

MIGHTY ARC SERIES II_s

**HTI 400 WATT FOLLOWSPOT
USER MANUAL**

MODELS:

MTA II_s-120/NST

MTA II_s-120/MST

MTA II_s-120/HST



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USER MANUAL**

**MTA IIs-120/NST
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January 2002

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LIMITED WARRANTY

Thank you for purchasing the Phoebus Manufacturing Mighty Arc Series II/S.

The Phoebus Manufacturing Mighty Arc Series II/S is warranted against defects in material and workmanship for a period of one year from date of purchase from Phoebus Manufacturing. In case of difficulty, contact Phoebus Manufacturing or your dealer for repair or return instructions. Iris, dowser, and clipper are warranted for six months under normal use.

Lamps are excluded from this warranty. This warranty does not apply to mechanical defects caused by rough handling or to damage caused by improper operation not in accordance with this manual. Cause of defect is in the sole judgment of Phoebus Manufacturing .a

This warranty is voidable at Phoebus Manufacturing's option under the following circumstances:

- User makes unauthorized modifications (electrical or mechanical).

- The unit is connected to improper voltage supply.

- Any other condition occurs which causes catastrophic failure or impairs Phoebus Manufacturing's ability to render proper service.

If the unit is modified by the customer without permission, the customer agrees to pay for any time or parts necessary to remove the modifications before repair, if necessary.

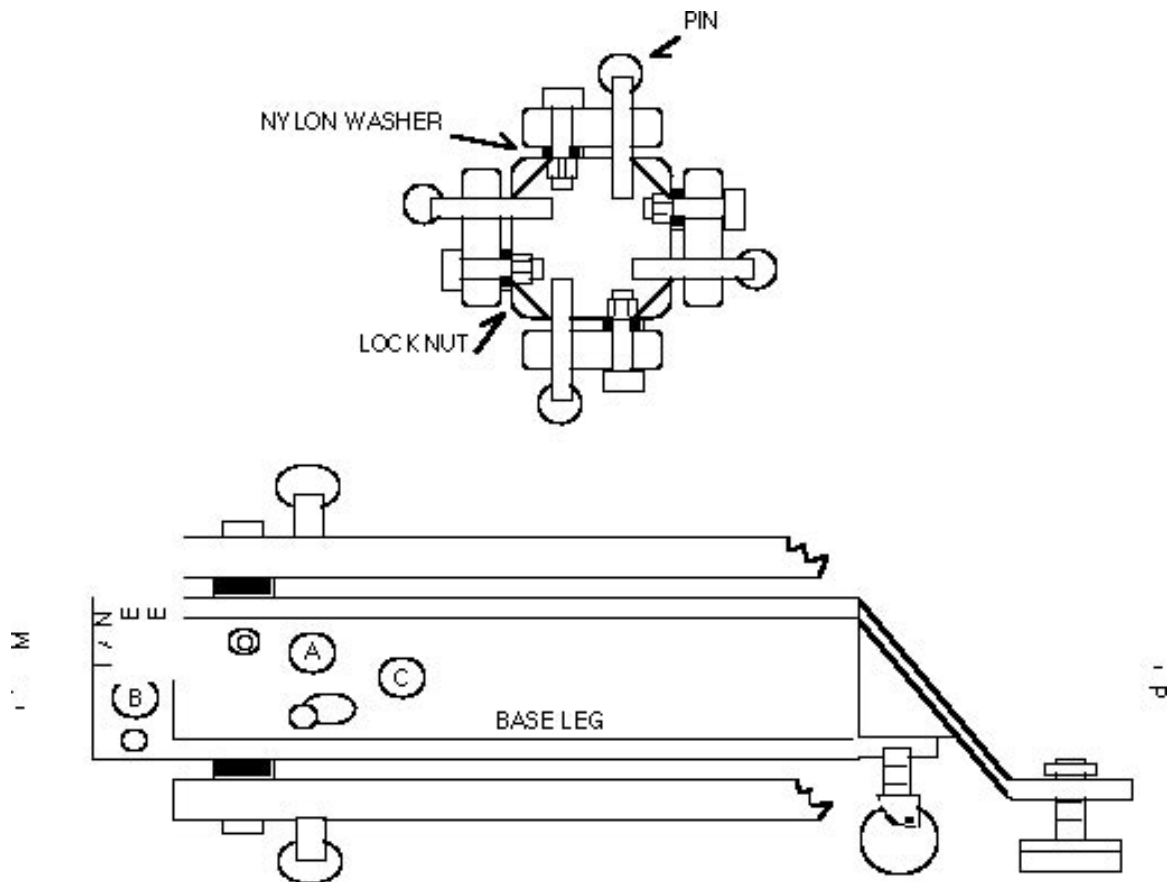
Phoebus will not be responsible for consequential damages caused by failure for whatever reason of equipment of its manufacture. Sole liability is for equipment of its manufacture. Sole liability is for repair or replacement (at Phoebus Manufacturing's option) of the defective equipment under the terms described above.

