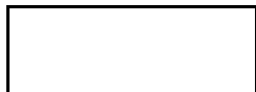
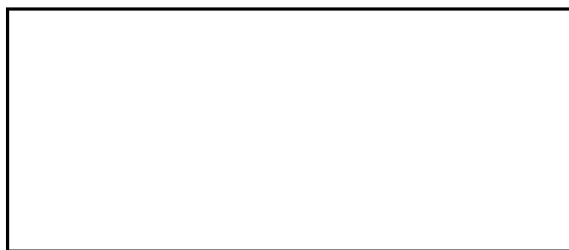


PREVENTIVE MAINTENANCE SCHEDULE



PRECISION ENLARGER

No. 1-023-E-001



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Declass Review by NGA.

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INTRODUCTION

This Preventive Maintenance Schedule has been prepared as a guide to a maintenance program which, if followed, will contribute to maximum performance and service from the equipment.

The daily, the weekly, the one-month and the six-month maintenance schedules provide the operator with procedures to systematically inspect the machine at proper intervals.

The daily, the weekly, the one-month and the six-month check list should be filled in as the corresponding inspections are performed. This list will provide a permanent record of the operation.

The day-to-day requirements for cleaning the Precision Enlarger as well as instructions for putting the machine into operation and leaving it in the proper configuration after a day of operation are detailed in the manual, Operating Instructions for the Precision Enlarger (No. 1-023-E-001). It is important that these instructions be closely followed.

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Adherence to the schedule will contribute to good quality and help prevent the possibility of costly shutdowns due to unexpected equipment failure. Any section of this Maintenance Schedule may be reproduced locally to conform to particular requirements.

PREVENTIVE MAINTENANCE SCHEDULE

Daily Interval

| PRECISION ENLARGER

Item	Description	Ref.*
1	Indicator Lamps on Sub-Control Panel: With the primary power cord of the enlarger plugged in and with the MAIN switch ON, depress the LAMPHOUSE TEMP, the FOCUS COND., the LOCK EASEL, and the LOCK LENS dimmer caps. If any of the four fails to light when depressed, replace the lamp housed in the dimmer cap.	4.2.3
2	Electrical Interlocks and Microswitch	
2.1	Be sure the interlock which prevents negative motion after the negative gate has been closed is working properly.	4.2.5
2.2	Check operation of the interlock which causes the vertical transport system to operate at a slow speed (regardless of the SLOW-FAST dial setting) until the transport system has passed the fluid removal system. This interlock is activated only if the LIQUID PUMPS pushbutton has been depressed.	
2.3	Be sure the interlock, which disables the negative transport after fluid injection, is working properly.	4.2.5
2.4	Ascertain that a microswitch actuates when the manual film movement knob mounted in the left spindle support frame is pushed in. Actuation of this switch causes the brakes of the transport spindle assemblies to release even if the interlock mentioned in 3.3 is active, enabling film to be moved horizontally with the hand knob, provided that the negative gate is opened.	4.2.5
3	Easel Photometer	
3.1	Indicator Lamps for Two Attenuator Banks: With the enlarger cord plugged in and with the ON-OFF switch of the photometer meter box ON, check the indicator lamps for the right and left attenuator banks. Do this by setting the ATTENUATORS selector dial at LEFT (the left light should energize) and then setting the dial at RIGHT (the right light should energize). If necessary, replace the indicator lamp(s). **	4.3.8.1

* More complete information can be found in the manual - Operating Instructions for the Precision Enlarger (No. 1-023-E-001).

** Disconnect main power plug of enlarger before removing photometer cover.

PREVENTIVE MAINTENANCE SCHEDULE

Daily Interval (Cont'd).

PRECISION ENLARGER

Item	Description	Ref.*
3.2	Scale Illuminator Lamp: With the main power cord plugged in, with the ON-OFF switch on the photometer meter box turned ON, and with the enlarger projection lamp energized, check to see if the scale of the meter box becomes illuminated when the PHOTOMETER pushbutton on the sub-control panel is depressed. If the scale does not become illuminated, replace the lamp. **	4.3.8.1
3.3	Antifatigue Lamp in Photomultiplier Tube Housing: Check to see if this light is energized when no light from the projection lamp of the enlarger is falling on the probe.	4.3.9.3 and 4.3.8.2
4	Negative Film Gate: Clean the two glass plates of the negative gate with a lens cleaner and wipe with lens tissue.	

* More complete information can be found in the manual - Operating Instructions for the Precision Enlarger (No. 1-032-E-001).

** Disconnect main power plug of enlarger before removing photometer cover.

PREVENTIVE MAINTENANCE SCHEDULE

One-Week Interval

[] PRECISION ENLARGER

Item	Description	Ref.
1	General: Vacuum-clean the enlarger completely. If the machine is used on a 24-hour basis, clean twice a week. Any surface that cannot be vacuumed should be wiped clean with a dry, lint-free cloth.	4.2.1
2	Objective Lenses and Filters: Inspect and, if necessary, clean the objective lenses and all glass filters with a solution of mild detergent and wipe with lens tissue. The lenses and filters not in use on the enlarger should be placed in the storage cabinets. CAUTION: Do not attempt to disassemble the projection lens assembly to clean unexposed optical surfaces. Tiny dust particles which may attach themselves to these inner surfaces are in most cases harmless and their removal involves considerable work under very clean conditions by qualified personnel.	
3	Easel: Carefully vacuum-clean the front face of the vacuum easel. The easel exhauster should be off and an attachment which will not abrade the easel finish should be used on the vacuum cleaner. Thorough weekly cleaning of this surface will in most cases prevent deterioration of easel holding power caused by dust plugging its holes. If the holes do become plugged, they should be cleaned out. After vacuum-cleaning, any residual soil on the easel face should be washed off carefully with a soft cloth and a mild detergent solution (e.g., Ivory).	
4	Easel Photometer: Check the fiber optics bundle for broken fibers by looking into the end of the illuminated bundle and observing any dark specks.	4.3.8.4

* More complete information can be found in the manual - Operating Instructions for the [] Precision Enlarger (No. 1-032-E-001).

