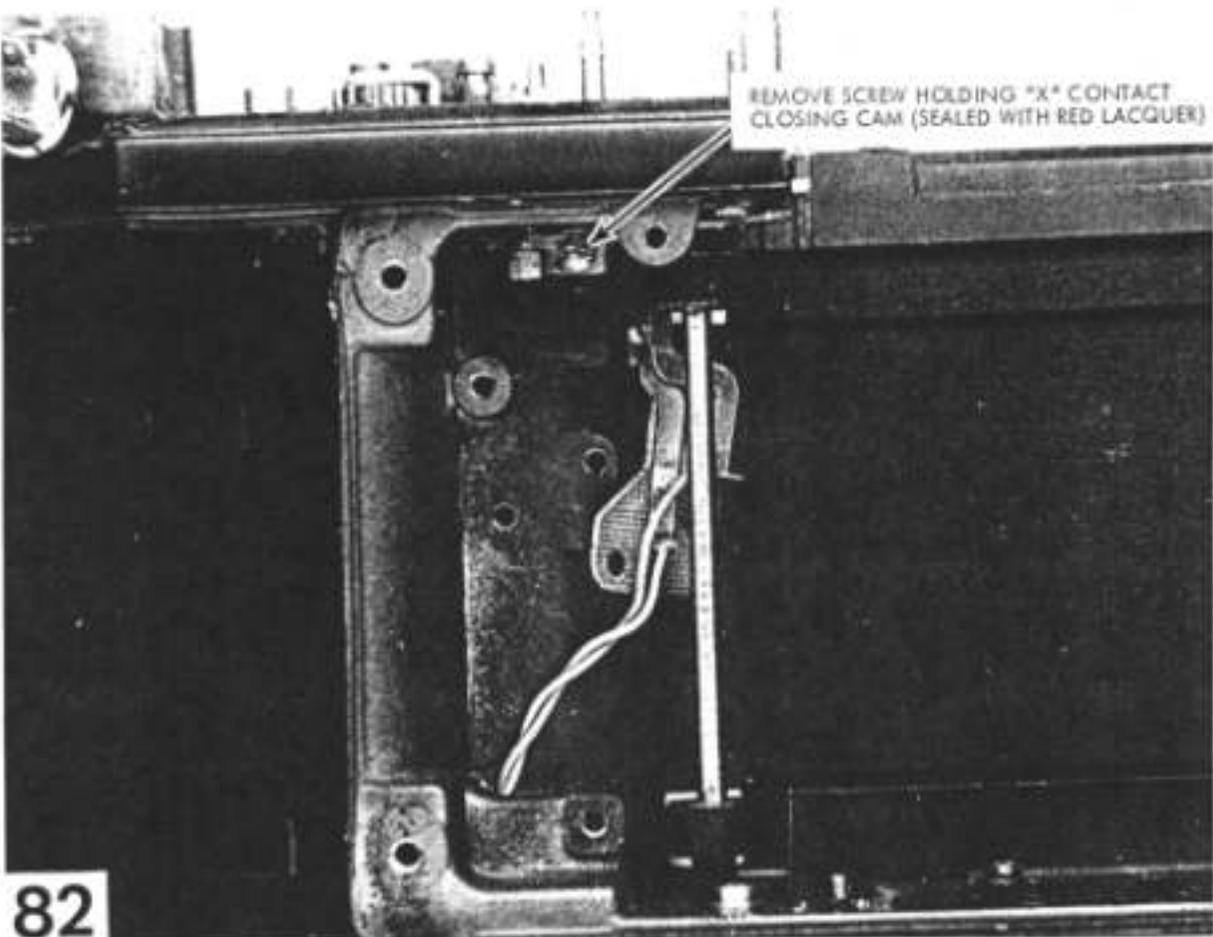
80

REMOVE TWO SCREWS
HOLDING "X" CONTACT
ASSEMBLY

81



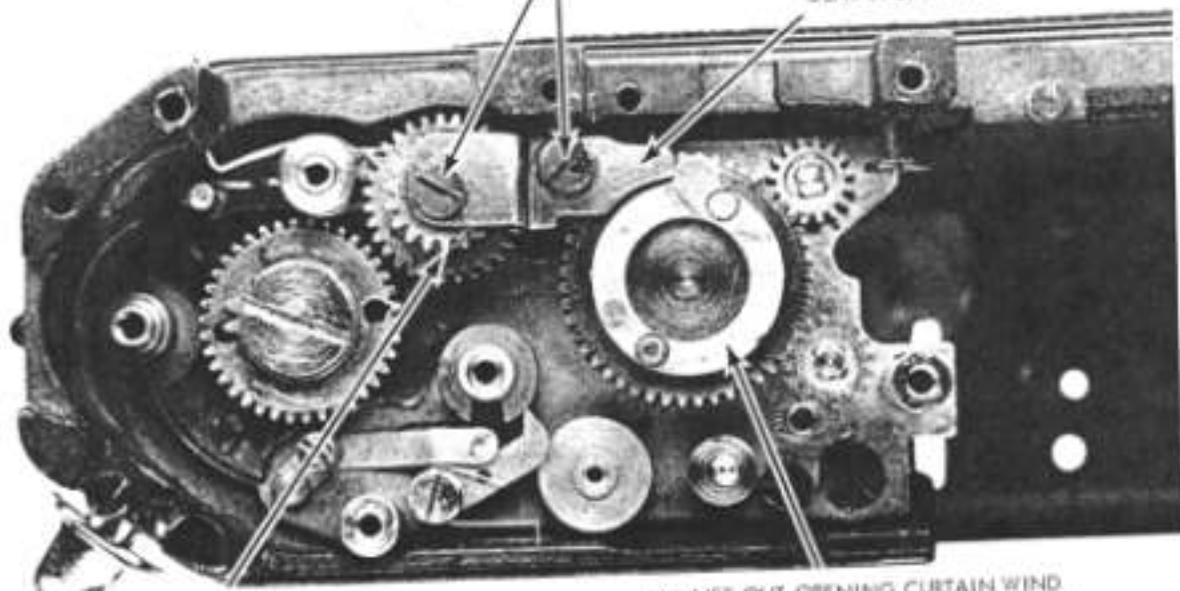
REMOVE SCREW HOLDING "X" CONTACT
CLOSING CAM (SEALED WITH RED LACQUER)



