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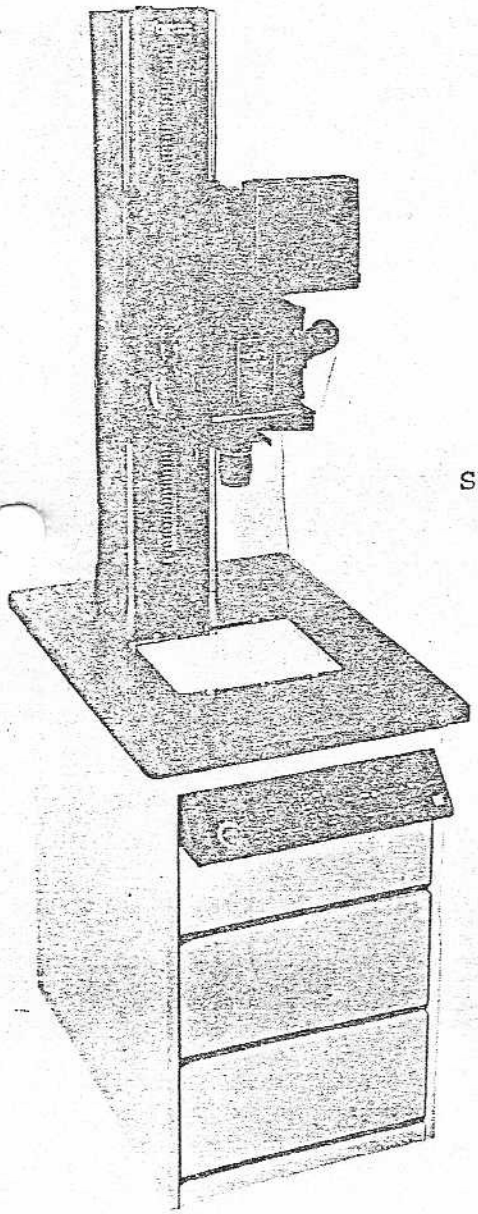

OWNER'S MANUAL

FOR

SERIES II PEDESTAL CAMERA

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1.0. INTRODUCTION

Congratulations! As owner of a Forox Series II Camera System, you are among an ever growing group of professionals equipped to produce creative slides, graphics, special effects and animation of the highest quality.

Over the past two decades, the audio-visual industry has grown to demand increased production, shorter deadlines and sophisticated visual effects. In addition, there has been a need to provide camera equipment to interface with computer controllers, computer-graphics and video equipment. Forox has become synonymous to these advancements through progressive research and engineering.

Forox Series II camera systems and copy stands are designed for high performance, efficiency and consistant results. The following pages in this handbook are intended to guide the operator in the proper usage and care of this equipment.

1.1. FEATURES:

The Series II Pedestal camera and copy stand is a microprocessor controlled system designed with features normally found only on larger animation cameras and copy stands. This camera will fit in a small workspace and requires only a standard ceiling height for clearance.

The camera is capable of slide duplication, copying opaque and transparent art, special effects and computergraphic burn-ins.

The Pedestal camera system features:

- Fixed-pin film registration
- Automatic rackover viewing with right-reading viewfinder and reticle projection
- Independent rotary shutter with digital timer and totaling and preset frame counters
- Exposure meter with digital readout
- Rotating camera head for filmstrips, slides and animation
- Variable speed motorized elevation with zoom scale
- Micro-Nikkor 55mm F/2.8 lens with auto-diaphragm, depth of field preview
- 400 foot film magazines, variable torque motors, film notcher and cutter
- 9" x 12" bottom light, with optional dichroic color head

2.0. INSTALLATION:

Your new Series II Pedestal camera has been designed and engineered to be easily installed by the purchaser. You will find that the camera can be assembled and ready for film loading in a very short period of time.

Before proceeding with the assembly, please read the installation section through its entirety and be sure to follow the instructions in the exact order they are listed. If you do not understand or encounter any difficulties, please call Forox for further instruction before proceeding.