INITIAL SET-UP AND OPERATION

1. Unpack carefully and inspect for shipping damage.
2. Insert casters into the base legs. Position cast legs around end of 1 - 3/4" pipe. Secure with the hardware provided. Slide height collar onto yoke tube. Insert yoke tube into base pipe. (See Collapsible Base Assembly Instruction Diagram on page 4, applicable on Model MTA/2/S-120/HST only).
3. Slide in first the small then the large yoke knob washers onto the threaded stud of thyoke knob. Thread knob into the bail until it is flushed to the yoke weld nut on the other side of the bail. Spread washers fully apart so that yoke can be inserted between them.
4. Lift the Mighty Arc Series II/S using the front and rear of the chassis as supports. Position the bail handle shafts in the U-shaped slots at the top of the yoke. Ensure that the washers are positioned properly. Turn the tilt lock knobs to tighten the grip on the yoke.
5. Remove shipping screws and washers. Switch screws with the two tapered lens handles, utilizing washers, thread handles into lens blocks through the slots.
6. Color Gel Insertion:
 - A. Unscrew four thumbscrews on either side of the color boomerang.
 - B. Lift boomerang off. Position it upside down, control levers facing you.
 - C. Raise the left-hand (operator right) gel holder and lower all the others.
 - D. Use the ring as a pattern to cut gel. Darker gels should be put in left-hand (operator right) gel holders.
 - E. Insert gel, cover with ring and secure with three clips.
 - F. Lower left-hand (operator right) gel holder and raise next one.
 - G. Repeat steps D to F. To access the bottom gel clip, raise all the gels to the left or right and lower the one being worked on.
 - H. As you move toward the right hand gels (operator left), insert progressively lighter colors. The left-hand (operator right) holder should be used for deep blue or purple gels. This will prolong their life.
7. Place the color boomerang on the bottom of the Mighty Arc Series II/S with the lever handles facing the other operating controls. Secure with four thumbscrews near the top of the boomerang.
8. Insert the three control handles (steel shaft with ball knob) into the slots at the top middle of Mighty Arc Series II/S. The handles screw into threaded holes which can be seen through the slots.
9. Remove rear cover. Remove four thumbnuts on rear cover and lift it straight up.
10. Unscrew three thumbscrews on lamp plate. Position lamp (not included) inside ring on lamp plate. (See diagram on page 8 for correct lamp positioning). Snap fiberglass plate over base of lamp. Mount lamp plate back onto three posts.
11. Replace rear cover and thumbscrews.
12. Connect to 120 Volt 60Hz power line. Turn power switch to middle position (lamp blower & gel fan only) be sure both are operating properly, before flipping switch to upper position to strike lamp. The lamp should strike within 15 seconds and warm up to full output within 60 seconds. If power is interrupted, bulb will go out. Allow 75 seconds for re-strike. Use middle (fan only) position of power switch before re-strike to cool lamp.
13. Dowser, iris and clipper are controlled by the ball knobs on top.
14. The lens control handle is set for desired throw by sliding it forward for a narrow beam (long throw) or rearward for a wide beam. It may be locked in place by turning it clockwise. Do not over tighten!