82

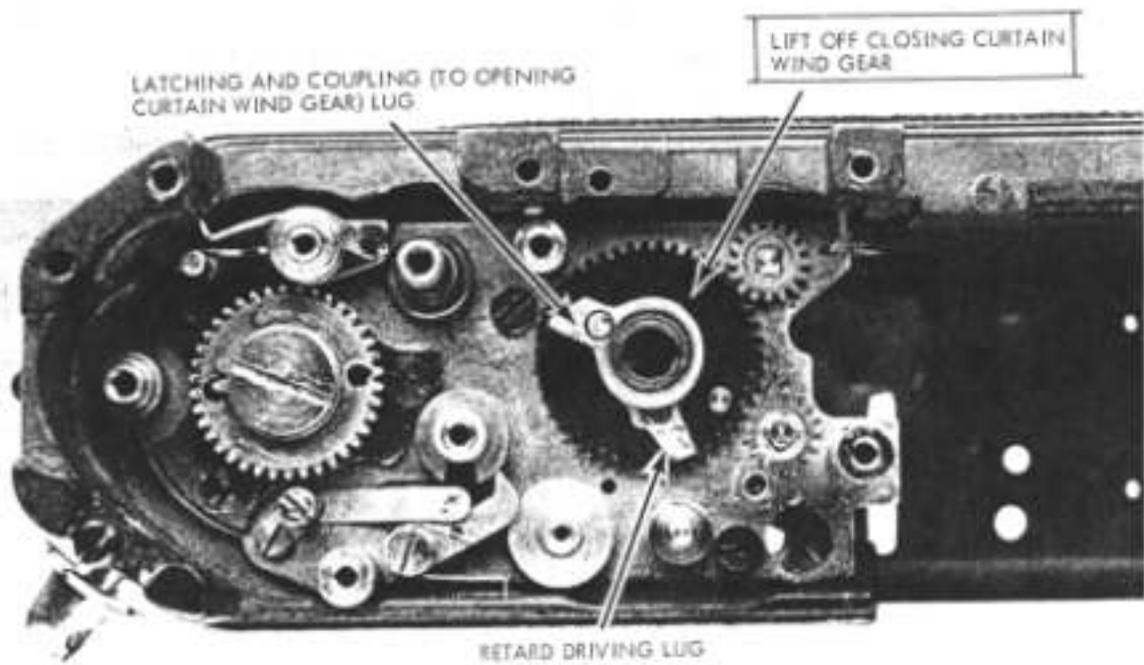
1 - REMOVE TWO SCREWS HOLDING OPENING CURTAIN WIND GEAR STOP PLATE
(NOTE LOCK WASHER AND FLAT WASHER UNDER LONG-HEAD SCREW AND
LOCK WASHER UNDER REGULAR SCREW)

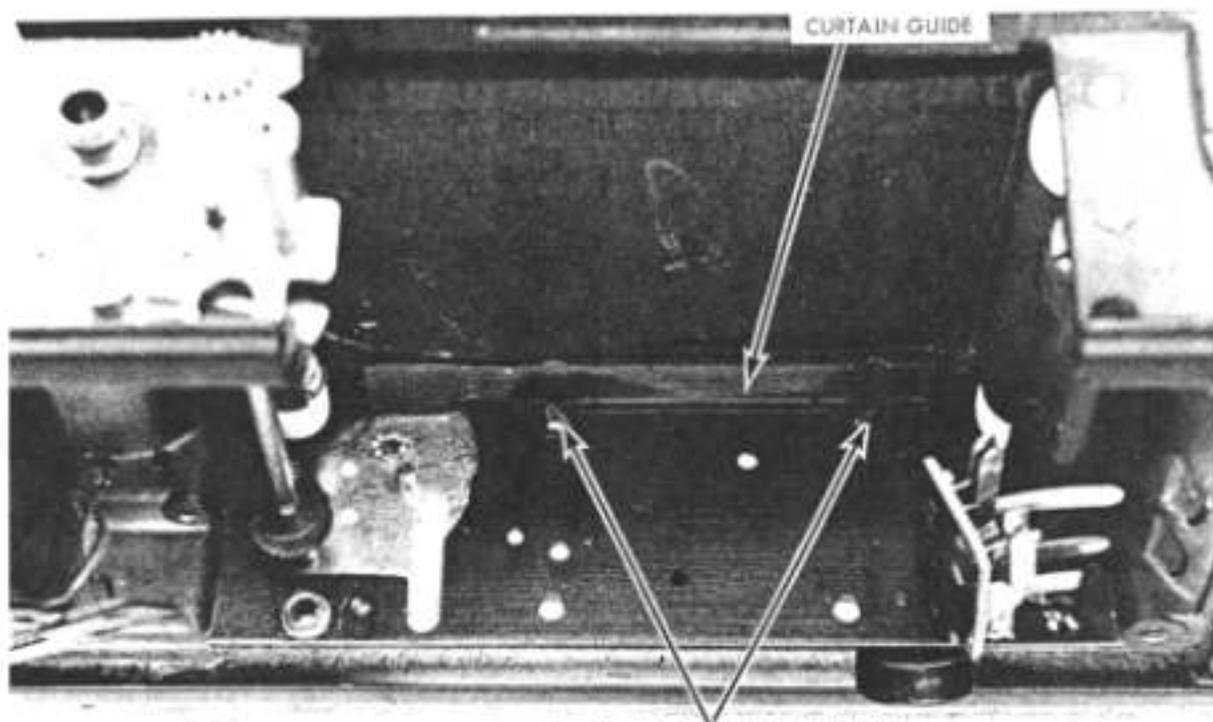
2 - LIFT OFF OPENING CURTAIN WIND
GEAR STOP PLATE



3 - LIFT OUT INTERMEDIATE
REDUCTION GEAR

4 - LIFT OUT OPENING CURTAIN WIND
GEAR ("X" CONTACT CLOSING CAM
IS NOW LOOSE -- DURING REASSEMBLY,
REPLACE "X" CONTACT CLOSING CAM
WHILE INSTALLING OPENING CURTAIN
WIND GEAR)

