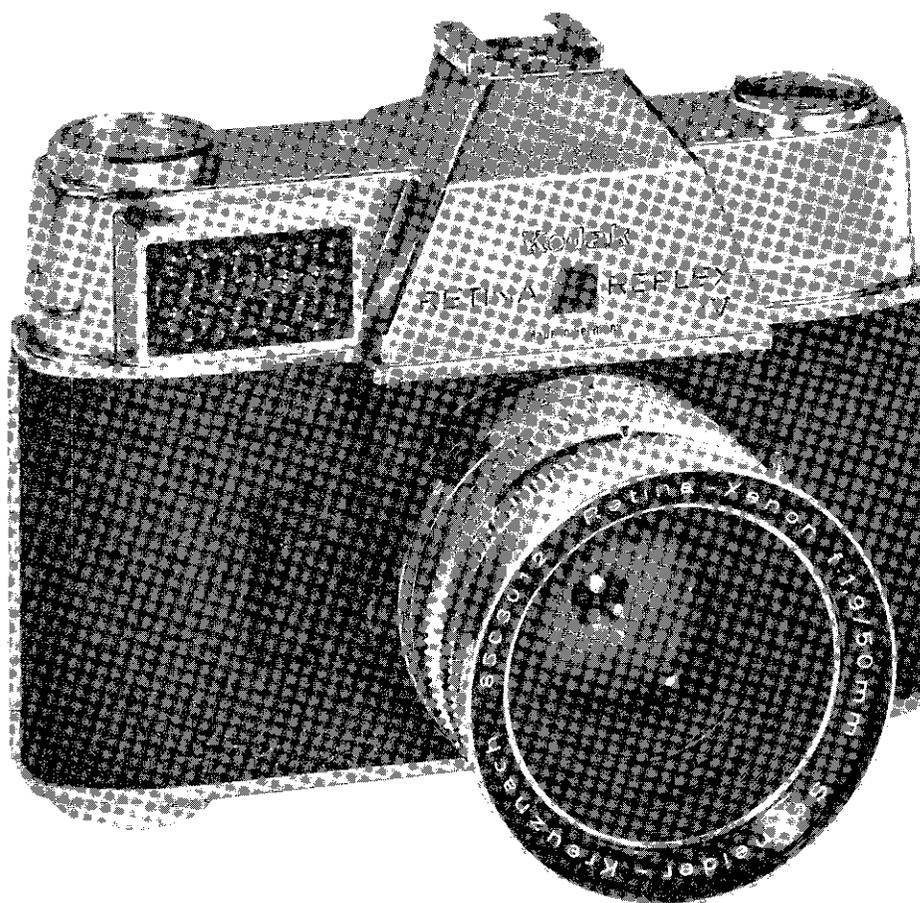


AUGUST 1965

NO. 768549

Servicing the

KODAK RETINA REFLEX IV CAMERA



EASTMAN KODAK COMPANY
Apparatus Service Department
ROCHESTER, NEW YORK 14650

FORWARD

The *KODAK RETINA REFLEX IV* Camera is quite similar to the previous *KODAK RETINA REFLEX S* and *III* Cameras. Therefore, this manual is intended to supplement the knowledge and skills of servicemen already familiar with the earlier models.

Closely similar features are touched upon briefly, but new or extensively modified features (such as meter, meter linkage, finder assembly, and exposure counter) have been covered in greater detail. It is probable that some of the material will also be useful in servicing the earlier models.

Reference:

Service Manual No. 935 - *KODAK RETINA REFLEX S* Camera
Service Manual No. 1192 - *KODAK RETINA REFLEX III* Camera

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LUBRICANTS AND SEALER

<u>Lubricant</u>	<u>Use</u>
A&O 60-3354 or A&O 61-3663 Grease (Silicone)	Rewind Assembly
A&O 61-3686 Oil	Rollers on Slide N6634, 35 or 36 Pinion on N5070 Front Shroud Springs N4653 & N5186 (Aperture Cover & Mirror Bracket
A&O 61-3627	Various Racks, Bearings, Intermediate ring, Wind shaft, Control shaft and other bearing surfaces.
A&O 61-3778 Dry Molycote	Wind pawl and various surfaces requiring a dry lubricant.
RGP 7056 Insulating Sealer	Insulating Washer N6587 on top of case and Insulating Washer N5025 on rear of front mount. Around N6618 Setting Wheel Bearing Plate on rear of front mount.

I. FILM TRANSPORT

SPECIFICATIONS

1. Rewind assembly should:
 - 1.1 Be retained flush with top housing by a double detent action.
 - 1.2 Have crank arm retained flush with rewind knob by spring action.
 - 1.3 When crank arm is unfolded 180°, be withdrawn only from its second detent position and move upward by spring action approximately 1/4" into rewind position.
 - 1.4 Be retained in rewind position (1.3) by its first detent position.
 - 1.5 Not require excessive vertical force to extend or retract into either rewind, reload or load positions.
 - 1.6 Rotate in either direction with a minimum of resistance.
 - 1.7 Rewind film smoothly and without requiring excessive force.
2. Rewind clutch button should:
 - 2.1 When depressed, release film transport for rewind action.
 - 2.2 Remain in a depressed position until released on first actuation of film advance lever.
3. Film advance lever actuation should:
 - 3.1 Have forward action locked against return action at any intermediate position.
 - 3.2 Have return action locked against forward action at any intermediate position.
 - 3.3 Close aperture cover, lower mirror, open shutter blades, set shutter and open diaphragm blades of any lens to full aperture.
 - 3.4 Rotate sprocket and take-up spool (clutch assembly should have sufficient torque to take-up film).
 - 3.5 Be locked against further actuation until shutter release button is depressed.
 - 3.6 Be free of binds or rough action in either its forward or return action.
 - 3.7 Advance film smoothly and without requiring excessive force.
4. Exposure release button should:
 - 4.1 Be free of binds and have sufficient spring tension to return to its upper position.
 - 4.2 Release film transport mechanism slightly before release of shutter.
 - 4.3 Have a slight amount of overtravel after release of shutter.
5. Exposure counter mechanism should:
 - 5.1 When back is closed, be actuated one index mark ($\pm 1/3$ division) for each actuation of advance lever or counter advance button.
 - 5.2 Not be actuated beyond #1 position either by the advance lever or counter advance button.
 - 5.3 When back is opened, return to "zero position" (midway between #1 and diamond) from any index number without binds or hesitation.
 - 5.4 Have counter advance button action free of binds and with sufficient spring tension to return fully to next advance of dial.
6. Pressure pad, back frame, film roller back and film rails should be free of imperfections which can damage film.

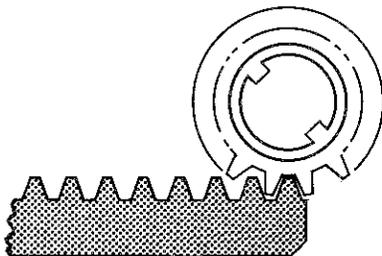
I. FILM TRANSPORT

7. In the event that exposure meter was removed to facilitate repairs, it should:
 - 7.1 Be reset to indicate correct exposure.
 - 7.2 Have cord locked to meter pulley.
8. In the event that front mount assembly was removed to facilitate repairs, the lens seats must be aligned using Tool #998.
9. In the event that finder assembly was removed to facilitate repairs, it must be aligned using Tool #1131 or by comparison with back frame image.

SERVICE HINTS

Service requirements to the film transport mechanism will be similar to those encountered in previous models. Basic differences are the exposure counter mechanism (self resetting) and the elimination of the lock-up feature when the counter reaches #1.

10. Rewind Assembly
 - 10.1 Knob and crank assembly unscrews from post in same manner as previous models. In reassembly, it is important that the extension post be oriented in the rewind post properly: If not properly assembled, the double detent positioning will be missing and rewind of the film will be impossible since unfolding of the crank will raise the complete post out of contact with the spool of cassette.
 - 10.2 The type of lubrication used on the post and bearing is important. Do not use petroleum base lubricants; they will destroy the plastic. A plastic lubricant such as A&O 60-3354 (Dow Corning #4) or A&O 61-3663 is recommended.
11. Rack and Gear Engagement
 - 11.1 To facilitate reassembly (if the same components are used), indicate the mesh or engagement of the rack and gear. The N6046 Gear has 21 teeth and a rotational change in position of 1/4, 1/2 or 3/4 of a turn can affect the shutter setting adjustment.
 - 11.2 If a new gear (N6046) is fitted, the position for setting the shutter will have to be found by the trial and error method.
 - 11.3 Regardless of the final position of the gear on wind shaft, it must be engaged with the rack as shown.



I. FILM TRANSPORT

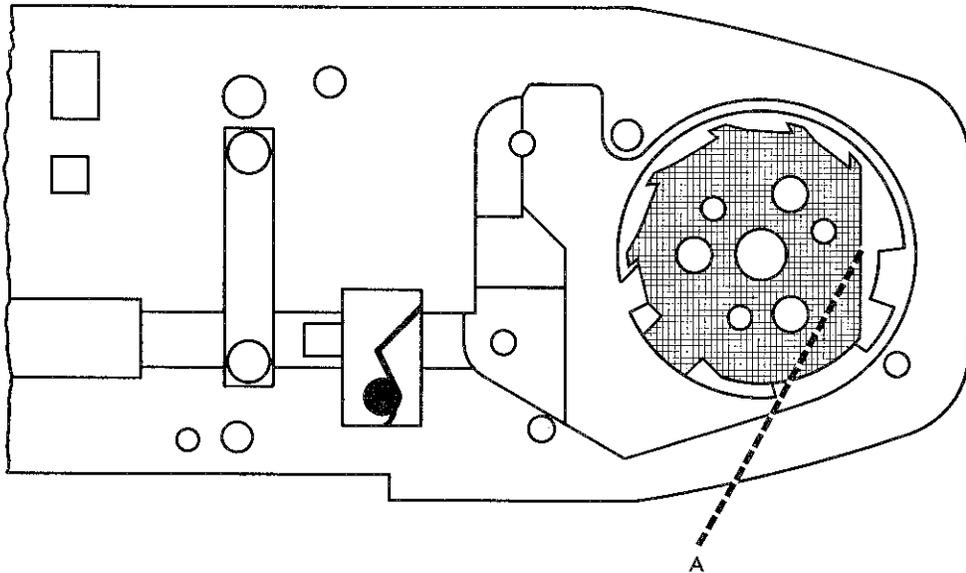
12. Erratic or chronic overlapping of negatives is generally caused by an excess of heavy grease on the N5421 Wind Shaft Pawl and its driving area.