COLLAPSIBLE BASE ASSEMBLY INSTRUCTION DIAGRAM

Applicable on Model MTA/2/S-120/HST only.



1. Insert casters into base legs.
2. Insert leveling jacks onto base leg extension feet. Secure with 3/8-16 hex nuts.
3. Insert bolt through hole "A" on the main base tube. Place nylon washer on the bolt. Position hole "A" on the base leg over the bolt in the main base tube. Slide the base leg over the bolt and secure with nylon nut.
NOTE: Nylon washer should be between base leg and main base tube. Nylon nut should be secured on inside of the base leg. (See diagram above).
4. Insert pin into hole "B".
5. Repeat steps 3 and 4 for remaining base legs.
6. For storing or transporting base:
 - a. Remove pin "B".
 - b. Rotate leg around lock nut.
 - c. Align pin hole with hole "C".
 - d. Snap pin into hole "C" securely.

CONTROL DESCRIPTION

1. POWER SWITCH
Control power to ballast and fans.
Down – Off
Middle – Fans Only
Up – Strike Lamp
2. FUSE
3AB 7amp
3. LENS CONTROL
Changes image size. Turn handle clockwise to lock and counter-clockwise to unlock. Slide handle forward for smaller image, spot distribution, long throws. Slide handle back for larger image, flood distribution, short throws.
4. TILT LOCK KNOB
Friction lock for vertical tilt of unit.
5. DOWSER
Mechanical dimmer. Open when lever is moved towards operator.
6. CLIPPER
Open when lever is moved towards operator. Masks spot to rectangular strip.
7. IRIS
Controls size of image. Opens widest when lever is moved towards operator. **WARNING:** Iris left in closed position with dowser open for extended time may cause damage to iris leaves.
8. COLOR CONTROLS
Gel is inserted in beam when lever is moved up. Six controls.

FOLLOWSPOT OPERATION

1. Connect to 120 Volt 60Hz power line. Turn power switch to middle position (lamp blower & gel fan only) be sure both are operating properly, before flipping switch to upper position to strike lamp. The lamp should strike within 15 seconds and warm up to full output within 60 seconds. If power is interrupted, bulb will go out. Allow 75 seconds for re-strike. Use middle (fan only) position of power switch before re-strike to cool lamp.
2. To maximize lamp life turn Power switch to fans only (middle position) for at least 1 minute after each use.
3. Dowser, iris and clipper are controlled by the ball knobs on top.
4. The front lens control handle (on lower side) is set for desired throw by sliding it forward for a narrow beam (long throw) or rearward for a wide beam (short throw). It may be locked in place by turning it clockwise. Do not over tighten!
5. The rear lens control handle (side of unit, near middle) is used to obtain the desired focus, soft or hard edge. Slide it forward for wide beam (short throw) or backward for a narrow beam (long throw). It may be locked in position by turning clockwise. Do not over tighten!
6. To obtain desired throw at a given distance, both lenses must be moved. Lens position may be chalk marked on the side

OPTICAL SYSTEM OPERATION

I. SET UP AND FOCUSING

1. Turn power switch on (upper position). Lamp should strike within 15 seconds. Wait 45 seconds for lamp warm-up.
2. Move iris, dowser, and clipper controls to extreme right hand position (viewing the unit from the rear).
3. Move front lens forward for spot and rear lens rearward for spot distribution and vice versa for flood distribution. Position can be chalk marked on side of chassis near handle set.
4. Close down the iris by moving its control handle left.
5. Focus may change slightly with iris closed. Best focus setting is with iris half open.