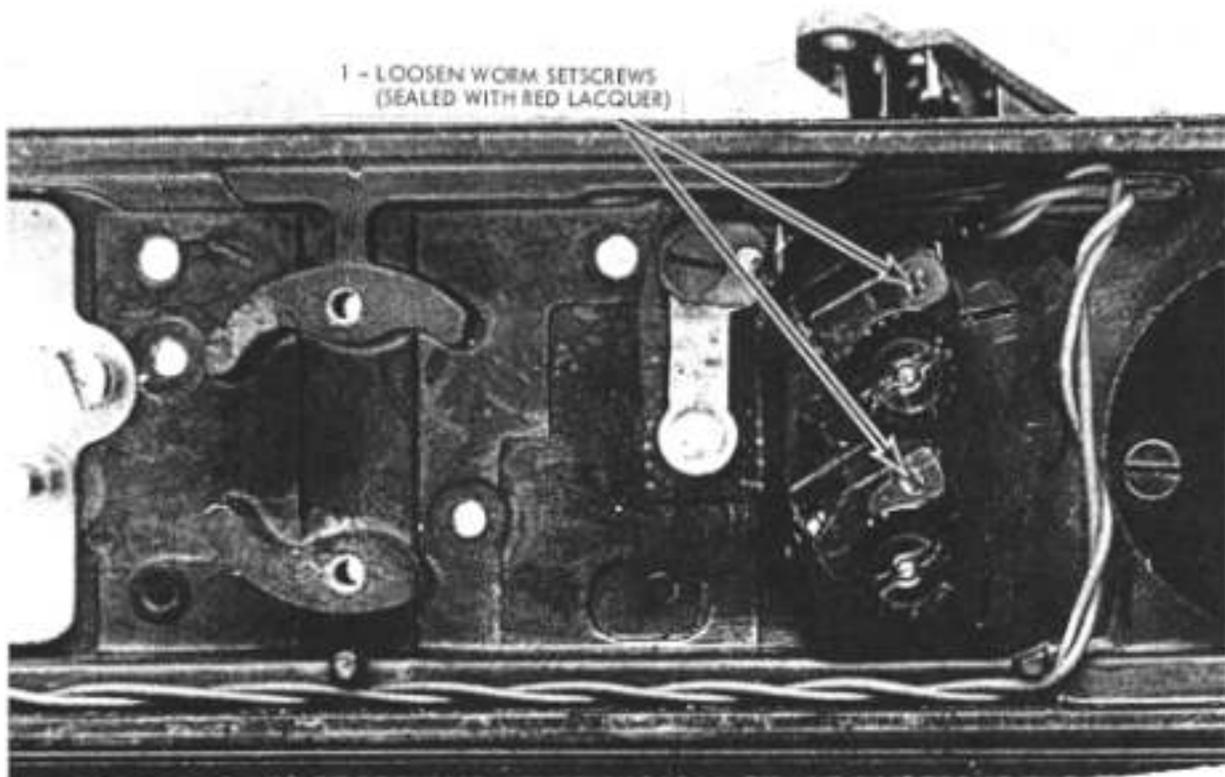




CURTAIN GUIDE

REMOVE TWO SCREWS AND LIFT OUT
CURTAIN GUIDE

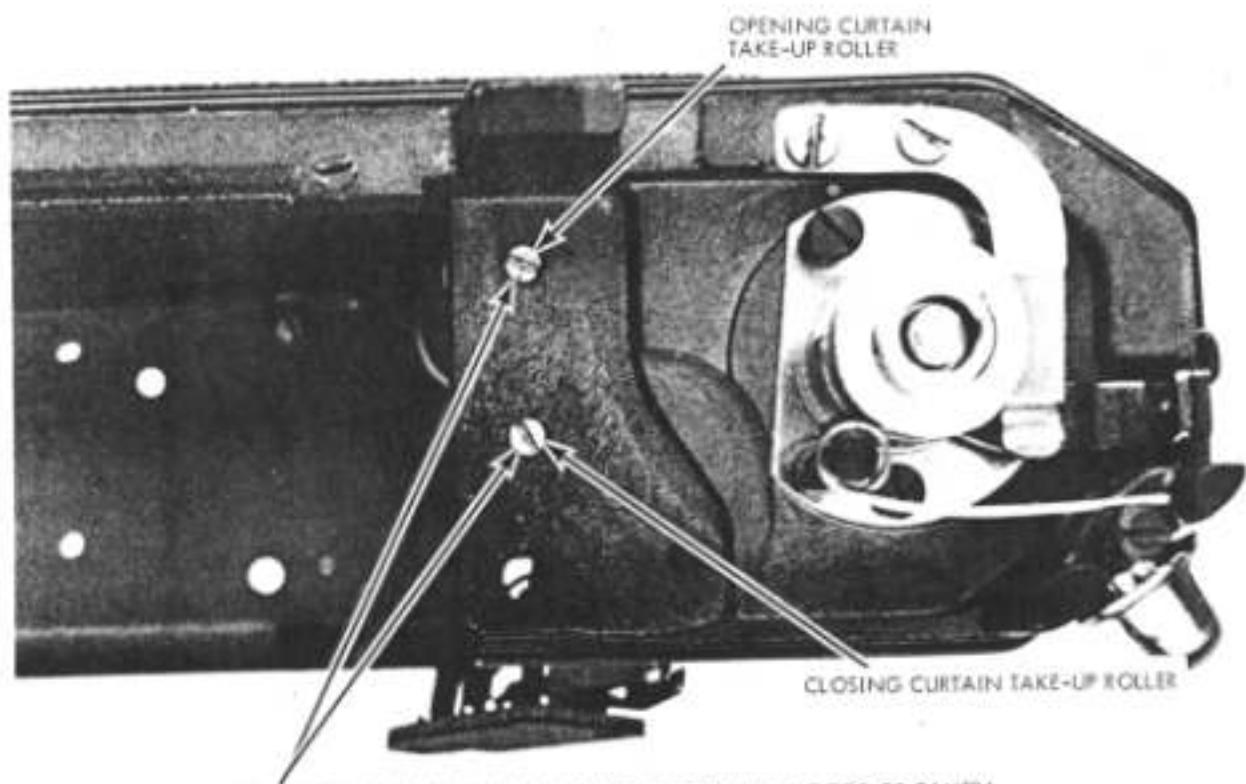
85



1 - LOOSEN WORM SETSCREWS
(SEALED WITH RED LACQUER)