If trouble of this type is encountered, the area should be thoroughly cleaned and relubricated as follows:

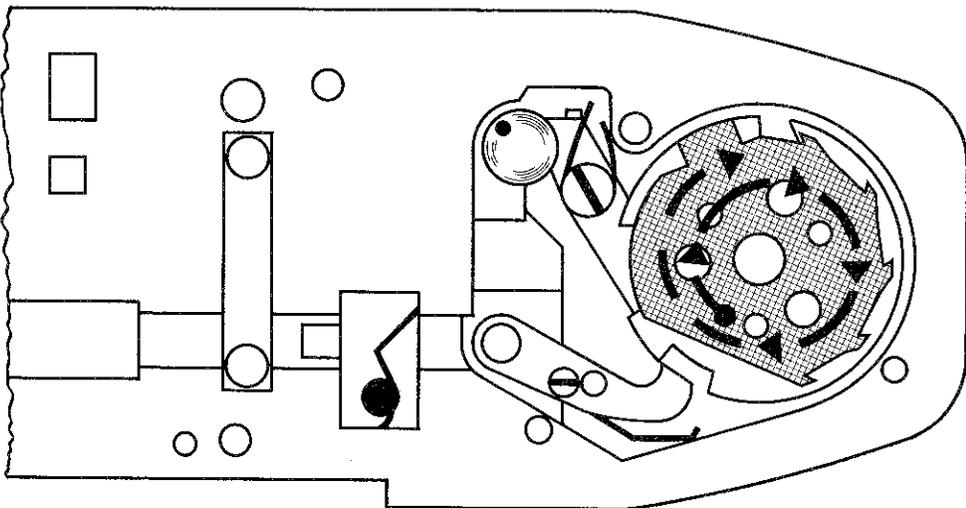
- a) Lubricate inner bearing surfaces of N5418 Gear sparingly with #3627 Grease.
- b) Lubricate with dry graphite or dry molycote the balance of the area and the components.
- c) Care should be used in assembling the pawl; the squared corner should engage the gear. If the rounded corner engages, it can cause erratic failure to advance film.

13. Wind Shaft - Tension

- 13.1 Install wind shaft with flated side A next to and parallel to end of case as shown.



- 13.2 Pretension shaft by rotating $1 \frac{1}{3}$ turns from its original position as shown. Let wind release engage to maintain position during balance of assembly.



II. FINDER AND RANGEFINDER

14. Exposure Counter

Early production cameras were fitted with a two-piece mechanism consisting of a dial and a ratchet wheel. If trouble (jamming) is encountered, it will be necessary to install the new style assembly N6591.

Care should be used in alignment of the spring finger on N6592 Counter Slide Assembly. If the tip of the finger is too far toward the rear of the camera, the dial assembly may start the second rotation (after reaching #1). If this occurs, the return spring may be forced out of its anchorage in the case.

II. FINDER AND RANGEFINDER

SPECIFICATIONS

15. Lens seats must be aligned with back frame using Tool #998 or #1005.

NOTE: Tool #1005 Gauge requires the use of a surface plate and a universal height indicator.

16. Taking lens focus should be checked at a subject distance of 15' from film plane (approximately the top rear edge of top housing) with ground glass on back frame (ground side in).

17. Rangefinder accuracy should be checked at 15' and infinity settings of lens received with camera, or by using an f/2.8 or f/1.9 master lens. Tolerance: focus ring index mark should be within extended area which carries stationary index mark.

18. Fresnel lens ring must be clearly discernible and must show maximum sharpness at top and bottom in finder.

19. Rangefinder circles may show a slight misalignment in concentricity.

20. Finder accuracy in relation to back frame should be checked and adjusted as required either by visually comparing back frame (ground glass) and finder images or by using Tool #1131. Tolerance, using Tool #1131 Finder Alignment Fixture: two lines at side, top and bottom must be clearly visible in finder with lens (of tool) set at infinity and maximum aperture (midway between f/8 and f/11).

21. Any combination of speed and diaphragm ring indexes must be clearly visible at bottom of finder.

22. Exposure meter needle, pointers and red signal images must be clearly visible at left side of finder.

NOTE: A slight discrepancy between the needle alignment on the top housing and its image in the finder is allowable provided both are within the $\pm 1/2$ stop tolerance of the meter.

23. (OMITTED)

24. (OMITTED)