II. BEAM CONTROL

1. The dowser is a mechanical dimmer. The rear control handle is moved left to close and right to open the dowser.
2. The clipper shapes the image to a strip or rectangle of variable height. Move the middle control handle left to close and right to open the clipper.
3. The iris provides a 6 to 1 change in image diameter. It is controlled by the front handle, left to close and right to open. The brightest spot is obtained with the iris open and the lenses adjusted for the largest spot desired. Smaller spots are ob-

TECHNICAL DATA

I. LAMP

The Mighty Arc Series II/S uses a Osram HTI 400w/24 lamp or equivalent. This is a 400 watt high luminous vapor discharge lamp utilizing a short light-arc with exactly adjusted metal halides in the envelope. It is mounted in an integral pre-focused dichroic reflector. The arc operates at 55 volts. The lamp current is 7.3 amps. A ballast is used to operate the lamp from standard 120V, 50/60Hz power. Replacement lamps are available from Osram lamp distributors as well as from Phoebus Manufacturing.

Lamp life is an average of 250 hours in normal use. The life depends on the burning time per start. Lamps burned for several hours per start will last longer. Operation for less than 15 minutes per start is not recommended. An hour meter is mounted on the housing to keep track of lamp life (or rental usage). Lumen loss occurs typically at end of life and the lamp will fail to start. Another end of life symptom is arc swirl or flicker in the projected image.

Occasionally, a new lamp may exhibit this problem. Return such to your Osram distributor for exchange.

Color temperature is about 5600° Kelvin (white) but may vary somewhat from lamp to lamp.

In handling the lamp, avoid touching the quartz arc tube. Use the outside of the reflector or the porcelain base. If the arc tube is touched, clean it with alcohol or freon before use to prolong lamp life. There is no hazard in handling the lamp, since high pressure is present only when the bulb is hot. Due to the small arc chamber, these bulbs present no explosion hazard in contrast to xenon and other high pressure lamps.

The lamp is cooled by a blower located below the lamp. This blower is essential to lamp operation. Improper cooling will cause decreased life and arc instability or color shift.

The HTI 400w/24 requires a warm up time of 45 seconds to provide full light output. If power is interrupted while the lamp is running, the arc will extinguish. Avoid hot re-strike. This will reduce lamp life. Flip the power switch to middle position and allow lamp to cool before re-striking.

II. ELECTRICAL

The Mighty Arc Series II/S operates on 105 to 125 Volt 50/60 Hz AC. Present models draw less than 5 amps, starting or running, at high power factor. An electronic ballast is used to supply the lamp with proper starting and running voltages and currents.