PREVENTIVE MAINTENANCE SCHEDULE

One-Month Interval

PRECISION ENLARGER

Item	Description	Ref.
1	General: Clean the steel rails of both the objective lens ramp and of the easel with Simoniz paste wax. When dry and buffed, the wax will form a hardened coat on the rails.	4.2.1.3
2	Air Filter in Lamphouse: Remove filter from its holder at rear of lamp-house and if dirty install a new filter. <u>Do not</u> use filters which have been impregnated with oil or other dirt retaining substances.	4.2.4
3	Brushes of Fluid Removal System: Remove these two brushes from the slotted rods in which they are secured, wash them in a mild detergent, comb them out, and re-install them in the rods.	4.2.6
4	Tubing	
4.1	Check the 7-inch diameter tubing (Cat. No. FT-167-28)** which connects the easel exhauster and the easel of the enlarger for cracks and air leakage. Replace this tubing if necessary.	
4.2	Check the 3-inch diameter tubing (Cat. No. FT-167-12)** which leads to the bottom of the lamphouse and the 3-inch diameter tubing (Cat. No. FT-167-12)** leading from the immersion fluid removal system for cracks and air leakage. Replace the tubing if necessary.	
4.3	Check the 4-inch diameter fluid vent hose (Part No. 2-023-A-524)*** which connects the blower mounted at the bottom rear of the enlarger with the outdoor exhaust system.	
5	<p>Condenser Lens Assembly: Inspect and, if necessary, clean the lenses with a solution of water only. The lenses not in use on the enlarger should be placed in the storage cabinets.</p> <p>CAUTION: Incorporated in the condenser assemblies for this enlarger are aspheric lens elements. These aspheric elements are methacrylate plastic and highly polished. Extreme care is absolutely necessary when cleaning these lenses. They should be swabbed, never scrubbed, and carefully dried with minimum rubbing using a very clean, lint-free cloth. In no case, should any solvent other than clean water be used to clean them.</p>	

* More complete information can be found in the manual - Operating Instructions for the Precision Enlarger (No. 1-032-E-001).

** Catalog numbers of Flexible Tubing Corporation.

*** part number.


PREVENTIVE MAINTENANCE SCHEDULE

Six-Month Interval



PRECISION ENLARGER

Item	Description	Ref.*
1	General	
1.1	Make a photographic check on all six lens sets using the resolution targets supplied with the enlarger.	4.3.4
1.2	Check the alignment of the negative transport system to be sure that the film tracks properly in both directions.	4.3.5
2	Timing Belts	
2.1	Check the two timing belts of the film transport system for fraying or wear; replace, if necessary.	4.3.6.1
2.2	Check the two timing belts of the vertical drive system for fraying or wear; replace, if necessary.	4.3.6.2
2.3	Check the four timing belts of the easel-drive assembly for fraying or wear; replace, if necessary.	4.3.6.3

* More complete information can be found in the manual - Operating Instructions for the  Precision Enlarger (No. 1-032-E-001).

PREVENTIVE MAINTENANCE SCHEDULE CHECK LIST

PRECISION ENLARGER

Assigned to: _____ Date _____ Machine Serial No. _____

√	Item	Description
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Daily Interval

1		Check the four indicator lamps on the sub-control panel.
	2.1	Check closed-negative-gate interlock.
	2.2	Check interlock that causes vertical transport slow speed.
	2.3	Check interlock that disables negative transport after fluid injection.
	2.4	Check operation of microswitch that functions when manual-film-movement knob is pushed in.
	3.1	Check the indicator lamps for the two attenuator banks of the easel photometer.
	3.2	Check the meter scale illuminator lamp of the easel photometer.
	3.3	Check the antifatigue lamp in photo-multiplier tube housing.
	4	Clean the glass plates of the negative gate.

One-Week Interval

1		Vacuum-clean the enlarger.
	2	Check, and if necessary, clean the objective lenses and all glass filters.
	3	Vacuum-clean the front surface of the easel.
	4	Check the fiber optics for broken fibers.

√	Item	Description
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One-Month Interval

1		Wax the steel rails of the lens ramp and of the easel.
	2	Install new air filter in lamphouse.
	3	Clean the nylon brushes of the fluid removal system.
	4	Check all tubing and hoses for cracks and air leakage.
	5	Check and, if necessary, clean the lenses of the condenser lens assemblies.

Six-Month Interval

		1.1 Make a photographic check on all six matching sets of objective and condenser lens assemblies.
		1.2 Be sure that film is tracking properly in both directions on the negative transport system.
	2	Check the timing belts of the film transport system, of the vertical drive system, and of the easel drive assembly for wear.

REMARKS :

Checked by: _____ Date _____