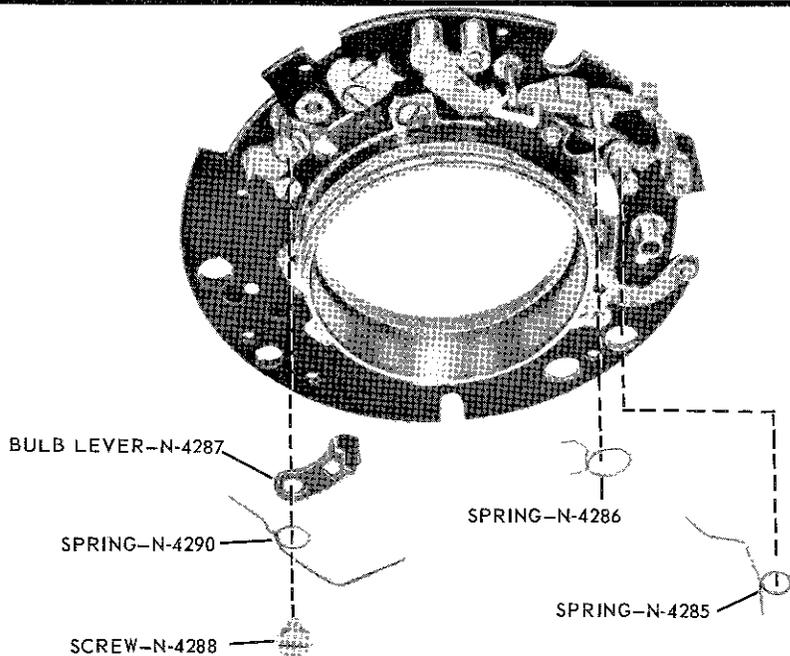


FIGURE 27

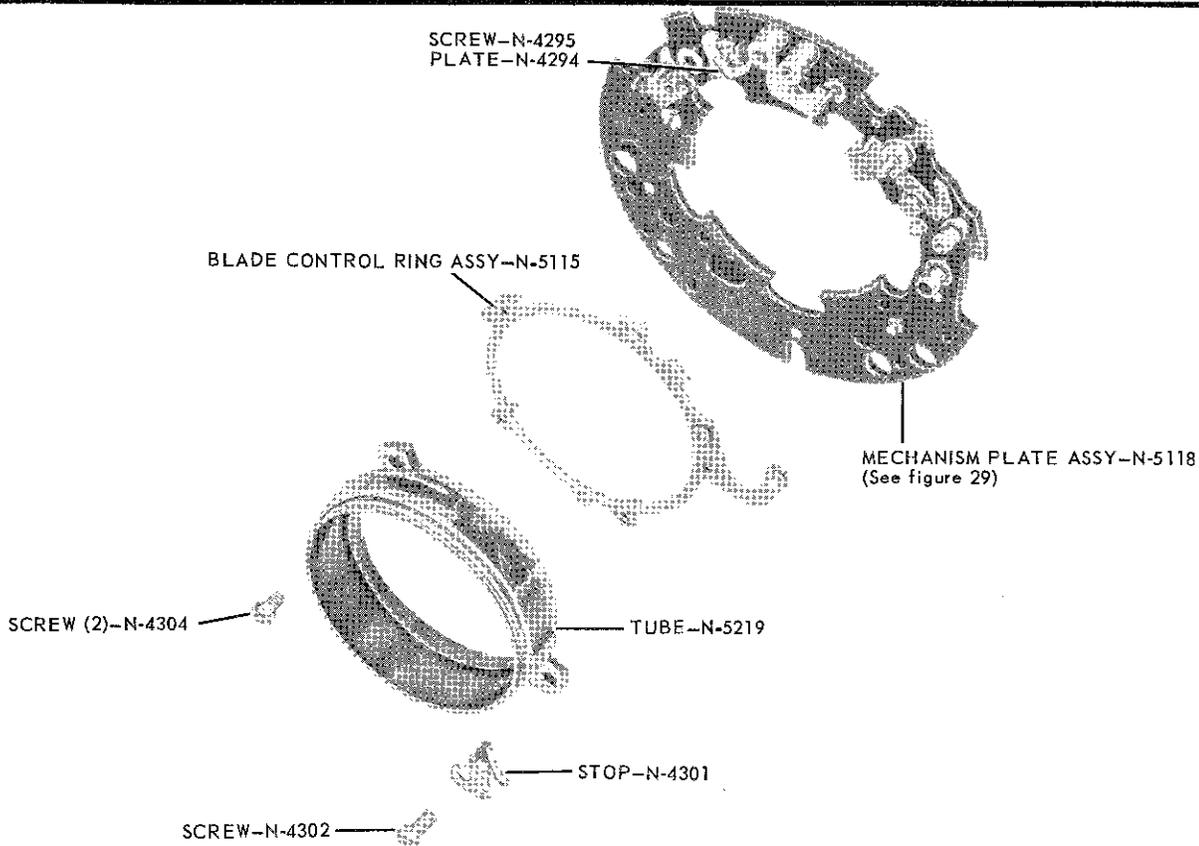


FIGURE 28

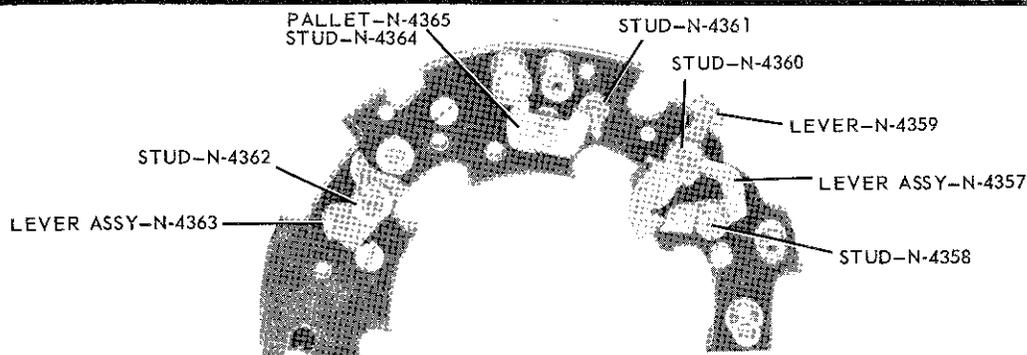


FIGURE 29

II. FINDER AND RANGEFINDER

SERVICE HINTS

25. Lens Seats

Tools #998 and #1005 and methods of adjustment are identical with previous models.

NOTE: Tool #1005 Gauge requires the use of a surface plate and a universal height indicator. It is not required if Tool #998 is available.

26. Fresnel Lens (in finder assembly).

26.1 For adjustment of sharpness of lines near bottom, interchange spacers under finder assembly.

26.2 For adjustment of sharpness of lines near top, displace mirror latch assembly.

27. Rangefinder

27.1 For major adjustments, interchange spacers under finder assembly.

NOTE: Use care, excessive adjustment can affect sharpness of fresnel lens. Refer to Instruction 26.1.

27.2 For minor adjustments, shift position of mirror latch position.

NOTE: Use care, excessive adjustments can affect sharpness of fresnel lens (Instruction 26.1) and may also affect the mirror latch release point (Instruction 73.3).

28. Rangefinder Circles

No adjustment is provided to control concentricity of circles.

29. Finder Alignment

NOTE: Finder alignment with back frame must be adjusted by either comparing images or using Tool #1131 whenever the finder assembly is removed and replaced. The following method describes the use of Tool #1131.

29.1 Check and adjust lens seats.

29.2 Fit Tool #1131 Finder Alignment Fixture in place of lens.

29.3 Set diaphragm at maximum aperture allowable with tool (midway between f/8 and f/11) and lens at infinity.

29.4 Set shutter, point lens toward a bright area or light and observe image in finder. Two shorter lines (on slide) should be visible at each side and top and bottom in finder.

NOTE: The longer third line at each side on slide indicates the edges of the back frame. It is automatically aligned when the tool is attached.

29.5 Corrections in alignment can be made by removing top housing, loosening the large screw at each side of finder and shifting finder assembly.

III. EXPOSURE METER LINKAGE

NOTE: Early production cameras should be fitted with N6599 Lock Washers on the finder retaining screws.

30. Speed and Diaphragm Ring Indication

No adjustment is provided; generally if trouble is encountered, one of the small mirrors will be loose.

31. Exposure Meter Needle Image

Some adjustment is provided by displacing the N6564 Prism Assembly at the right side of the finder assembly. Loosening the two screws at right side will allow movement of the assembly.

NOTE: Use care; adequate clearance between prism assembly and the rotating body of the meter must be maintained. Cleaning should be done with an antistatic cloth to help eliminate needle attraction.

III. EXPOSURE METER LINKAGE

SPECIFICATIONS

32. Actuation of ASA button upward should permit changing film speed indication as desired (with setting wheel) from 10 to 1250.

NOTE: Resistance may be encountered in setting film speed. Continue to turn setting wheel if possible; this changes the shutter speed automatically. However, if the shutter speed and lens opening scale have both reached the limit of travel it will be necessary to release the lock button, rotate the setting wheel until the lens opening scale is at its opposite extreme, then again press down the lock button and rotate the setting wheel to reach the desired film speed.

33. ASA scale of meter should hold its position at any setting within its range.

34. Meter setting wheel should (with lens assembly removed):

34.1 Rotate diaphragm ring from f/1.9 through f/22 and back to f/1.9 at any speed from "B" to "500" without binds or locking. (Check at "B" and 1/400 only).

34.2 When speed ring is at "500" and diaphragm ring is set to f/1.9 and extra force is applied, rotate speed ring from "500" to "B" and stop.

34.3 When speed ring is at "B" and diaphragm is at f/22 and extra force is applied, rotate speed ring from "B" to "500" and stop.

35. Exposure control signal (red flag) should be actuated as follows at an ASA setting of one index mark above 32 or (DIN. 17).

Speed	Start of Movement		End of Movement	
	Diaphragm	Tolerance	Diaphragm	Tolerance
B	f/4	± 1/2 stop	f/2.8	± 1/2 stop
250	f/11	± 1/2 stop	f/1.6	± 1/2 stop

III. EXPOSURE METER LINKAGE

36. Meter setting wheel should (with any lens attached) actuate depth of field pointers through their full range.
37. With all light excluded from meter cell and camera set at ASA 10, B and f/1.9, needle should indicate the "zero position" when it aligns (within its own width) with the tip of the forward yellow pointer.
38. Centering meter needle within the index pointers on top or in finder should indicate a diaphragm setting of $f/5.6 \pm 1/2$ stop with camera settings of ASA 25 and shutter speed of 1/125 at a light source equal to 560 ft. lamberts (Tool #991 Exposure Meter Tester set at 100 volts).
39. A slight discrepancy between the needle alignment on top and its image in the finder is allowable provided both are within the 1/2 stop tolerance of the meter.
40. Meter needle sticking in either extreme position (low or high light) is allowable provided it breaks loose under a light jar or shock.
41. In the event front mount is removed to facilitate repairs, the lens seats must be aligned with Tool #998.
42. In the event the finder assembly was removed to facilitate repairs, it must be aligned using Tool #1131 or by comparison with back frame image.

SERVICE HINTS

Different timing and orientation procedures may be used in disassembly and reassembly. The following is one suggested method:

43. Removal - Exposure Meter

43.1 Settings

- a) ASA dial at 10.
- b) Speed ring at B or 1/60.
- c) Diaphragm ring f/1.9.

43.2 Remove top housing (Instruction 10).

43.3 Loosen meter and rack retainer plate screw and remove two screws at right side of meter.

43.4 Remove meter assembly.

NOTE: Use care to maintain dial and gearing position if the same meter is to be fitted. If the position is lost or a new meter is to be fitted, refer to Instruction 44.

43.5 Tighten rack retainer plate screw to prevent damage if advance lever is actuated.

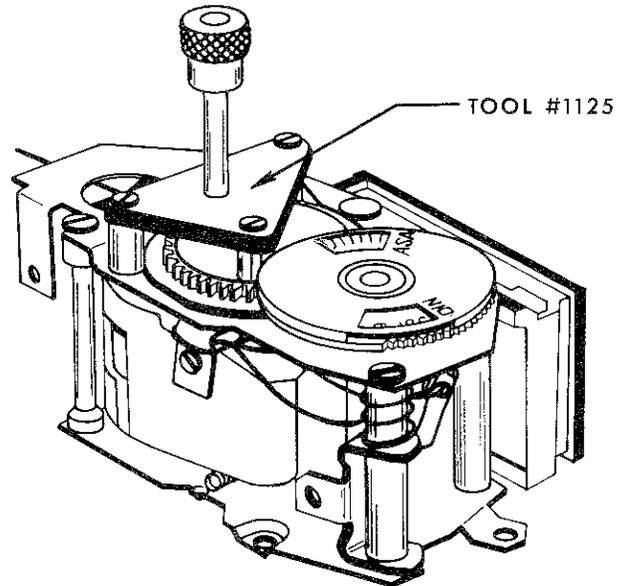
44. Refitting - Exposure Meter

44.1 Set meter and camera at:

ASA dial at one index above 32 or (DIN. 17).
Speed ring at 1 second.
Diaphragm ring at "8" of f/2.8.

III. EXPOSURE METER LINKAGE

- 44.2 Engage Tool #1125 on meter as shown.
- 44.3 Rotate dial as required and be sure the three posts are seated.
- 44.4 Loosen meter and rack retainer screw.
- 44.5 Slide meter into position making sure gearing is meshed.
- 44.6 Replace all screws, tighten securely and remove Tool #1125.
- 44.7 Check all meter specifications.



45. Adjustment - Zero position

- 45.1 Remove top housing (Inst. 10).
- 45.2 Set camera as in Instruction 37.
- 45.3 Exclude all light on cell with Tool #1124 and observe position of needle from directly above.
- 45.4 Rotate setting wheel to position access hole in rotating body of meter toward rear.
- 45.5 Insert a suitable tool and reposition fork. Return to original position (Instruction 37) and recheck position of needle.