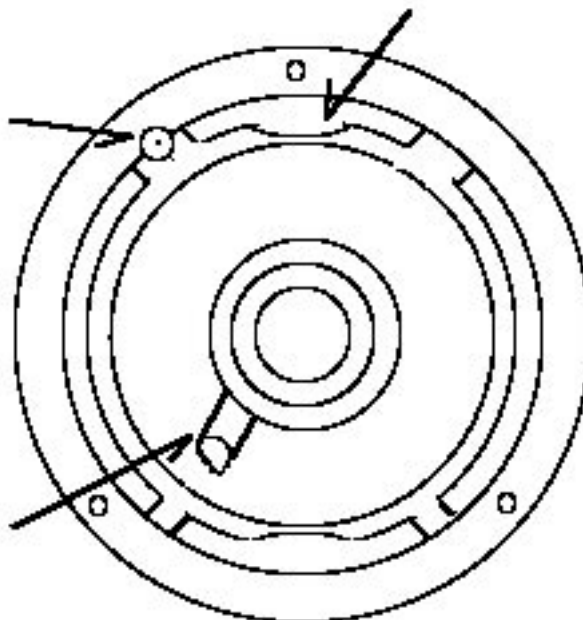
MAINTENANCE

I. LAMP INSTALLATION

1. Turn Power Switch to Off position and unplug unit from power source.
2. Remove four thumbscrews on rear housing.
3. Lift rear housing up to remove.
4. Unplug lamp connector.
5. Unsnap fiberglass plate from base of lamp. Do not unhook springs.
6. Lift lamp straight up and out of its holder.
7. Position lamp inside ring on lamp plate. (See diagram below for correct lamp positioning). Snap plate over base of lamp. Mount lamp plate back onto three posts.
8. Plug lamp connector in.
9. Plug the Mighty Arc Series II/S in and turn power switch to on (upper position).
Lamp should strike within 20 seconds and warm up within a minute. Set the lenses for a narrow spot (long throw position). Observe the distribution of the light across the area illuminated. The brightest point should be in center. If it is off to one side, remove rear cover and proceed to adjust the 3 lamp adjustment thumbscrews on the rear of the lamp bracket, one at a time, to center the pattern. **WARNING:** Do not look directly at running lamp. These lamps emit dangerous ultra-violet radiation. We recommend wearing clear or tinted safety goggles when making lamp adjustments.
10. Replace the rear cover. Replace the four thumbscrews.

NOTE: To prevent lamp breakage during long shipments, removal and separate packing of the lamp is recommended.

II. LAMP POSITIONING DIAGRAM



III. LENS CLEANING

1. Remove front and rear housing to access all lenses for cleaning.
2. Clean all lenses using glass cleaner and a soft, lint-free cloth.
3. To access all surfaces of the dual front lens system, remove the four bolts from second lens (not mounted to the lens block). Clean first lenses (front and back). Clean second lens front and back. Replace with the four bolts.
4. Slide rear lens forward and clean both surfaces.
5. Replace front housing and secure with thumbscrews.
6. Replace rear housing and secure with thumbscrews.

IV. HOUSING REMOVAL AND LUBRICATION

1. Remove rear housing (see lamp change procedure).
2. Unscrew the three control handles on top of unit and remove.
3. Unscrew the thumbscrews on the front housing.
4. Tighten vertical tilt lock knobs on either side of yoke (unit will be unbalanced with housing off).
5. Grip housing at front and rear top edges.
6. Lift straight up until front lens is cleared, and remove.
7. Wipe all four bearing shafts with a clean cloth dampened with light wax or light lubrication (WD-40). Avoid excess wax.
8. Operate front and rear lenses forward and back to distribute wax.
9. Replace housing, holding front and rear. Guide over lens and line up front of housing and bulkhead of chassis.
10. Guide rear of housing down and align with thumbscrew pems on the chassis rails.
11. Replace thumbscrews.
12. Insert and screw in three control handles.
13. Replace rear housing (see lamp change procedure).
14. Tighten all the thumbscrews down.

V. TROUBLESHOOTING – LAMP AND BALLAST (ELECTRICAL)

1. If blower fails to run, check power and fuse. Replace fuse with 7 amp 3AB fuses.
2. If blower runs and lamp does not strike.
 - A. Check that the lamp connector is firmly seated in its socket. If so, the lamp may have reached the end of its life. Replace the lamp.
 - B. If the new lamp does not strike, check line voltages. Lamps may not start with power line below 105 volts.
 - C. If the above measures have not been successful, the ballast is probably defective. Call your distributor or Phoebus Manufacturing for further assistance.

Replacement Parts Price List:
MTA IIs-120 NST, MST, HST
MTA IIs-220 NST, MST, HST

D = Dowser
I = Iris
C = Clipper

\$30.00 Minimum order. Prices subject to change without notice.