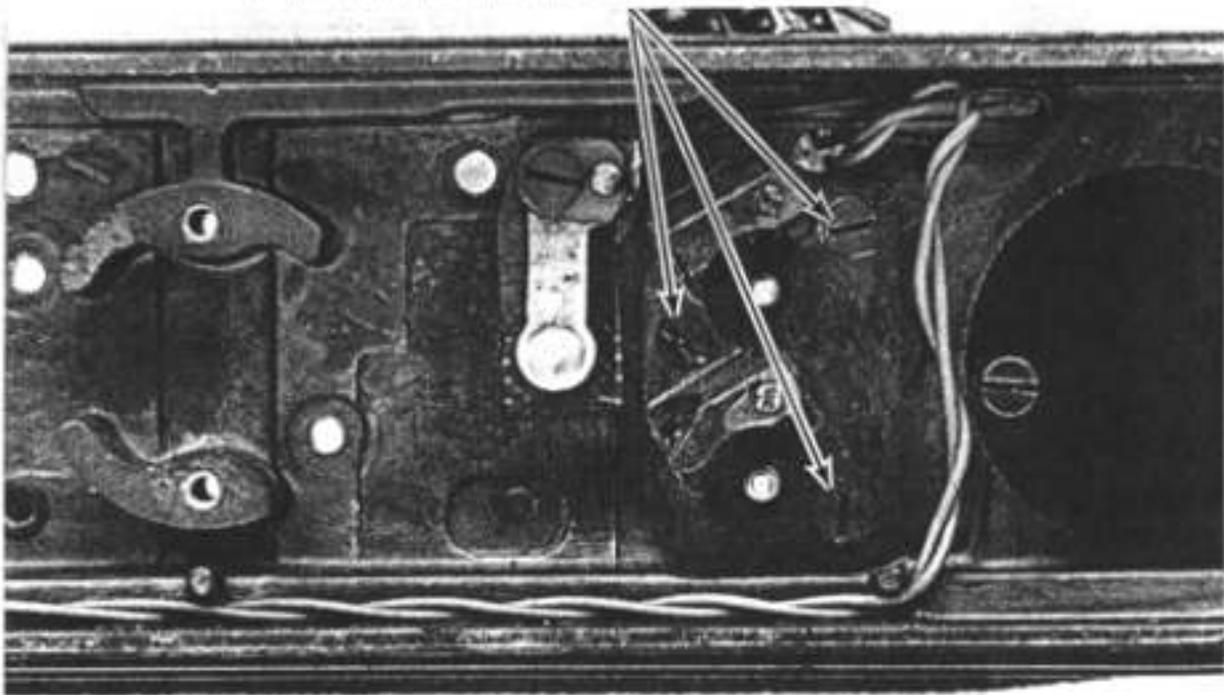
86

2 - TURN WORMS COUNTERCLOCKWISE TO
LET OFF INITIAL TENSIONS — WORMS
MAY BE REMOVED WHEN TOTAL TENSION
IS RELEASED

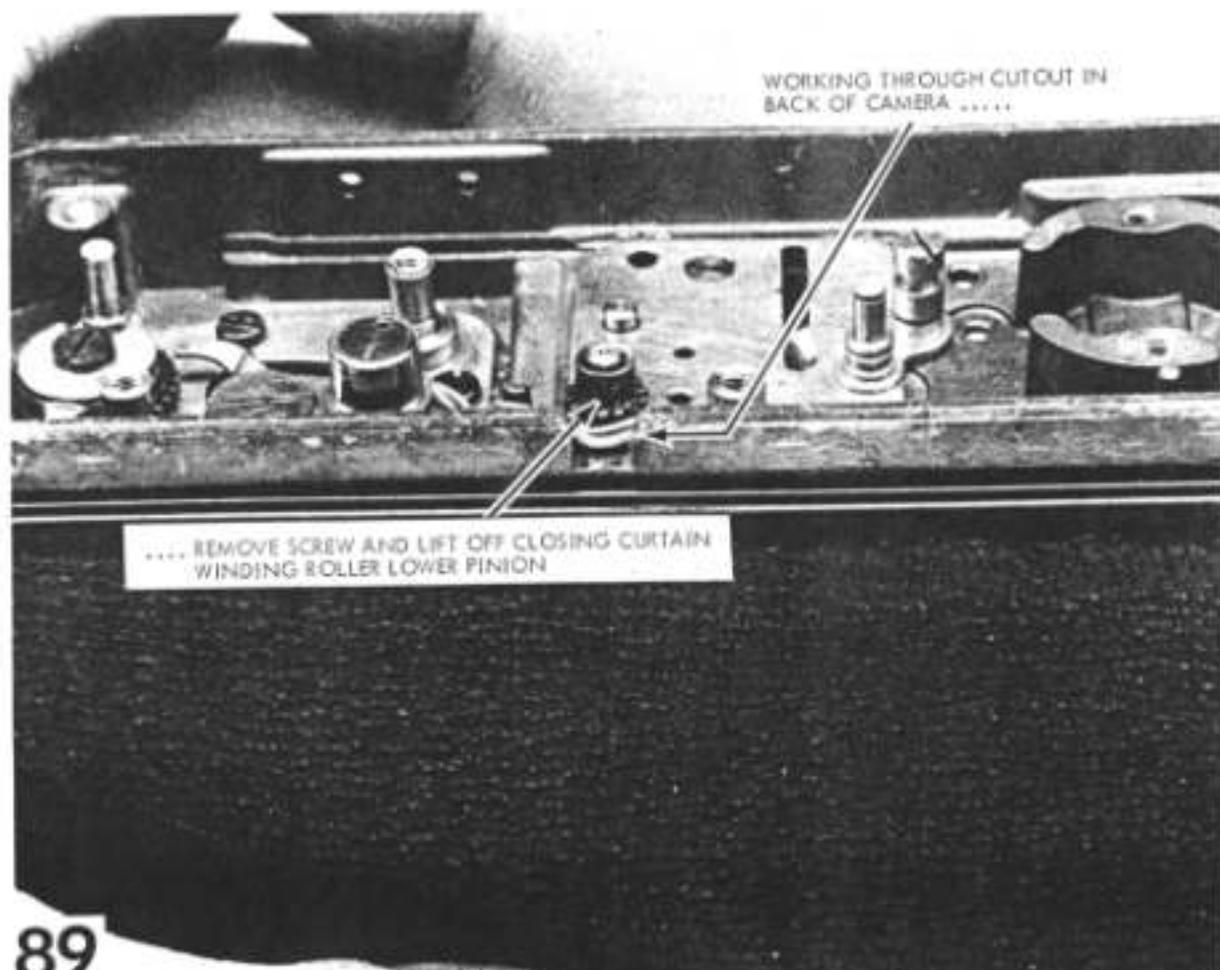


- HOLD TAKE-UP ROLLERS CENTRAL SHAFTS STATIONARY AT TOP OF CAMERA
- AND UNSCREW WORM GEARS (LEFT-HAND THREADS) FROM BOTTOM OF CAMERA

1 - REMOVE THREE SCREWS AND LIFT OFF TAKE-UP ROLLERS SUPPORT PLATE



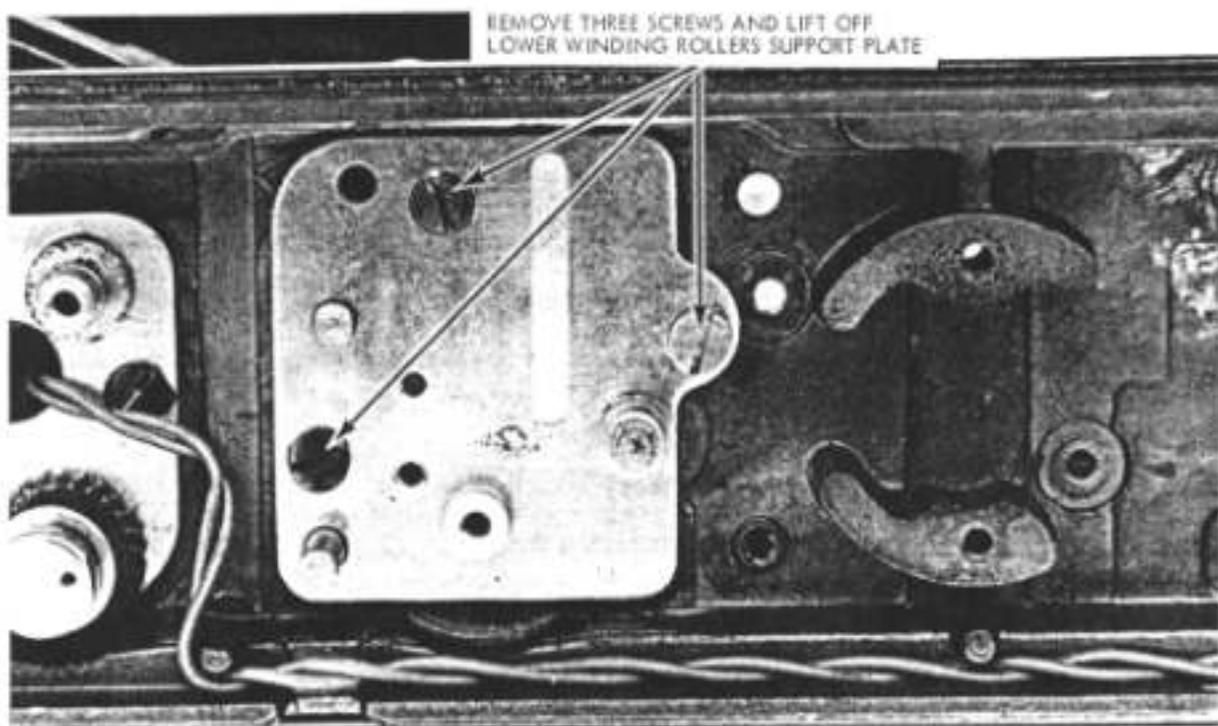
Lift out the take-up rollers — note the spacers at the top ends of the take-up rollers and the loose teflon guide roller at the top end of the opening curtain take-up roller (see illustration 93 for the positions of the rollers and spacers)