2.1.1 PREPARATION:

Your Pedestal camera should be placed on a firm surface; avoid carpeting or wooded floors. Allow sufficient room to assemble the unit-away from the wall it will be against, with additional room to extend the drawers and to allow access to the rear of the unit.

Locate the AC recepticle you will be plugging the unit into and if necessary, provide a HEAVY DUTY extension cord such as you would provide for an air conditioner.

2.1.2 TOOLS:

You will need the following tools to assemble your Pedestal camera:

1/4" Blade Slotted Screwdriver
Phillips Screwdriver
1/4" Allen Key
3/8" Open End Wrench
Bubble Level
3/32" Allen Key
9/64" Allen Key

2.1.3 UNPACKING & LAYOUT:

Carefully remove the top and all four sides of the shipping crate. Remove the box sitting on top of the base and set it aside. After removing the packing materials on top of and around the column and base, remove the column assembly and lay it aside by placing it on it's rear edge, the carriage vertical to the floor.

Remove the two bolts located either side of the wood brace located at the bottom front of the base. After removing the wood brace you may now remove the base from the crate.

2.1.4 POWER REQUIREMENTS:

This piece of equipment should be operated on a minimum 20 amp dedicated circuit.

2.2. ASSEMBLY:

2.2.1 COLUMN TO BASE:

Step 1: Remove the screws securing the rear cover of the base. Pull the rear cover away to allow access to the inside rear of the base.

Caution: Accessory panel mounted to the rear of the cover is wired into base; do not pull on wiring.

Step 2: Remove the three bolts located in the bottom of the column and keep them within easy reach of the rear of the base.

Step 3: Remove the column shrouds from the column assembly using the 9/64" Allen key.

Step 4: Place the column assembly on the rear of the table top feeding the three ribbon cables through the rectangular hole provided in the table top. Install the three bolts from the column into the column from the underside of the table top. Secure the bolts lightly.

Step 5: Feed the three cables into the top drawer along the side of the drawer removing any twists so that the cables are lying flat. Connect the three cables to their respective connectors (refer to illustration 2). The drawer is opened by twisting the captured screws located directly under the front of the control panel.

Step 6: Locate the cable for the zoom motor at the rear of the top drawer and pass it through the round hole provided in the table top and connect it to the mating connector at the zoom motor.

Step 7: Secure the three flat cables to the underside of the table top using the cable clamps provided so that as the drawer is closed the cables fold neatly along the inside edge of the drawer.

2.2.2 MOUNTING THE CAMERA HEAD:

Step 8: Carefully unpack the camera head and remove any packing materials so that the head is free of all debris. Looking at the rear of the head, look into the access hole at the bottom, reach in and remove the rack-over link and pull it out until it is completely extended.

Step 9: Grip the rack-over plate anchor block (the chrome steel plate mounted to the carriage) and rotate the plate 90 degrees to your right. Using the 3/32" Allen key, remove the set screw in the center, rear of the anchor block. Pull up and remove the anchor pin located in the center of the block. Rotate the plate back to the normal position.

Step 10: To mount the camera head to the plate, carefully lift the head and slide it onto the plate rear end first. Be sure to capture the rack-over plate on both sides with the gibs on the head; hold the head level and straight until it is completely on the plate. Insert the anchor pin through the hole in the end of the rackover link and into the anchor block until it is completely down; place the set screw back into the anchor block and tighten.

Step 11: Connect the three cables from the carriage into the camera head. The connectors are keyed to fit in one direction only and should not be forced. Secure the cables to the rear of the camera with the strain relief provided.

Step 12: Locate the field guide provided, and mount it to one of the peg bars in the table top. Locate and plug in the power cable for the unit into the accessory panel on the rear cover and then plug in to your AC recepticle.

Note: Place a piece of white paper under the field guide to see the projected vehicle better.