Stock#	Description	Set	List	Stock#	Description	Set	List
External Parts				Internal Parts Cont.			
			\$				\$
3000	Chassis	1	306.00	3111	Iris Clipper Bracket	1	87.00
3001	Housing	1	224.00	3112	Lower Clipper Jaw	1	34.00
3002	Rear Housing	1	65.00	3114	Upper Clipper Jaw	1	34.00
3003	Front Bulkhead	1	152.00	3115	D/C Swivel	1	28.00
3004	Rear Bulkhead	1	165.00	3116	D/C Swivel Washer	1	3.00
3005	Guide Handles	2	89.00	3117	D/C Connecting Rod	2	30.00
3006	Bail	1	59.00	3118	D/C Spacer Bar	2	23.00
3007	Ballast Cover	1	170.00	3119	D/C Slide Retainer	2	23.00
3008	Ballast Stand-off (long)	2	29.00	3120	Front lens Bracket	1	65.00
3009	Ballast Stand-off (Short)	2	29.00	3121	Front lens Plate	1	51.00
3010	Switch Guard	1	18.00	3122	Rear Lens Bracket	1	45.00
3011	Base legs Medium Duty	3	139.00	3123	Front Lens Block	1	54.00
3012	Insert Tube Medium Duty	1	41.00	3124	Rear Lens Block	1	54.00
3013	Base Tube Heavy Duty	1	135.00	3125	Front & Rear Rail Bracket	2	44.00
3014	Base Leg Heavy Duty	4	246.00	3126	Iris Mount Clip	3	13.00
3015	Yoke	1	186.00	3127	Front & Rear Lens Bearing	4	35.00
				3128	Lens Rod	2	49.00
				3129	Front Lens Washer	8	14.00
				3130	Clipper lens Frame Mt. plate	1	17.00
				3131	Clipper lens Mount Frame	2	19.00
				3132	Relay Lens Plate	1	17.00
				3133	Light Shield	1	20.00
				3134	Rear Lens Clips	4	8.00
				3135	Light Shield Stand-off	4	13.00
				3136	Lamp Seat	1	12.00
				3137	Ballast Fan Bracket	1	18.00
				3138	Lamp Socket Holder	1	12.00
				3139	Rubber Light baffle	1	3.00
				3140	Ballast Chassis	1	52.00
				3141	Exhaust Screen Guard	1	11.00
				3142	Intake Screen Grard	1	4.00
				3143	Housing guard	1	5.00
Internal Parts							
3100	Lamp Bracket	1	91.00				
3101	Lamp Adjustment Plate	1	34.00				
3102	Lamp air Deflector	1	19.00				
3103	Lamp Holder Plate	1	33.00				
3104	Lamp Holder ring	1	13.00				
3105	Lamp Spring Anchor	4	28.00				
3106	Lamp Mount Spring	3	8.00				
3107	Lamp Adjustment Washer	3	3.00				
3108	Dowser Plate	1	35.00				
3109	Lower Dowser Jaw	1	33.00				
3110	Upper Dowser Jaw	1	33.00				

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Stock#	Description	Set	List	Stock#	Description	Set	List
Internal Parts Continued				Automatic Color Boom			
			\$				\$
3144	Aspheric Lens Plate	1	33.00	3200	Auto Boom Housing	1	198.00
3145	Standoff .375	4	6.00	3201	Color Frame Ring	6	75.00
3146	Standoff 1.0 D/F	4	6.00	3201	Gel Frame 1	1	34.00
3147	Standoff 2.0 M/F	4	10.00	3203	Gel Frame 2	1	34.00
3148	Standoff 1.250 M/F	4	10.00	3204	Gel Frame 3	1	34.00
3149	Standoff 1.850 D/F	4	10.00	3205	Gel Frame 4	1	34.00
3150	Standoff 3.375 D/F	4	19.00	3206	Gel Frame 5	1	34.00
3151	Chassis Plug 7/16"	2	2.00	3207	Gel Frame 6	1	34.00
3152	Chassis Plug 3/4"	3	3.00	3208	Boom Striker	6	46.00
3153	Chassis Plug 5/8"	2	2.00	3209	Boom Release Lever	1	19.00
3154	Chassis Bushing 3/4"	1	1.00	3240	Boom Bracket Left	1	21.00
3155	Iris	1	165.00	3241	Boom Bracket Right	1	19.00
3156	Lens Rod Brake Collar	4	12.00	3242	Boom Latch	1	33.00
3157	Lens collar Washer	2	4.00	3243	Boom Thrust Washer	7	54.00
3158	Strain Relief	1	2.00	3244	Spring Rod Block	2	19.00
3159	Knurled Thumbnut	3	5.00	3245	Long Boom Spring	6	14.00
3160	Knurled Thumbscrew	3	5.00	3246	Short Boom Spring	1	5.00
3161	Intake Cooling Tube	1	12.00	3247	Boom Cushion	1	11.00
3162	Blower Bracket	1	18.00	3248	Color Brads	18	8.00
3163	Blower Tube Gasket	1	7.00	3249	Color Gel	6	25.00
3164	Nylon Lens Washer	9	2.00	3250	Boom Rod	4	48.00
3165	Front Lens Washer	8	2.00				
Electrical				Electrical			
3300	HTI 400W Ballast	1	1300.00	3306	3-Position Switch	1	20.00
3301	HTI 400W Lamp	1	453.00	3307	Fuse Holder	1	9.00
3302	Gossen Strike Button	1	41.00	3308	Fuse	5	16.00
3303	Terminal Block	1	17.00	3309	Lamp Socket W/leads	1	36.00
3304	Lamp Blower	1	123.00	3310	Line Cord	1	35.00
3305	Ballast Fan	1	79.00				