WORKING THROUGH CUTOUT IN
BACK OF CAMERA

..... REMOVE SCREW AND LIFT OFF CLOSING CURTAIN
WINDING ROLLER LOWER PINION

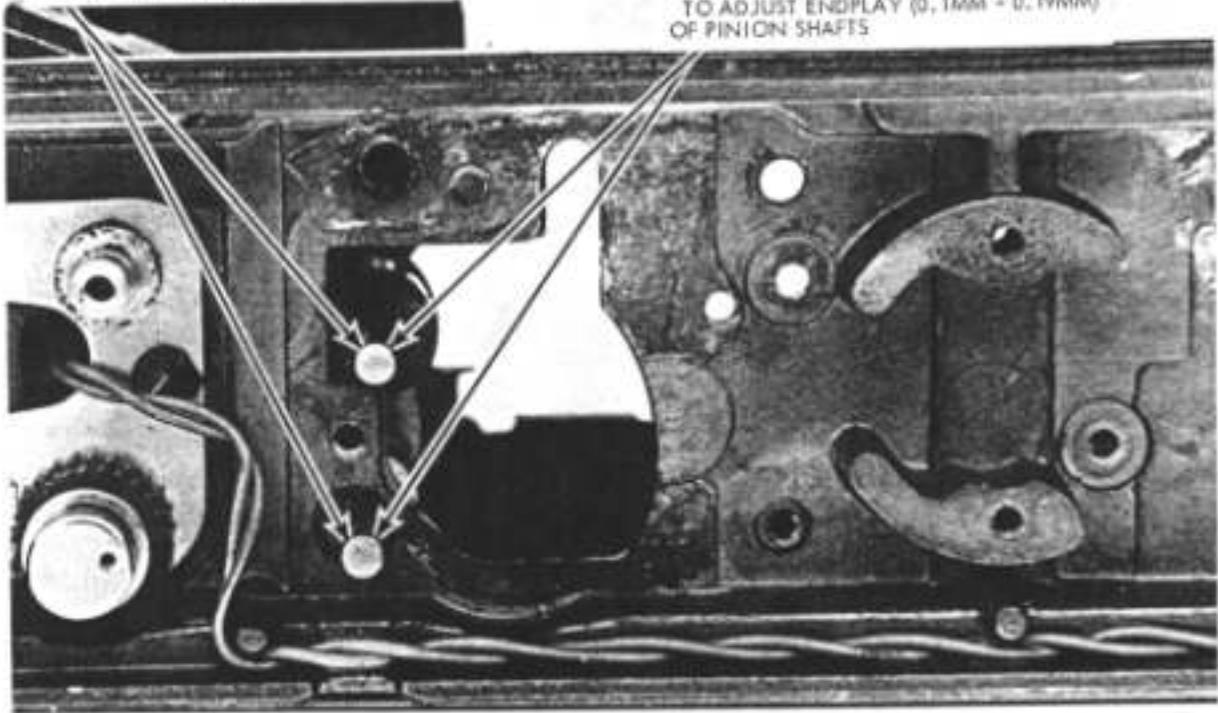
89



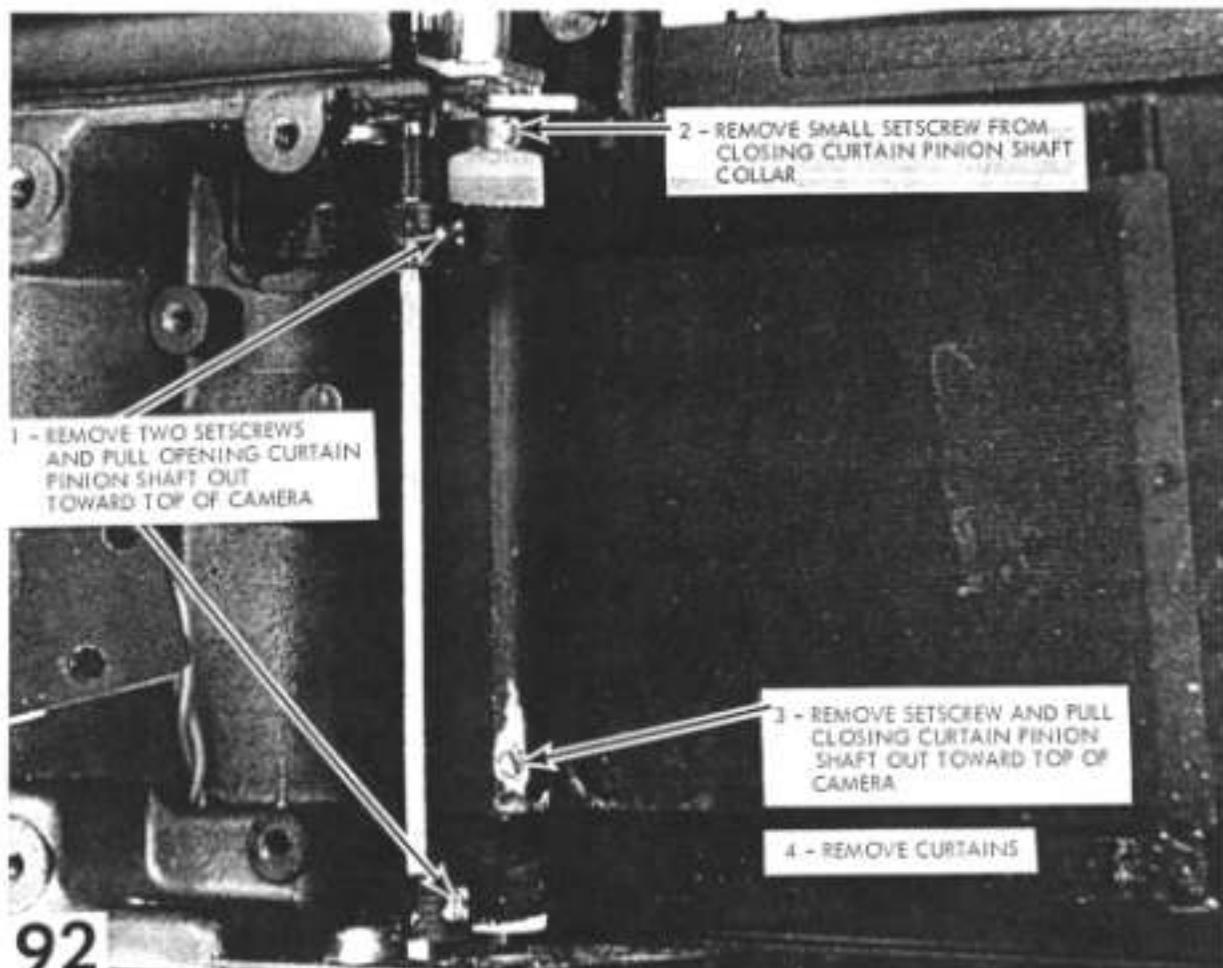
90

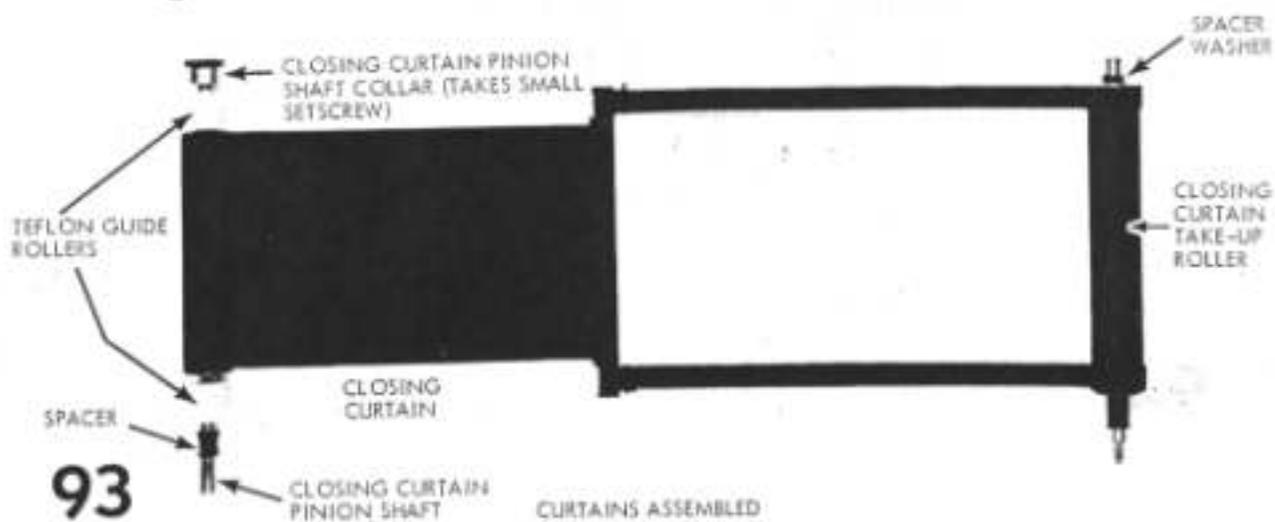