Step 13: Turn the knob on the front of the camera head viewer to the lamp position. Turn on the power switch on the control panel. Press the view switch. The camera will now rack back to the view position and the projection lamp will turn on. Using the zoom switch, adjust the size of the projection to cover the field guide. Shift the carriage and column assembly so that the projection exactly matches the field guide. Tighten the three column bolts very tightly.

Step 14: Turn off the power. Remount the rear cover assembly to the base. Exercise caution in regard to the accessory panel wiring pressing against the rear of the top drawer. Remount the column shrouds. Move the entire unit in to it's permanent location.

Step 15: Place a level on the table top; using the 3/8" open end wrench, level the entire unit by adjusting the four leveling feet.

3.0. OPERATION:

3.1. CONTROL PANEL:

3.1.1 SWITCHES:

Power, center-off zoom direction, zoom speed control with scale, top lights, dim, bottom light, color control (optional) with cyan, magenta and yellow selectors, numeric keypad for CC amounts, bypass, frame counter reset, depth of field preview, continuous, reverse, advance, shutter, viewer, preset counter reset, preset count selectors, preset counter zero, exposure time selectors, meter reset and run.

3.1.2 INDICATORS:

Readouts for cyan, magenta and yellow, LED's for engaged switches, frame counter, preset counter, exposure time, meter readout, end of film, full or half frame aperture status.

Note: All switches containing integral LED's, when lit, indicate function is on.

3.2. CONTROL/INDICATOR FUNCTIONS:

Power	Switch in power position supplies AC to camera and zoom motor operation. LED's indicate AC power is on.
Zoom/Elevation	Center-offf switch will zoom camera up or down when depressed in the direction of the corresponding indicator.
Zoom Speed	Rotate dial to desired zoom speed. Scale serves as reference.
Top Lights	Engages top lights on
Dim	Engages dim feature. It dim is left engaged when exposing, lights will automatically return to normal intensity at point of exposure.
Bottom Light	Engages bottom light on (non-dichroic units only)
Off	Turns off bottom light (non-dichroic units only)
Color Optional	Engages pre-selected filter pack (optional dichroic units only)
White	White light. Hit Color to return to filter pack. (optional dichroic units only)
C-M-Y and Keypad	Select desired color, use keypad to indicate amount of cc, hit enter and bottom light will adjust to selected color. (optional dichroic units only) Example: Depress C, depress 6,7 and depress enter. Color head will light up 67 cyan.
View	View on, racks camera head over to view position. Allows use of viewfinder or reticle projection. Switch off returns camera to shoot position. Note: If run button is pressed while camera head is in view position, head will automatically rack forward, expose (or advance) and return to view positon.
Shutter	Shutter on exposure takes place; off no exposure.

Advance	Advance on, permits film advance in direction selected.
	Note: When Advance and Shutter are on, and run button pressed, the camera exposes and then advances.
Reverse	Reverse engaged, allows for advance of film in the direction of the feed magazine.
	Note: The take-up motors are automatically switched to the proper direction for film take-up. When reverse switch is engaged, the normal sequence is reversed in the camera: film advances and then exposes.
Continuous	Continuous on, provides for continuous film film advance and/or exposure.
	Note: Use the continuous feature in conjunction with the preset feature to expose a predetermined number of frames.
Preview	Disengages solenoid, allowing LGNS to stop down to preselected aperture while in view position.
Bypass	Overrides end of film shut off, allowing to advance last piece of film out of the camera.
Preset Counter*	The PRESET COUNTER can be set to operate the camera for a predetermined number of frames. To preset the counter, press DIRECTIONAL ARROW until desired number is reached. The counter will subtract one digit for each frame advanced in either forward or reverse direction. To reset counter, depress the RESET button which recalls the last PRESET number. Preset counter must be used in conjunction with continuous switch.
Frame Counter*	The FRAME COUNTER indicates the number of frames that have been advanced. It can be reset to 0000 by depressing the RESET tab. The counter will automatically add one digit for each frame advanced when the camera is being operated in the forward direction and subtract one digit in the reverse direction.
	* Caution: Preset and frame count will be reset to zero automatically, when power is turned off.