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MTA IIs-120 NST, MST, HST
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\$30.00 Minimum order. Prices subject to change without notice.

Stock#	Description	Set	List	Stock#	Description	Set	List
Optical				Kits			
3400	Miniscus Front Lens	1	325.00	3600	Standard Hvy Dty Base Kit	1	643.00
3401	Biconvex Front Lens	1	325.00	3601	Standard Base HDWE	1	35.00
3402	Negative Rear Lens	1	152.00	3602	Portable Base HDWE	1	60.00
3403	Clipper Field Lens	1	88.00	3603	Height Collar Kit	1	44.00
3404	Dowser Field Lens	1	88.00	3604	Label Kit	1	48.00
3405	Aspheric Lens	1	123.00	3605	Clipper Jaw Kit	1	58.00
				3606	Dowser Jaw Kit	1	58.00
MISC Parts				Assemblies			
3500	Yoke tilt Handle	2	60.00	3701	Lamp ADJ. Blower Assem	1	448.00
3501	Yoke tilt Handle Knob	4	16.00	3702	Dowser Plate Assembly	1	254.00
3700	Portable Base Assembly	1	774.00	3703	Color Boom Assembly	1	573.00
3503	Control Handle Knob	3	15.00	3704	Iris Clipper Assembly	1	557.00
3504	Lens Handle	2	15.00				
3505	Thumbscrew	14	10.00	220 Volt Option			
3506	Small brake Washer	2	4.00	3800	220 Volt Transformer	1	45.00
3507	Medium Brake Washer	2	5.00				
3508	Lens Handle Washer	2	4.00				
3509	Height Collar	1	31.00				
3510	Height Collar Handle	1	18.00				
3511	HST Caster W/Brake	4	80.00				
3512	HST Leveling Jacks	4	34.00				
3513	MST Caster W/Brakes	3	54.00				
3514	User's Manual	1	N/C				
3515	Road Case	1	*				

WARRANTY CARD

Please Print

MODEL NUMBER(S) _____

SERIAL NUMBER(S) _____

DATE OF PURCHASE _____

PLACE OF PURCHASE
(DEALER NAME) _____

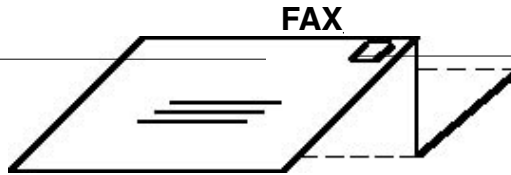
USER'S NAME _____

COMPANY NAME _____

STREET ADDRESS _____

CITY / STATE / ZIP _____

TELEPHONE _____



Please fold along the dotted lines and staple
with return address on the outside as shown above.
Thank you!

Place
Stamp
Here

PHOEBUS MANUFACTURING
2800 THIRD STREET
SAN FRANCISCO, CA 94107

ATTENTION: WARRANTY DEPARTMENT