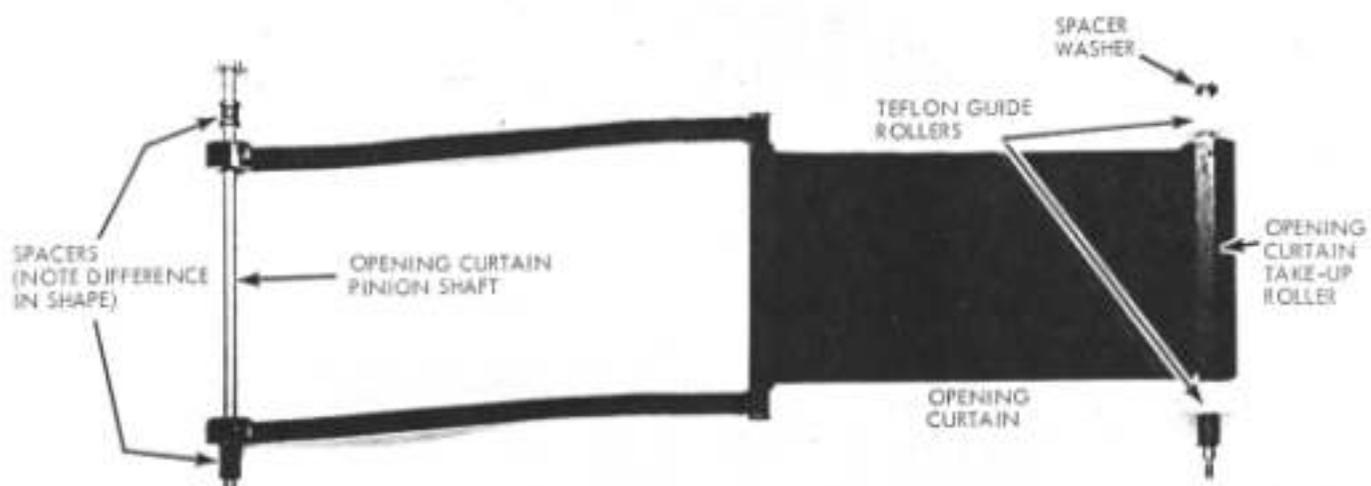
LIFT OFF SPACERS AT LOWER ENDS OF
WINDING ROLLERS (SEE ILLUSTRATION
92 FOR POSITIONS)

W6 WASHERS MAY BE ADDED HERE
TO ADJUST ENDPLAY (0, 1MM - 0.19MM)
OF PINION SHAFTS



91





93

CURTAINS ASSEMBLED

TO REMOVE WIND SHAFT:

1 - REMOVE SCREW

2 - LIFT OFF RETAINER PLATE

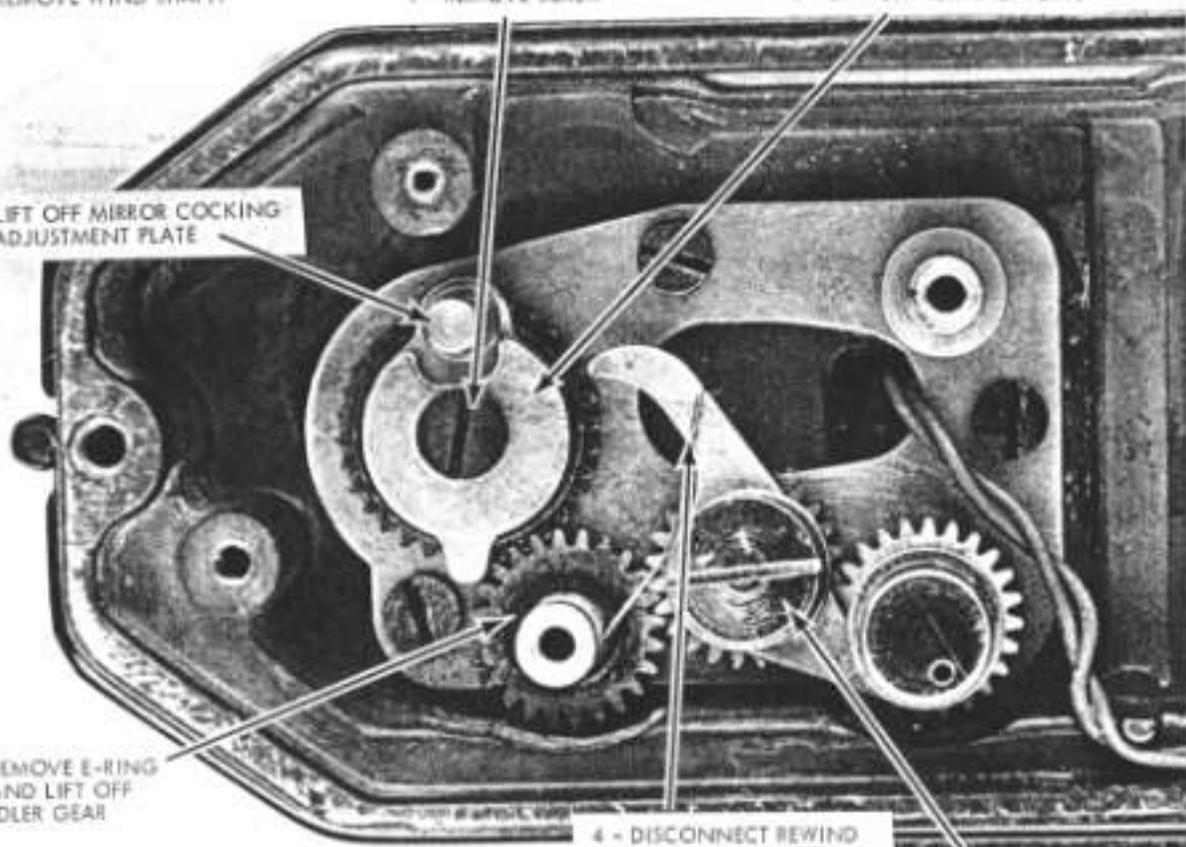
3 - LIFT OFF MIRROR COCKING
ADJUSTMENT PLATE

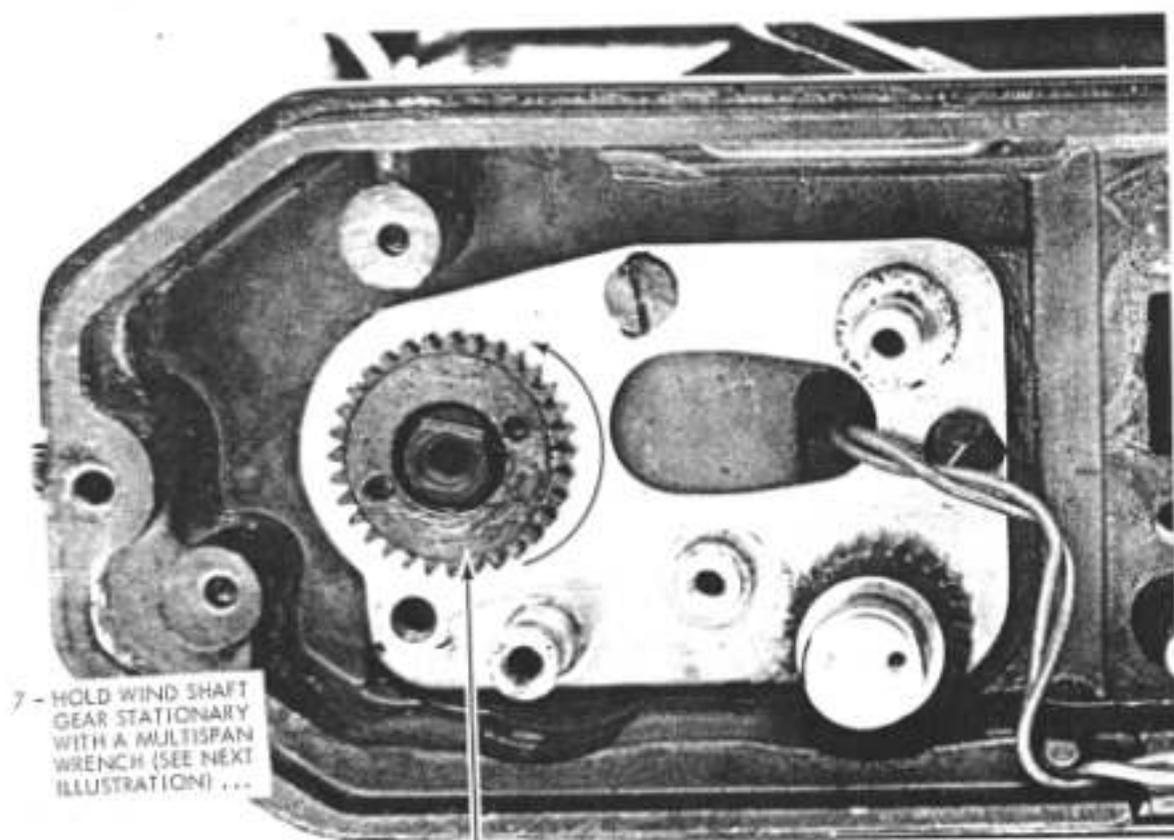
6 - REMOVE E-RING
AND LIFT OFF
IDLER GEAR