Exposure Time	Engage shutter and set desired exposure time. Shortest exposure time is .25 seconds and longest time is 99.99 seconds.
Run	Pressing run button engages all pre-selected camera functions on the control panel.

3.3.1 LOADING THE MAGAZINE:

Two identical 35/46mm magazine chambers are provided with the camera: one to use for holding raw stock and the other to accept the exposed film. The magazines accept up to 400 foot rolls of film wound on either plastic cores or metal flange daylight load spools. Magazines should be loaded in the darkroom. To load the magazine, remove the cover by opening the latches and use the 1" diameter core-adapter, if required. Position the film to unwind clockwise. Thread the end of the film through the light trap rollers so that the base is toward the guide rollers, replace the cover tightly and close the latches. The loaded magazine is now light-tight and ready for insertion on the camera.

3.3.2 THREADING THE FILM:

Open the camera door and insert the loaded magazine on the left side of the camera by sliding the stud located on the back of the magazine into the shoe mounted on the take-up motor bracket. Feed the end of the film into the slot on top of the camera while sliding the magazine in toward the camera unti it fits into the black triangular block forming the light seal. Open the film rollers on the left and right sides of the film feed sprocket on the film movement. Thread the film end down on the left between the rollers and the sprocket, around the idler roller, between the pressure and stripper plates, (over the aperture) and up on the right side between the sprocket and the rollers (see Figure 10). While holding the film on the sprocket, turn the film roller knob on the left side until it snaps into position. Take the film end with the left hand and apply tension to the film, while positioning the film properly around the two lower idler rollers and through the notcher slot. While still keeping slight tension on the film, turn the film roller knob on the right side to secure the film on the sprocket. Place the control switches on the console in the following positions: VIEW, CONTINUOUS and REVERSE switches to OFF; SHUTTER AND ADVANCE to "on". Press the EXPOSE button to advance the film end approximately 3" x 4" out of the camera. While the film is advancing, be sure the pressure plate is coming down all the way and is flat on the aperture. Before closing the camera door, check that the inside edge of the film is in contact with the end-of-film switch actuator; close the camera door and latch it. If door will not latch, check to see that the left and right rollers are closed. Remove the cover from

3.3.6 ROTATING THE CAMERA:

The camera can be rotated to 90 degrees to align the film properly for either slide or filmstrip formats so that material can be positioned upright on the copy table. Rotate the camera by turning the camera head clockwise to align it for filmstrip format. When the camera is square with the carriage, an indexing stop can be felt. Rotating the camera does not change the film advance; to do this, the proper aperture must be used (see Section CHANGING THE APERTURE).

Note: Must move camera to run position (view off) in order to rotate head.

3.4. VIEWING:

The viewing mechanism is a rack-over type. For viewing or reticle projection, the camera head slides back on a steel plate to place the focusing reticle at the exact exposing position of the film. To view, turn the switch on the control panel to the VIEW position and swivel the eyepiece housing for either slide or filmstrip format. To use the viewer eyepiece, the selector knob on the camera door should be placed in first the LOW and then in the HIGH power position for critical focusing.

3.4.2 RETICLE PROJECTION:

Projection of the reticle onto the table top is accomplished by placing the selector knob on the camera door to the LAMP position, the lamp and blower will automatically be turned on.

3.4.3 SIZING/ZOOM CONTROL:

Center-off switch will zoom the camera carriage up or down when depressed in the direction of the corresponding indicator. Release of the switch will return to the center-off position.

Zoom speed is controlled by the rotating dial which has a scale for reference. In addition, there is a scale on the column for referencing carriage location.

3.4.4 LENS/FOCUS:

When the 55mm Micro-Nikkor lens is set at infinity, the camera will focus automatically from the top of the column down to approximately 2:1 reduction. The lens must be focused manually to reach 1:1.

3.4.5 CHANGING LENS AND FOCUS CAMS:

The lens can be removed by depressing the release button located to its right (see Figure 19). Focus cams matching other lenses can be changed by latching the can follower arm removing the cam locking knob and replacing the cam.