46. Adjustment - Red Flag

Control of the range of indication is provided by the eccentric on the flag lever. The eccentric does not extend or reduce the travel, it merely shifts the movement.

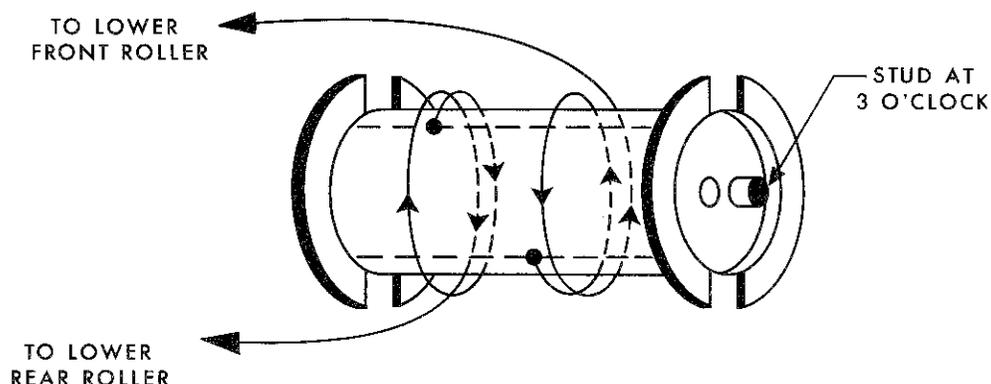
47. Adjustment - Meter Deflection

- 47.1 Remove top housing.
- 47.2 Check zero reading and adjust as required (Instruction 45).
- 47.3 Change mesh of gearing between meter and cable pulley (1 tooth = 1/2 stop) or slip cable on pulley. Reseal cord position on pulley.
- 47.4 Recheck all adjustments and specifications.

48. Meter Linkage

The following sketches illustrate the meter linkage alignment as used on the *KODAK RETINA REFLEX IV* Camera.

- 48.1 Cable Drum Assembly (positioned for shutter settings of f/1.9 and 1/60 sec.)

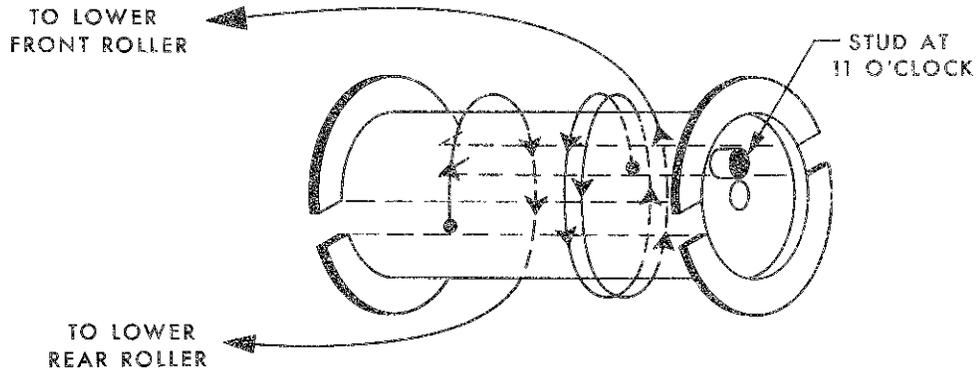


III. EXPOSURE METER LINKAGE

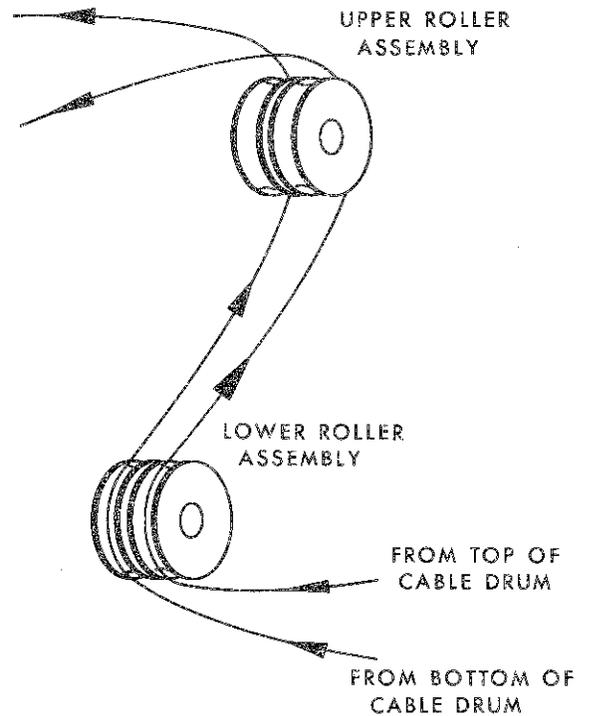
48. Meter Linkage (continued)

- a) Insert end of cord in lower notch and wind 1 1/2 turns in a counterclockwise direction toward the front.
- b) Insert other end of cord in upper notch and wind 1 1/2 turns in a counterclockwise direction toward the rear.

48.2 Cable Drum Assembly (positioned for shutter settings of f/1.9 and B)

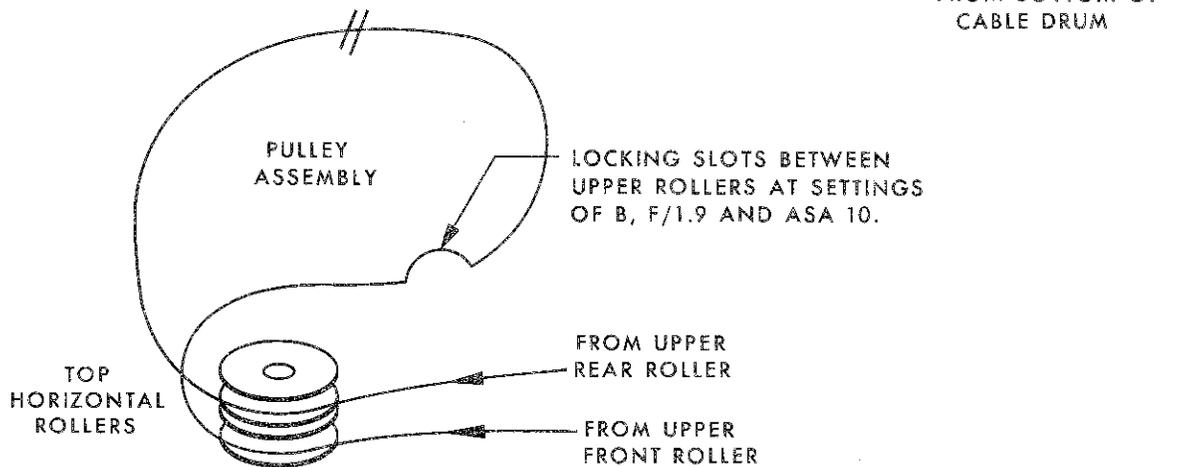


48.2 Upper and Lower Roller Assembly



48.4 Meter Pulley Assembly

Do not insert cord in locking slot of pulley until after meter is adjusted.



IV. HOUSING

SPECIFICATIONS

49. Depressing exposure release should release film transport system at same time or slightly before tripping shutter.
50. Finder image should be discernible at low room illumination.
51. Tripod socket and exposure button should be threaded (check visually).
52. Back latch should open with a minimum of force and return with spring action.
53. Back should fit case with a minimum of interference, latch securely and open partially under film pad pressure. It should be free of dents or imperfections sufficient to cause difficult film advance.
54. ASA scale lock button should:
 - 54.1 When pressed upward, permit changing film speed indication as desired.
 - 54.2 Have spring tension sufficient to return button to down position.
55. Rewind Assembly should:
 - 55.1 Be retained flush with top housing by double detent action.
 - 55.2 Have crank arm retained flush with rewind knob by spring action.
 - 55.3 When crank arm is unfolded 180°, be withdrawn only from its second detent position and move upward by spring action approximately 1/4".
 - 55.4 Be retained in rewind position (Instruction 11.3) by its first detent position.
 - 55.5 Not require excessive vertical force to extend or retract into either the rewind, reload or load positions.
 - 55.6 Rotate in either direction with a minimum of resistance.
 - 55.7 Rewind film smoothly and without requiring excessive force.
56. Electrical continuity to the accessory shoe center contact should be completed when an appropriate flashholder (*KODABLITZ*) is attached.

SERVICE HINTS

57. Shutter and Wind Release

Access to the shutter and wind release adjustments can be made by removing the top housing, meter, meter pulley and two small cover plates.

58. Accessory Shoe Contact

Failure in continuity at shoe is occasionally caused by poor contact of the leaf spring inside the top housing when the flashholder is attached.

V. SHUTTER

59. Shutter speeds should be within the following Total Time tolerances:

1 second	800 to 1200 milliseconds	1/30 second	26 to 39 milliseconds
1/2 "	400 to 600 "	1/60 "	13 to 20 "
1/4 "	200 to 300 "	1/125 "	7 to 11 "
1/8 "	100 to 150 "	1/250 "	3.5 to 7 "
1/15 "	51 to 76 "	1/500 "	2.5 to 5 "

60. Flash contact should occur as follows:

Contact Efficiency = at least 75%
X = contact at full open shutter

61. VX selector lever should:

- 61.1 Operate without binds.
- 61.2 Not move into the "V" position when shutter is not set.
- 61.3 When set at "V", return to "X" position when the shutter is tripped.

62. Self-timer should operate for approximately 8 to 10 seconds.

63. Rotation of speed selector ring (black handles) should:

- 63.1 Have detent action at each speed index.
- 63.2 Rotate diaphragm ring in opposite direction, and without excessive binds or jamming throughout the following ranges (check with lens removed).

NOTE: Make all initial settings with knurled wheel beneath shutter, and all rotation with black handles.