4 - DISCONNECT REWIND
BUTTON LATCH SPRING

5 - REMOVE SCREW AND LIFT OFF SPRING,
REWIND BUTTON LATCH, SPACER, AND
IDLER GEAR

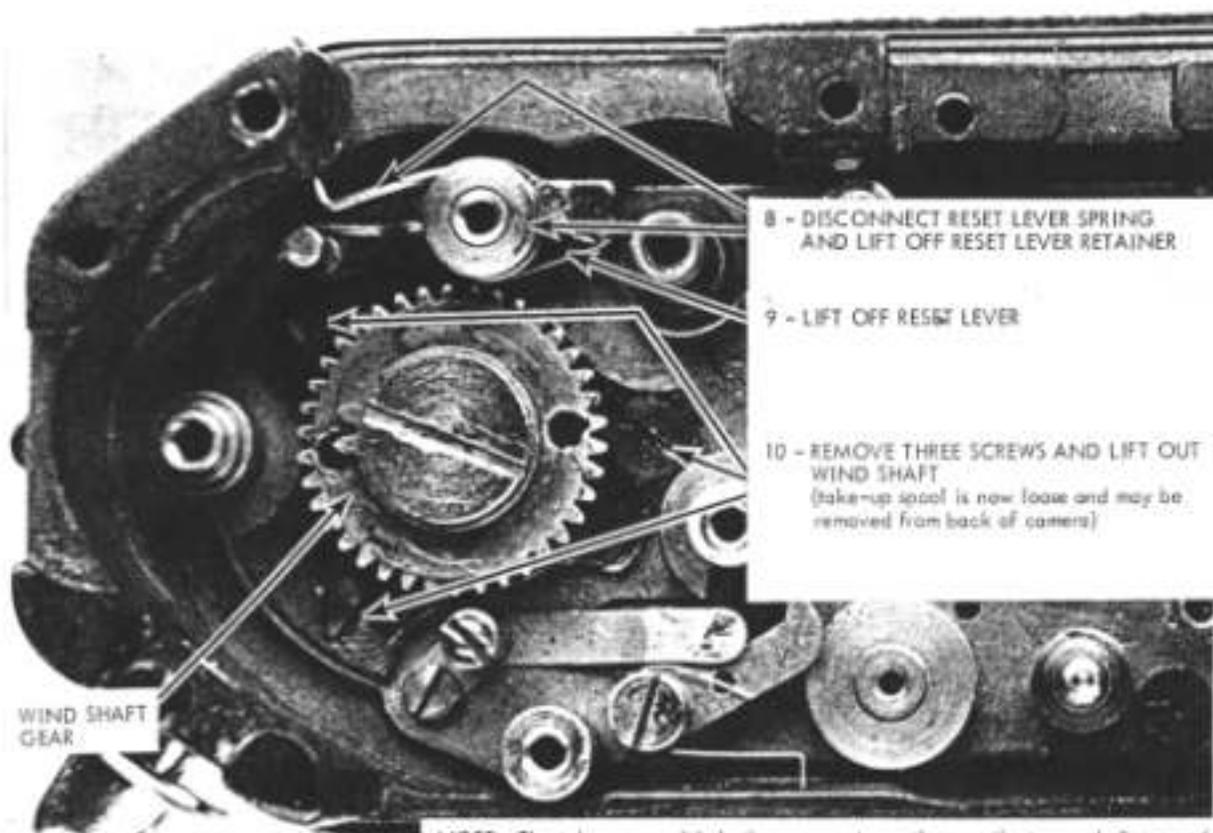
94





95

... AND UNSCREW LOWER WIND GEAR
WITH A SECOND MULTISPAN WRENCH



WIND SHAFT
GEAR

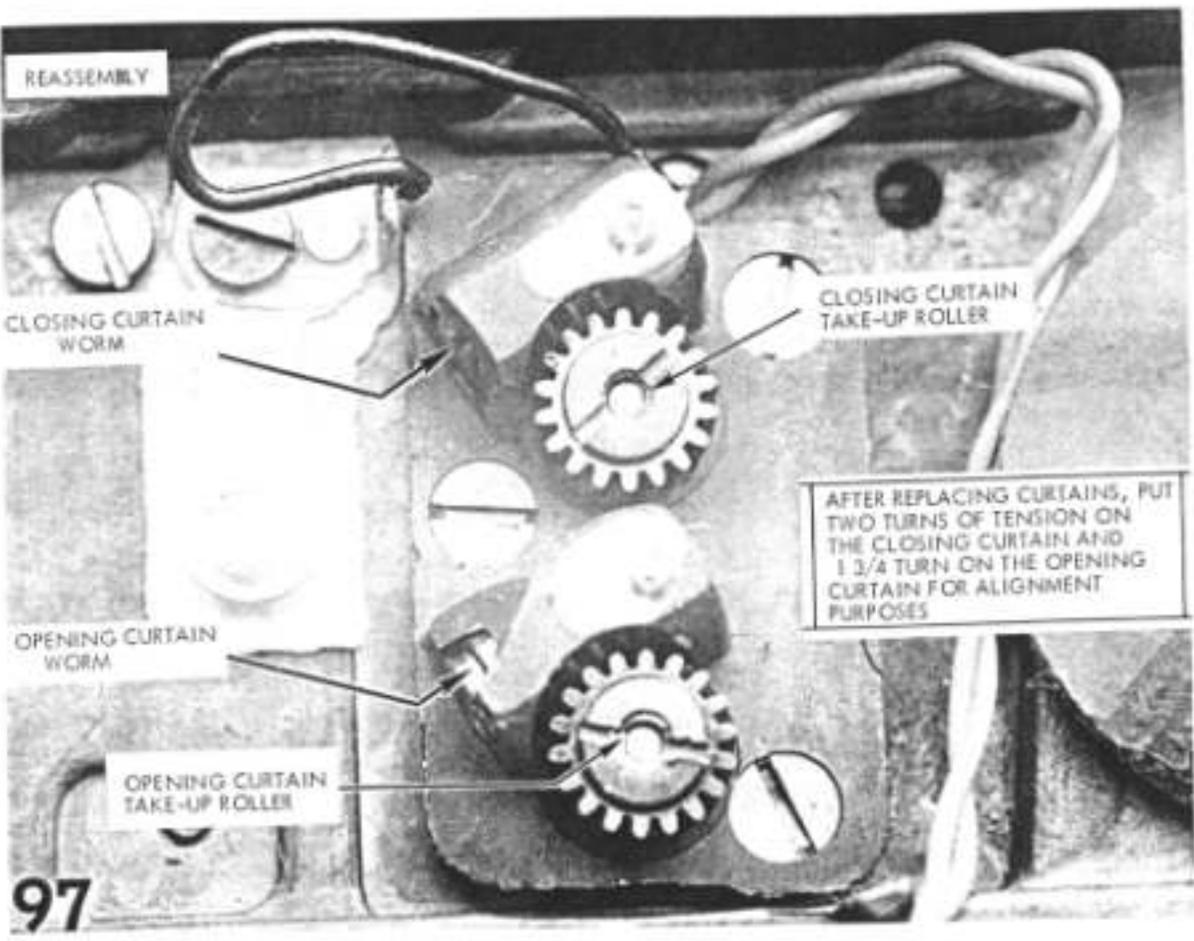
8 - DISCONNECT RESET LEVER SPRING
AND LIFT OFF RESET LEVER RETAINER

9 - LIFT OFF RESET LEVER

10 - REMOVE THREE SCREWS AND LIFT OUT
WIND SHAFT
(take-up spool is now loose and may be
removed from back of camera)

96

NOTE: The take-up spool is in three separate sections -- the two end pieces and the center section. The slots in the center section (which receive the film leader) must be toward the bottom of the camera during reassembly. Also, note the position on the spring steel and fiber washers on the end pieces.



Turn the closing curtain winding roller until the lead edge of the closing curtain bar is 6.3mm behind the edge of the focal-plane opening, as shown.

6.3MM

98