Note: Lenses should only be changed with the camera head in the shoot position (view off).

3.4.6 FOCAL PLANE ADJUSTING MECHANISM:

The Focal Plane Adjusting Mechanism is used to relocate the plane of focus above the table top when using the compound, etc. When refocusing the lens, the elevation of the camera should be such that the projected slide reticle image measures approximately 4" across. The lens focus ring should be set at infinity. Loosen the auto-focus cam locking knob and rotate the cam clockwise slowly until critical focus is achieved. Lock the knob securely. Run the camera part way up the column while observing the projected reticle image to assure that it stays in sharp focus. The accuracy of the setting is dependent on the operator's ability to set precise focus. To reset the focus on the main table surface, loosen the locking knob and rotate the cam counter-clockwise to the end of its travel and tighten the locking knob.

3.5. LIGHTS/DICHROIC HEAD:

Standard top lights and bottom light are 3200 degree Kelvin balance. They are controlled from the control panel and inc incorporate a dim feature that can keep lights at about half power except during and exposure.

The dichroic color head provides cyan, magenta and yellow color correction in filter increments from 0-199 CC. Select desired color by pressing corresponding button on control panel. Use numeric keypad to indicate amount of CC and press enter. Color head will adjust to selected CC. White button will cancel out filters and give white light. Off button will shut color head off. Both allow return to previous CC setting.

3.6. EXPOSURE METER/COMPARATOR:

The Exposure Meter/Comparator functions as a null meter and operates from a photocell located in the viewfinder and in conjunction with a null switch on the control panel.

To use the Exposure Meter/Compator, first turn on the viewer and then engage the preview function; Numbers (two digits) will be displayed from "46-199" by L.E.D.'s. Nulling, described below, causes the reading to display "00".

To calibrate the meter for a given film emulsion, a step test must be run from a standard slide (such as Kodak's "Shirley") or user's own normal accepted standard to determine proper exposure time and f/stop. Once the optimum f/stop is determined, the meter is calibrated by setting the lens to the optimum f/stop as determined and, while reading through the same standard slide, and nulling the meter to zero by pressing the reset switch. Since the systems is electronically regulated, the calibration will be maintained as long as the unit is not turned off.

If a slide to be copied reads above or below "0" due to density or required filtration, compensation can be made by adjusting the lens f/stop ring until a "0" reading is obtained. All of the foregoing can be applied as well to reflective copy if an 18% gray card (or equivalent) is used to calibrate the meter.

The sensor is about midway between an averaging type and a spot type. It covers 10-15% of 35mm slide format, 25-35% of 35mm filmstrip.

Since the system is electronically regulated, the readout can be used for each set of conditions (such as film stock and exposure time) that are likely to be repeated.

3.7. FILM MOVEMENT AND APERTURE:

3.7.1 REMOVING THE FILM MOVEMENT:

To remove the film movement, loosen the two knurled knobs on either side of the film movement (see Figure 14). Lift the film movement out while holding the pressure plate up. The pressure plate must be held up with the thumb while removing or inserting the film movement so that it clears the registration pins and prevents damage.

It is suggested that this process be done with the power on.

3.7.2 CHANGING THE APERTURE:

In order to change the aperture, the film movement must be removed.

Caution: Hold aperture by outside edges only.

To remove the aperture, slide the springloaded aperture stop on the right side of the aperture away from the aperture and lift the aperture plate out. Replace the aperture by placing it onto the locating pins, with the slot on the left, while spreading the aperture stops on the right and left. Release the aperture stops ensuring that they hold the aperture fully in place. The aperture plates automatically control the film advance for full (double) or half (single) frame. When the half frame (filmstrip) aperture is in place, the SINGLE FRAME Indicator on the control panel will display: HLF

3.7.3 REPLACING THE FILM MOVEMENT:

With the POWER/OFF switch in the POWER position, place the film movement squarely over the aperture so that the drive clutch is aligned to its mating sprocket clutch (note the spring action on the drive clutch). Exerting light pressure on the film movement, hold it in place and rotate the film sprocket unto the locating pin on the drive clutch snaps into the hole in the sprocket cluth. Lock the film movement in place by tightening one of the knurled knots. Release the pressure plate and tighten the other knob in place. Turn the ADVANCE, SHUTTER and TIME EXPOSE (about 3 seconds) switches to the "on" positions. Depress the EXPOSE button. Check that the pressure plate is flat on the aperture and that sprocket advance is correct.