- a) From 1/60 second and f/1.9 to 1/4 second and midway between f/16 and f/22.
- b) From "B" and f/22 to 1/60 second and f/1.9.
- c) From "B" and f/1.9 to 250 second and f/22. (No detent action through green figure range except at "B").

64. Electrical circuit should be free of shorts or erratic continuity.

65. Shutter blades should be free of grease, oil or rust spots.

66. Lens assembly at infinity position should not protrude into the shutter assembly to the extent that blade action is blocked.

67. Lens lock lever should:

- 67.1 Be free of binds or rough action and have spring tension sufficient to prevent accidental release of lens assembly.
- 67.2 Retain the lens assembly securely.

68. Diaphragm controls should:

- 68.1 Open the diaphragm blades fully.
- 68.2 Allow diaphragm blades to close to any preselected opening.

69. In the event that the front mount assembly is removed to facilitate repairs, the lens seats must be aligned using Tool #998.

V. SHUTTER

70. In the event that finder assembly was removed to facilitate repairs, it must be aligned using Tool #1131 or by comparison with back frame image.

SERVICE HINTS

71. Speed and Diaphragm Rings

Removal and refitting of these components without disturbing the balance of the camera can be performed in the following manner:

Removal:

- 71.1 Remove lens assembly.
- 71.2 Settings: ASA 10, shutter speed at B and diaphragm at f/1.9.
- 71.3 Remove the three screws. (These screws are now the same length).
- 71.4 Grasp rings and remove.
- 71.5 To remove intermediate ring from diaphragm ring, rotate it counter-clockwise to position semi-circular cut-out in alignment with small pinion. Then lift out ring.

Refitting:

- 71.6 Clean and relubricate sparingly:
 - a) Rear bearing surface of speed ring.
 - b) Front bearing surfaces of lens mount assembly.
- 71.7 Engage speed ring on speed control lug and reposition at B.
- 71.8 Clean bearing surfaces of diaphragm opening ring and the mating surfaces on lens mount assembly. Relubricate only with dry graphite or molycote.
- 71.9 Position ring on lens mount so that lug will protrude through upper end of slot in front shroud assembly.
- 71.10 Lubricate pinion on front shroud with dry molycote or apply oil sparingly and work in well.

NOTE: This pinion must be free of binds or stickiness to prevent shutter tripping failure.
- 71.11 Clean bearing surfaces of intermediate ring and lubricate very sparingly with a good grade of grease.
- 71.12 Install intermediate ring in rear of front shroud assembly and rotate clockwise to position right end of short bearing surface into alignment with the left edge of the notch (in shroud) directly below the f/8 of diaphragm ring.
- 71.13 Grasp assembly to hold ring in position and assemble to lens mount. "Jiggle" assembly and diaphragm opening ring to engage pinions and seat securely on mount.
- 71.14 Check position of diaphragm opening ring lug; it should be approximately 1/16" from the top of the slot.
- 71.15 Replace screws and tighten securely.

72. Front and Shutter

Removal:

Different basic settings can be used in disassembly, which is similar to that used for the *KODAK RETINA REFLEX III* Camera. The following are suggested settings.

V. SHUTTER

72. Front and Shutter (continued)

- 72.1 Set ASA dial at 10, shutter speed at B and diaphragm ring at f/1.9. This setting positions the cable drum assembly as shown in Instruction 47.2 and the mating component (on front) as shown in Instruction 72.1 a).

Using the same settings but a shutter speed of 1/60 (in place of B) positions the drum as shown in Instruction 47.1 and the mating component as shown in Instruction 72.1 b).

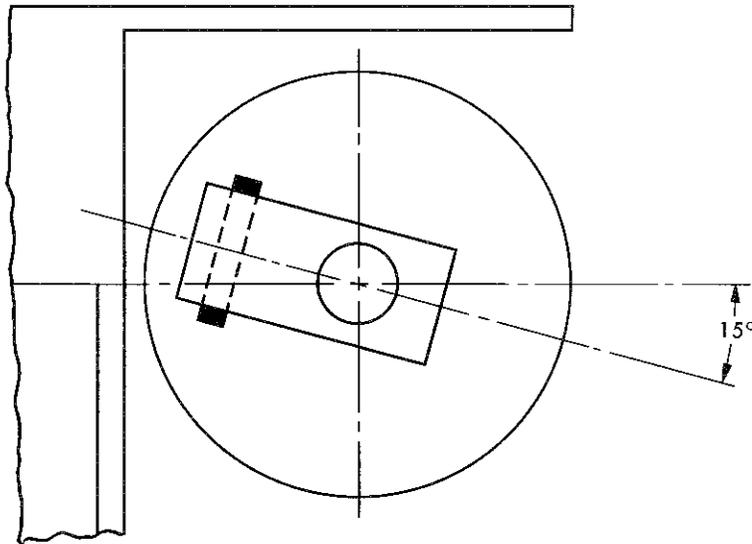
- 72.2 Remove top housing, meter, finder, and bottom panel. Break sealer for wire lead to accessory shoe contact and remove front in the usual manner.

73. Aperture Cover and Mirror

The following adjustments and settings cover the control of the aperture cover and mirror assembly in both the setting and tripping actions.

73.1 Control Shaft

- a) Replace bottom panel or use a shortened plate and refit advance lever temporarily.
- b) Align front of shaft as shown by changing engagement with rack.



- c) Adjustment screw (for shutter setting) in its final setting should not protrude excessively (more than 2 threads visible) at this driving end. A sealer must be used to retain the screw in its final position.
- d) Install Tool #1059 on top of case and refit front cam section of contact shaft, pretension spring by 1 ¼ turns clockwise and anchor on tool.
- e) Install Tool #1060 on front of case.

73.2 Aperture Cover

- a) Actuate advance lever. Cover must clear tip of mirror latch and close securely against back frame and be retained in position to prevent a light leak condition.
- b) Adjust small tab on mirror latch for proper clearance in closing and adjust tabs at each corner of cover for secure locking when cover is completely closed.

V. SHUTTER

73. Aperture Cover and Mirror (continued)

73.3 Mirror Bracket Assembly

- a) Actuate advance lever. Mirror bracket must clear tip of latch by .002" to .006" and latch must be released by stud on mirror bracket contacting stop pawl (lower lever) on guide plate when latch area on bracket has reached the midpoint of recess in latch lever.
- b) Adjust stop pawl by forming section which extends toward rear with Tool #1057.

73.4 Stop Pawl and Stop Lever on Guide Plate

- a) Stop Pawl (lower lever on guide plate) must engage freely on upper side of mirror latch lever stud when aperture cover and mirror are up.
- b) Stop lever (upper lever on guide plate) must engage freely on bottom side of mirror latch lever stud when aperture cover and mirror are down.
- c) Adjustment of a) should be made by eccentric on guide plate and must provide .004" to .006" clearance between stop lug on front side and eccentric.
- d) Adjustment of b) can best be made by actuating and holding advance lever, then adjust eccentric at upper end of front slide to provide .004" to .006" clearance between cam of front section of control shaft and eccentric.

NOTE: Generally, these two adjustments c) and d) must be made in conjunction with each other, since an improper adjustment of one can cause a failure in the other.

74. Shutter

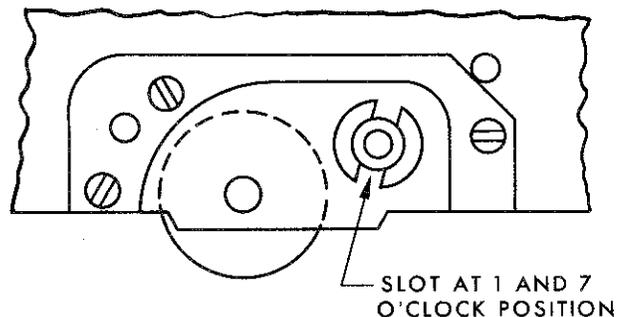
Removal:

Disassembly of the shutter from the front mount is identical with the *KODAK RETINA REFLEX III*.

74.1 Setting Wheel Alignment

The following sketches show the correct alignment of the cable drum connection of setting wheel when disassembling using the different shutter speed settings:

- a) B and f/1.9



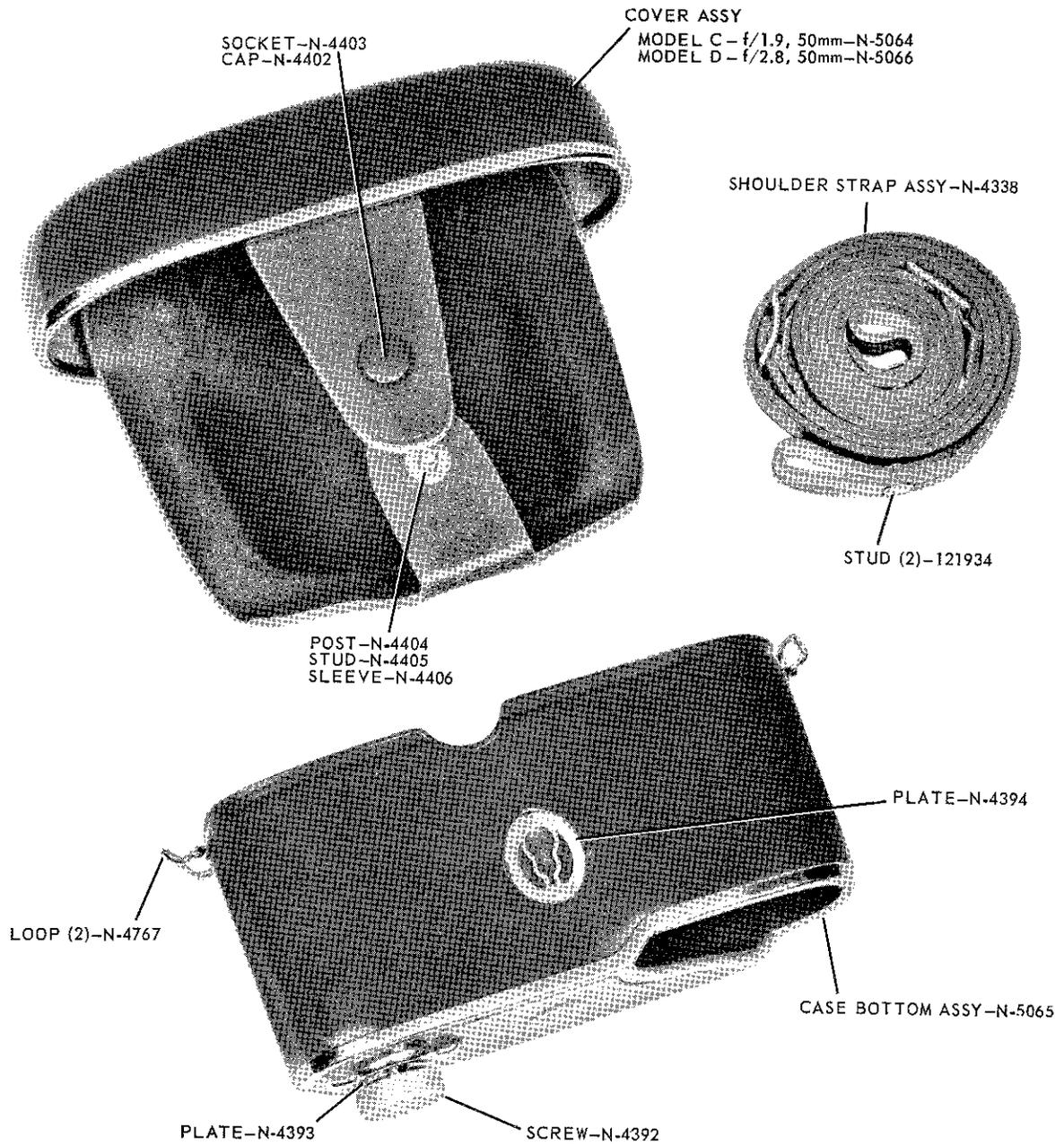
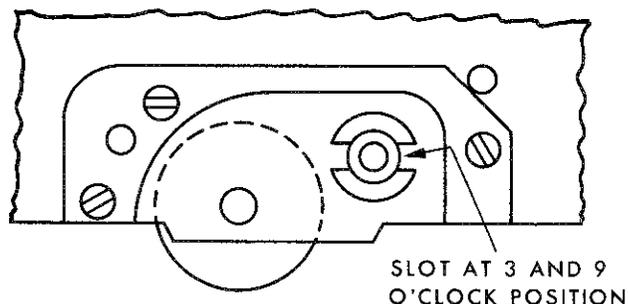


FIGURE 30. KODAK RETINA FIELD CASE, MODELS C and D

V. SHUTTER

74.1 Setting Wheel Alignment (continued)

b) 1/60 and f/1.9

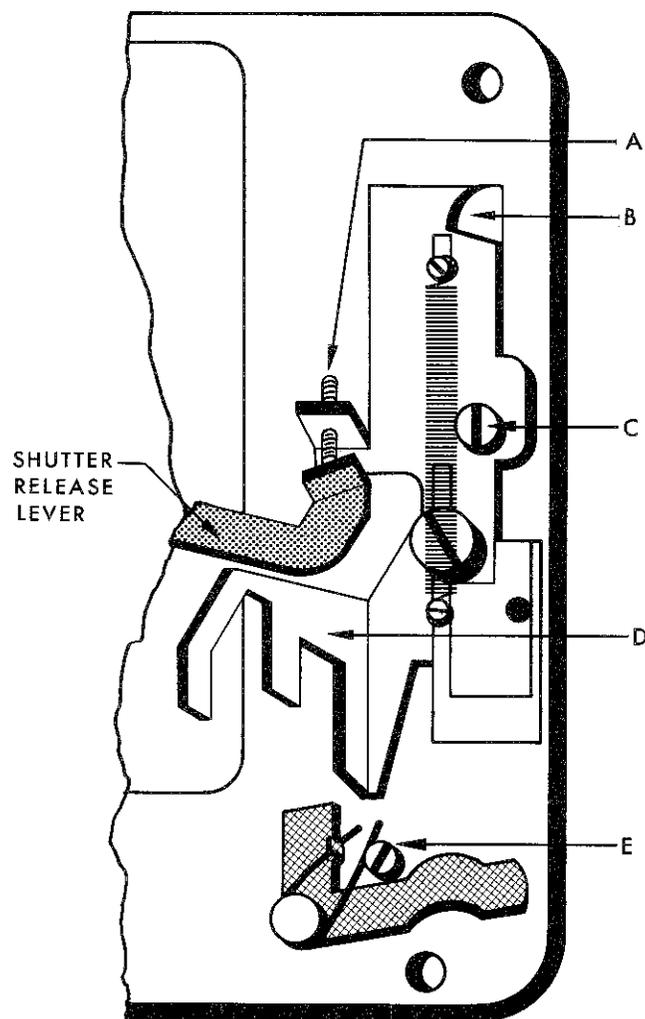


74.2 Shutter Release Assembly

Five adjustment points (a-e) below and in adjoining figure) are provided for the shutter release assembly. These are shown in the sketch and must be checked and adjustments made as required whenever the front is encountered with the shutter release. A setting of shutter speed at "B" is suggested for checking operation.

- a) Play or free movement between the setscrew and shutter release lever must be at least .012". Reseal after adjustment.

NOTE: Temporarily fit release button and recheck. In some instances, the upward movement of the button is restricted by the cable release bracket covered by the button



Reform bracket to allow full upward movement.

- b) Upper lug on release slide must be formed in toward center of mount slightly to insure positive contact with wind release adjustment screw.
- c) Eccentric (on slide) must be adjusted to provide at least .024" over travel of slide after shutter has been unlocked and blade closed.
- d) Arm must be at right angles to balance slide or tipped very slightly away from center of mount to provide positive contact with lock slide for aperture cover. Excessive adjustment can cause trouble since the arm can bind on the case.
- e) Eccentric (on mount) must be adjusted so tip of shock guard lever just clears release slide when depressed.

VI. USEFUL SPECIAL TOOLS

74. 74.3 Flash Terminal

Failure of electronic flash units can be traced to a very slight leakage in flash terminal. This can be checked on the complete camera and should be checked before reassembly if the camera is disassembled for any reason.

Any good ohm meter can be used with appropriate probes.

In most cases, careful removal of the flux on the rear of the terminal at the point where the wire is attached will correct the condition.

74.4 Servicing Shutter

Repairs to shutter follow the same procedure as the previous model except for the lack of M synchronization.

VI. USEFUL SPECIAL TOOLS

#249	Bit-Wind shaft gear retaining screw (Use with #30 screwdriver)
#971	Bit-Tophousing screw (Use with #30 screwdriver)
#998	Fixture-Lens seat alignment
#1005	Gauge-Lens seat alignment (Use with Universal Type Indicator)
#1022	Clearance Gauge-Checking back focus protrusion on all lenses.
#1042	Pliers-ASA setting button
#1056	Wrench-Positioning governing shaft assembly
#1057	Wrench-Adjusting bell crank on guide plate
#1059	Fixture-Control shaft alignment
#1060	Fixture-Adjusting mirror and aperture cover
#1061	Adjusting Tool-Mirror latch
#1124	Meter Cap-Zero adjustment of meter
#1125	Fixture-Zero adjustment and installation of meter
#1131	Fixture-Finder alignment

Kodak

KODAK RETINA III S CAMERA

FIG.	PART NO.		PART NAME	REQD.
	U.S.	German		
14	N-2222	G-2467/1	Screw - Rewind post bearing	2
2	N-2423	G-2036/6	Screw - Accessory clip	3
8	N-2426	G-011568	Washer - Movable arm screw tension	1
17	N-2617	G-016086	Spring - Rewind release dog	1
4	N-2618	G-016334/1	Film Tension Pad Assy	1
17	N-2662	G-2533/1	Screw - Sprocket shaft	1
17	N-2672	G-016085	Screw - Rewind release dog	1
15	N-2675	G-4623/1	Washer - Rewind release button	1
1,9,14, 17,18	N-2677	G-2507/1	Screw - Back to case (3), Bottom frame to case (7), Top frame (1), Winding shaft assy (3), Support plate assy (3)	17
18	N-2699	G-2114/1	Screw - Back latch plate	2
4	N-2717	G-016302	Spring - Tension pad	2
4	N-2722	G-1357/4	Rivet - Back catch (2), finishing strip (2)	4
1	N-2723	G-016670	Pointer - Film indicator	1
1	N-2724	G-016623	Washer - Tension	1
2	N-4049	G-021738	Clip - Accessory	1
1	N-4051	G-2507/6	Screw - Housing to carrying strap bracket, left	2
1	N-4052	G-2538/6	Screw - Finder housing to carrying strap bracket, left	1
3	N-4062	G-1257/1	Rivet - Viewfinder reinforcement plate	4
3	N-4064	G-4048/0	Washer - Counter reset button	1
2	N-4070	G-021718	Ratchet - Counter	1
2	N-4071	G-021720	Dial - Counter	1
2	N-4072	G-021711	Spring - Counter actuating	1
2	N-4073	G-1366/1	Rivet - Counter actuating spring	1
2	N-4075	G-2544/1	Screw - Exposure counter adjusting	1
2	N-4087	G-021717	Washer - Counter ratchet tension	1
2	N-4088	G-4638/1	Washer - Counter ratchet spacing	1
2	N-4092	G-021706	Bushing - Body release	1
14,17	N-4099	G-2537/1	Screw - Carrying strap bracket, left (2), right (1), Bushing and gear assy (1)	4
5	N-4104	G-021624	Spring - Wind and counter release	1
8	N-4117	G-021427	Screw - Movable arm	1
8	N-4118	G-021425	Bearing - Movable arm	1
8	N-4174	G-021225	Screw - Arm assy actuating spring	1
14	N-4176	G-021617	Guide - Wind and counter release	1
9	N-4180	G-021612	Ring - Tripod socket outer	1
9	N-4181	G-021611	Spring - Back latch button guard	1
9	N-4182	G-2527/1	Screw - Tripod socket to case	3
9	N-4183	G-021595	Socket - Tripod	1
9	N-4184	G-021594	Bearing - Cassette	1
18	N-4193	G-021018	Button - Back latch	18
18	N-4194	G-021013	Spring - Back latch button	1
9	N-4201	G-2526/1	Screw - Winding lever	3
9	N-4202	G-021602/1	Winding Lever Assy	1
9	N-4203	G-021605	Spacer - Wind lever	AR
15	N-4205	G-021580/1	Film Advance Lock Assy	1
15	N-4206	G-021584	Spring - Film advance lock assy	1
15	N-4207	G-4984/4	Retainer - Film advance lock spring	1
15	N-4208	G-021570/1	Wind Release Assy	1
15	N-4209	G-021578	Screw - Wind release adjusting	1
15	N-4210	G-021577	Spring - Wind release	1
15	N-4211	G-021574	Spring - Wind release throw-out	1
16	N-4212	G-021550	Screw - Winding shaft	1
16	N-4213	G-021549	Gear - Winding shaft	1
16	N-4214	G-4630/0	Spacer - Winding shaft pinion	1
16	N-4215	G-021545	Pawl - Winding shaft	1
16	N-4216	G-021544	Cam - Winding shaft	1
16	N-4217	G-021543	Spring - Tension	1
16	N-4218	G-021532	Gear - Film advance drive	1
15	N-4219	G-021564	Button - Rewind release	1
17	N-4220	G-021555/1	Sprocket Shaft Assy	1
17	N-4221	G-021560	Sprocket	1
17	N-4222	G-021540	Screw - Drive gear pawl	1

Always give PART NUMBER and NAME when ordering parts

KODAK RETINA III S CAMERA

FIG.	PART NO.		PART NAME	REQD.
	U.S.	German		
17	N-4223	G-021538	Pawl - Drive gear	1
17	N-4224	G-021539	Spring - Drive gear pawl.	1
17	N-4225	G-021536	Spacer - Drive gear pawl.	1
17	N-4227	G-021527/1	Bushing and Gear Assy	1
17	N-4228	G-021567	Dog - Rewind release	1
17	N-4229	G-021500/1	Winding Shaft Assy.	1
17	N-4230	G-021516	Bushing - Take-up spool	1
17	N-4231	G-021518/1	Spool - Take-up.	1
4	N-4236	G-021321/1	Hinge - Back.	1
4	N-4238	G-021104	Catch - Back.	1
4	N-4239	G-1371/1	Rivet - Film tension pad spring	3
9	N-4321	G-2528/6	Screw - Tripod socket outer ring	2
9	N-4322	G-021610	Guard - Back latch button	1
15	N-4325	G-021563	Spring - Rewind release button.	1
17	N-4354	G-021524	Gear - Clutch	1
17	N-4355	G-016540	Spring - Clutch pressure.	1
17	N-4356	G-021522	Clutch	1
2	N-4466	G-021721	Bearing - Release and counter	1
1	N-4512	G-023761	Sleeve - Rewind post.	1
9	N-4530	G-025607	Covering - Winding lever.	1
5	N-4535	G-023628	Spring - Body release trip.	1
4	N-4543	G-023293	Strip - Back finishing	1
4	N-4545	G-1379/1	Rivet - Hinge to back	3
4	N-4547	G-7050/1	Pin - Hinge.	1
14	N-4552	G-023637	Screw - Carrying strap bracket, right	1
3	N-4554	G-025728	Washer - Eyepiece	1
18	N-4561	G-023015	Plate - Back latch	1
18	N-4565	G-023010	Latch - Back.	1
1	N-4575	G-025290/2	Back Assy.	1
5	N-4578	G-023620/1	Wind and Counter Release Assy	1
14	N-4580	G-021635	Spring - Clutch pressure.	1
9	N-4587	G-023350	Plate - Closing	2
18	N-4589	G-023014	Stud - Back latch guide	1
18	N-4591	G-023004	Socket - Positioning	1
14	N-4593	G-023639	Washer - Setting rack guide	1
9	N-4610	G-023356	Covering - Case, bottom	1
14	N-4611	G-023636	Bracket - Carrying strap, left	1
4	N-4613	G-021295	Plate - Reinforcement.	1
13,18	N-4617	G-2224/1	Screw - Lens frame lever to case (2), Retaining plate assy (1).	3
1	N-4656	G-025673	Screen - Diffusing	1
4	N-4661	G-025355	Covering - Back.	1
2	N-4782	G-028724	Spring - Counter advance.	1
3	N-4784	G-028725	Mount - Eyepiece	1
3	N-4785	G-0191/0	Glass - Eyepiece	1
3	N-4787	G-0194/0	Window - Viewfinder.	2
14	N-4884	G-025638	Bracket - Carrying strap, right	1
1	N-4904	G-027348	Disk.	1
1	N-4905	G-027357	Covering - Right side	1
1	N-4906	G-027358	Covering - Left side.	1
1	N-4907	G-027700/2	Housing Assy.	1
1	N-4908	G-027765/1	Rewind Knob Assy	1
1	N-4909	G-027774	Screw - Rewind knob.	1
1	N-4911	G-027910/9	Scale - Distance.	1
1	N-4912	G-2615/0	Screw - Distance scale	2
1	N-4913	G-9003/0	Plate - Name	1
2	N-4914	G-027710/1	Counter Advance Assy.	1
2	N-4915	G-027740	Cap - Exposure meter.	1
2	N-4916	G-0225/0	Window - Exposure meter	1
2	N-4917	G-0226/0	Disk - Plexiglass.	1
3	N-4918	G-027730/1	Retainer Assy	1
3	N-4919	G-028704	Button - Counter setting	1
3	N-4920	G-028705	Sleeve - Counter setting button.	1
4	N-4921	G-021309	Roller Film.	1

KODAK RETINA III S CAMERA

FIG.	PART NO.		PART NAME	REQD.
	U.S.	German		
5	N-4922	G-027401/2	Rangefinder Assy	1
5	N-4923	G-027625/1	Body Release Push Rod Assy	1
5	N-4924	G-027643/2	Exposure Meter Assy	1
5	N-4925	G-027685	Knob - Exposure meter	1
5	N-4926	G-027686	Spring - Exposure meter	1
5	N-4927	G-027927	Button - Body release	1
5	N-4928	G-2595/4	Screw - Rangefinder assy to case	2
6	N-4929	G-027420/1	Bracket Assy	1
6	N-4930	G-027430/1	Mask Support Assy	1
6	N-4931	G-027450	Strip - Mask support.	1
6	N-4932	G-027460/1	Slider Assy	1
6	N-4933	G-027464	Screw - Slider lever	3
6	N-4934	G-027465	Lever - Slider	1
6	N-4935	G-027475	Spring - Mask support.	1
6	N-4936	G-2114/4	Screw - Mask support strip	2
6	N-4937	G-2171/4	Screw - Mask to bracket	2
6	N-4938	G-2487/4	Screw - Mask support spring	1
6	N-4939	G-2588/1	Screw - Mask assy to movable arm (New style, fillister head).	2
6	N-4940	G-2597/4	Screw - Mask assy to movable arm (Old style, countersunk) . . .	2
7	N-4941	G-027473	Spring - Mirror	1
7	N-4942	G-028440	Holder - Mirror.	1
7	N-4943	G-0195/9	Mirror - Transparent	1
7	N-4944	G-0222/9	Mirror	1
7	N-4945	G-2596/4	Screw - Mirror holder	1
8	N-4946	G-027402	Mount - Rangefinder lens.	1
8	N-4947	G-027410/1	Movable Arm Assy	1
8	N-4948	G-027413/1	Adjusting Arm Assy	1
8	N-4949	G-027415	Cam - Rate adjusting	1
8	N-4950	G-027416	Nut - Wind and counter release pin	1
8	N-4951	G-027418	Washer - Wind and counter release pin	1
8	N-4952	G-027428	Spring - Movable arm	1
8	N-4953	G-027470	Spring - Eylet glass retaining.	1
8	N-4954	G-028405	Ring - Rangefinder lens retaining	1
8	N-4955	G-0193/0	Lens - Rangefinder.	1
8	N-4956	G-0196/0	Lens - Eyelet	1
8	N-4957	G-0221/0	Lens - Collimator	1
8,13	N-4958	G-2042/4	Screw - Rangefinder lens mount (2), Adjusting arm (1)	3
8	N-4959	G-4051/0	Washer - Rangefinder lens.	1
8	N-4960	G-4654/4	Washer - Adjusting arm to movable arm screw.	1
9	N-4961	G-027025/1	Bottom Frame Assy	1
10	N-4962	G-2610/1	Screw - Front to case	4
10	N-4963	G-4988/4	Washer - Spring.	8
11	N-4964	G-027202/2	Front Assy	1
12	N-4965	G-027202	Mount - Shutter	1
12	N-4966	G-027208	Stud - Setting wheel	1
12	N-4967	G-027212	Lever - Body release	1
12	N-4968	G-027214	Stud - Body release lever	1
12	N-4969	G-027216	Gear - Shutter setting coupler pinion.	1
12	N-4970	G-027217	Stud - Coupler	1
12	N-4971	G-027220	Gear - Shutter setting idler	1
12	N-4972	G-027222	Stud - Shutter setting idler gear	1
12	N-4973	G-027225	Gear - Setting wheel idler	1
12	N-4974	G-027226	Stud - Setting wheel idler.	1
12	N-4975	G-027240/1	Setting Wheel Assy	1
12	N-4976	G-027245	Washer - Setting wheel tension.	1
12	N-4977	G-2027/1	Screw - Shutter mount to front	4
11	N-4978	G-022755	Bushing - Insulating	1
11	N-4979	G-027250	Frame - Ornamental.	1
11	N-4980	G-027255/1	Front Cover Assy.	1
11	N-4981	G-027265	Sleeve - Guide, front.	1
11	N-4982	G-027266	Sleeve - Guide, middle	1
11	N-4983	G-027267	Sleeve - Guide, rear	1
11	N-4984	G-027269	Collet - Rangefinder guide pin	1