4.0. PREVENTIVE MAINTENANCE:

It is desirable to have the camera located in a clean, dust-free environment. The area around the camera should be vacuumed regularly. When the camera is not being used for extended periods of time, the lens should be removed and placed in a storage box, and the camera should be covered with a plastic sheet.

4.1. PREVENTIVE MAINTENACE SCHEDULE:

The components of the camera should be maintained according to the schedule below:

COMPONENTS	PREVENTIVE MAINTENANCE	FREQUENCY
Camera	Brush out thoroughly with a camel's-hair brush.	Weekly
Film Movement	Remove and brush off any excess film particles from the film notcher.	Weekly
Camera Aperture	Remove and brush edges with camel's-hair brush.	Weekly
Lens	Clean with lint-free lens cloth.	Weekly
Glass Insert	Clean with glass cleaner	As Required

5.0 TROUBLE SHOOTING

SYMPTOM	MOST LIKELY CAUSE	SOLUTION
Camera will not operate; but Power Indicator stays lighted	a) Blown fuse on printed circuit board	Replace fuse
	b) ADVANCE and SHUTTER Switch OFF	Put switches in "on" position
	c) Defective printed circuit board	Turn PRESET OFF to reset
	d) Defective printed circuit board	Replace circuit board
Camera will not operate, expose indicator stays on and relay buzzes	Out of film	Use by-pass button or reload magazine with film
Registration off (off slides (out of focus)	a) Improper loading of film movement	See instruction #3.7.3 for proper loading
	b) Pressure plate does not come down flat or all the way on the aperture with film in the camera	Check threading of film (see 3.3.2 check advance microswitch
	c) Pressure plate does not come down flat or all the way on aperture without film in the camera	Pressure plate must be realigned on the aperture. Contact POROX.
	d) Registration off by very small amount	Check aperture for correct pins (EE or KS) for film used
Neither counter operates properly	Counter microswitches	Adjust counter microswitches

5.0. (continued)

SYMPTOM	MOST LIKELY CAUSE	SOLUTION
One counter does not operate	Defective counter	Replace counter
Noisy rack-over	Dust on rack-over plate	Clean the rack-over plates and gibs with a solvent.
Auto-focus does not function properly	a) Auto-focus Cam not in its proper place	See instruction #3.4.6
	b) lens not on infinity	Set lens to infinity
Over-exposed film	a) Incorrect f/stop setting	Check f/stop setting and correct
	b) Iris solenoid malfunction	With VIEW Switch in VIEW position, lens set to smallest opening, turn POWER Switch on and off several times, checking that with POWER OFF, lens is closed and with POWER "on", open wide. If this does not happen, contact FOROX
Just the blower operates when camera is in view position and projection lamp is in "on" position	a) Projection lamp burned out	Replace Lamp
	b) Faulty circuit	Contact FOROX

Neither lamp nor blower functions when camera is in the View position and lamp is in the "on" position	a) Exposure/Meter Comparator is on	Turn it off
	b) Microswitch on selector knob faulty	Contact FORON
Top or bottom light does not dim	a) Dimmer relay	Check dimmer relay for proper fit on the socket
	b) Faulty dimmer rectifier	

6.0 ACCESSORIES AND OPTIONS:

In-camera masking apertures

Auto-focus

Dichoric color head

4" x 5" Slide compound

Slide stage

Top light

Polarizing filters

Leitz lens

Interchangeable components for 35mm slides, filmstrips, 46mm slides, 16mm/35mm motion picture formats.