Always give PART NUMBER and NAME when ordering parts

KODAK RETINA III S CAMERA

FIG.	PART NO.		PART NAME	REQD.
	U.S.	German		
11	N-4985	G-027270	Pin - Guide	1
11	N-4986	G-027805	Shutter Complete Assy	1
11,14	N-4987	G-2509/1	Screw - Front cover assy to front (3) Angle piece assy to case (1), Setting rack guide plate to case (2).	6
11	N-4988	G-2570/1	Screw - Insulating bushing	1
11	N-4989	G-2600/1	Screw - Shutter to shutter mount.	4
10	N-4990	G-027260/1	Cable Drum Assy	1
10	N-4991	G-027263	Cord - Transmission	1
13	N-4992	G-027091	Mask - Light tunnel	1
13	N-4993	G-027092	Mask	1
13	N-4994	G-027095/1	Accessory Lens Frame Lever Assy.	1
13	N-4995	G-027105/1	Accessory Lens Frame Adjusting Lever Assy.	1
13	N-4996	G-027117	Spring - Lens frame lever	1
13	N-4997	G-027130/1	Rangefinder Actuating Lever Assy.	1
14	N-4998	G-026630	Post - Rewind	1
14	N-4999	G-027028	Frame - Top.	1
14	N-5000	G-027150/1	Angle Piece Assy.	1
14	N-5001	G-027615	Rack - Setting	1
14	N-5002	G-027616	Plate - Setting rack guide	1
14	N-5003	G-027632	Bearing - Rewind post.	1
14	N-5004	G-4626/1	Washer - Setting rack guide plate screw.	2
18	N-5005	G-027020/1	Retaining Plate Assy.	1
18	N-5006	G-027030/1	Lever - Tensioning.	1
18	N-5007	G-027032	Screw - Tensioning lever.	1
18	N-5008	G-027033	Spring - Tensioning lever	1
18	N-5009	G-027125/1	Support Plate Assy.	1
18	N-5010	G-027140/1	Shutter Cocking Shaft Assy.	1
18	N-5011	G-027002/2	Case Assembly	1
5	N-5157	G-027680	Dial - Film speed.	1
5	N-5166	G-027682	Cover - Film speed dial	1
2	N-5167	G-027740/1	Film Speed Window Cap Assy.	1
5	N-5170	G-027668	Spring - Film speed dial tension.	1
16	N-5181	G-034549	Gear - Winding shaft (New style).	1
16	N-5182	G-4663/0	Spacer - Winding shaft pinion (New style).	1
16	N-5183	G-035545	Pawl - Winding shaft (New style).	1
16	N-5184	G-034532	Gear - Film advance drive (New style).	1
17	N-5185	G-034500/1	Winding Shaft Assy (New style).	1
1	120012		Buckle - Camera shoulder strap.	2
1	136827		Camera Shoulder Strap Assy	1

SYNCHRO COMPUR SHUTTER FOR THE KODAK RETINA III S CAMERA

FIG.	PART NO.	PART NAME	REQD.
22	N-4270	Spring - Cocking ring	1
23	N-4276	Screw - Synchro cover plate.	1
23	N-4277	Screw - Synchro cover plate, shoulder	1
23	N-4278	Spring - Main drive lock	1
23	N-4279	Spring - Synchro gear	1
23	N-4280	Contact Lever Assy	1
23	N-4281	Synchro Lever Assy	1
23	N-4282	Spring - Synchro lever	1
23	N-4283	Synchro Sector Assy.	1
23	N-4284	Synchro Gear Assy.	1
27	N-4285	Spring - Blade operating check.	1
27	N-4286	Spring - Synchro lock	1
27	N-4287	Lever - Bulb	1
27	N-4288	Screw - Bulb lever	1
27	N-4290	Spring - Self timer	1
24	N-4292	Spring - Main drive	1
24	N-4293	Main Drive Assy	1
28	N-4294	Plate - Synchro gear spring anchor.	1
28	N-4295	Screw - Synchro gear spring anchor plate.	1

22 Always give PART NUMBER and NAME when ordering parts

SYNCHRO COMPUR SHUTTER FOR THE KODAK RETINA III S CAMERA

FIG.	PART NO.	PART NAME	REQD.
24	N-4296	Screw - Retard gear train, short.	1
24	N-4298	Retard Gear Train Assy	1
24	N-4299	Screw - Delayed action gear train	1
24	N-4300	Delayed Action Gear Train Assy	1
28	N-4301	Stop - Main drive gear	1
28	N-4302	Screw - Main drive stop	1
28	N-4304	Screw - Shutter tube retaining	2
25	N-4312	Screw - Case to mechanism plate	1
29	N-4357	Lever - Synchro lock	1
29	N-4358	Stud - Synchro lock lever.	1
29	N-4359	Lever - Synchro.	1
29	N-4360	Stud - Synchro lever	1
29	N-4361	Stud - Synchro gear	1
29	N-4362	Stud - Time release lever	1
29	N-4363	Lever - Time release.	1
29	N-4364	Stud - Pallet	1
29	N-4365	Pallet.	1
26	N-4366	Rivet - Contact plate.	2
26	N-4367	Plate - Contact block retaining.	1
26	N-4368	Block - Contact	1
26	N-4369	Point - Contact	1
26	N-4370	Stud - Synchro selector tension spring.	1
26	N-4371	Spring - Synchro selector tension	1
22	N-4698	Retainer - Speed ring	1
24	N-4709	Screw - Retard gear train, long	1
19	N-5069	Front Shroud Assy	1
19	N-5072	Ring - Diaphragm scale.	1
19	N-5073	Spring - Diaphragm scale ring	1
19	N-5074	Intermediate Brass Ring Assy	1
19	N-5076	Speed Scale Ring Assy.	1
19	N-5077	Button - Speed scale ring.	2
19	N-5078	Screw - Speed scale ring button	4
19	N-5080	Coupler Shaft and Pinion Assy	1
19	N-5081	Gear - Coupler shaft idler.	1
20	N-5082	Screw - Shutter to lens mount.	3
20	N-5083	Ball - Speed scale ring	1
20	N-5084	Plate - Dust cover	1
20	N-5085	Lens Mount Assy	1
25	N-5088	Flash Ring Retaining Plate Assy.	1
25	N-5089	Screw - Flash ring retaining plate.	3
25	N-5090	Flash Set Lever Assy	1
22	N-5094	Ring - Speed	1
22	N-5095	Cocking Ring Gear Assy	1
22	N-5097	Cocking Ring and Spring Assy.	1
23	N-5101	Trigger Assy.	1
23	N-5103	Synchro Cover Plate Assy	1
22	N-5106	Coupler Shaft Idler Gear Bearing Bracket Assy.	1
22	N-5107	Screw - Coupler idler gear bracket.	2
25	N-5108	Blade - Shutter, common.	4
25	N-5109	Blade - Shutter, notched	1
25	N-5110	Blade - Shutter, cover.	1
26	N-5111	Plate - Case filler	1
26	N-5112	Screw - Case filler plate	3
26	N-5113	Shutter Case Assy	1
28	N-5115	Ring - Blade control.	1
28	N-5118	Mechanism Plate Assy	1
21	N-5171	Spring - Detent ball	1
21	N-5172	Stud - Detent ball spring	1
21	N-5173	Spring - Lens mount tension.	3
21	N-5174	Stud - Lens mount tension spring	3
21	N-5175	Lever - Lens lock	1
21	N-5176	Stud - Lens lock lever.	1
21	N-5177	Spring - Lens lock lever	1
28	N-5219	Tube - Shutter	1

Always give PART NUMBER and NAME when ordering parts

KODAK RETINA FIELD CASE, MODELS C AND D

FIG.	PART NO.	PART NAME	REQD.
30	N-4338	Shoulder Strap Assy	1
30	N-4392	Screw - Camera retaining	1
30	N-4393	Plate - Camera retaining screw	1
30	N-4394	Plate - Snap button stud catch.	1
30	N-4402	Cap - Snap button	1
30	N-4403	Socket - Snap button cap	1
30	N-4404	Post - Snap button	1
30	N-4405	Stud - Snap button post	1
30	N-4406	Sleeve - Snap button post sleeve	1
30	N-4767	Loop - Strap	2
30	N-5064	Field Case Cover Assy (f/1.9-50mm, Model C)	1
30	N-5065	Field Case Bottom Assy	1
30	N-5066	Field Case Cover Assy (f/2.8-50mm, Model D)	1
30	121934	Stud - Shoulder strap	2

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