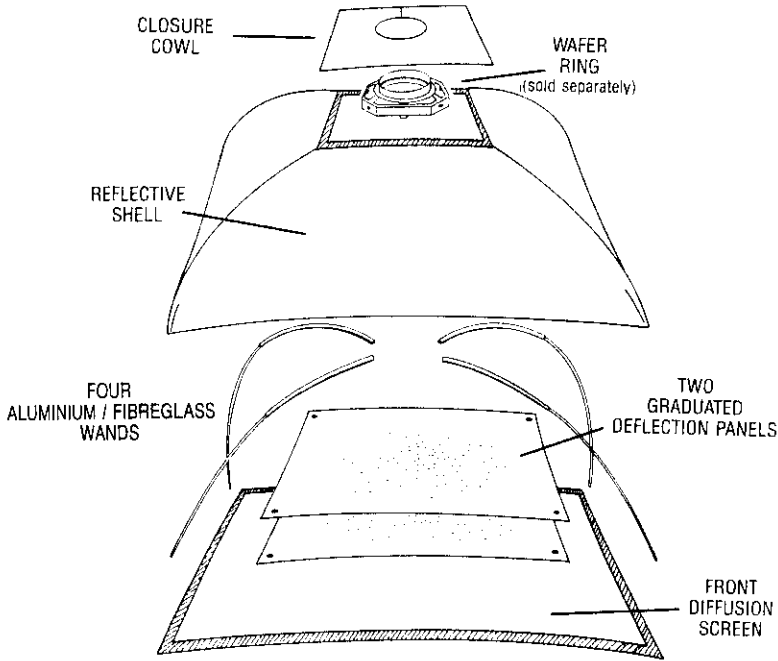
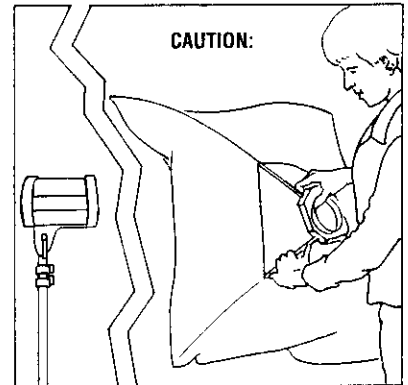


Wafer Diffusion Bank Instructions

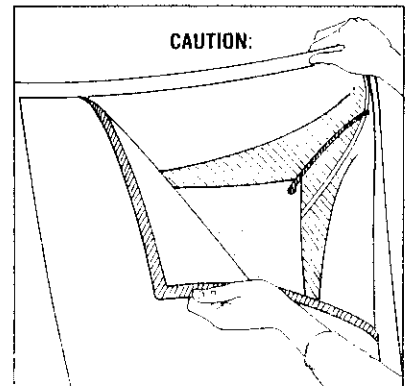
(American Version 10/91)



- 1. The Wafer Ring - its features - specific flash head attachment - additional notes / 2
- 2. The Wafer Bank - Basic Assembly and Disassembly - Additional notes for: - Wafer 200 - Wafer HexOval - Wafer Strip / 5
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- 5. Some Questions Answered - Why lightbanks - Umbrellas vs light banks - Wafer vs others - Best size and shape for subject - Strip Banks - B+W vs Color Contrast Changes -.One Bank Portrait / 12
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WAFER Wands should be inserted into WAFER Ring before attaching WAFER Ring to light housing. (Step A2)



When removing the Front Diffusion Screen, take care to pull on the Velcro strip and not on the screen itself. (Step D2)

BRIEF INSTRUCTIONS

Assembly: a) Each of the four wands should already be installed into the four inside corner pockets of the reflective shell and should always remain in the pockets when disassembled.

b) Insert aluminium ends of the four wands into the four holes in the Wafer Ring using last the Special Tension Release Notch indicated by a red dot. (And first during disassembly.)

c) Attach Wafer Ring to reflector supports on specific flash head.

d) Snap Graduated Inner Baffle No. 1 or No. 2. onto the inside elastic bands. Each baffles changes the evenness of the front diffuser You may also choose to use neither baffle or, rarely, both together. Make tests with meter.

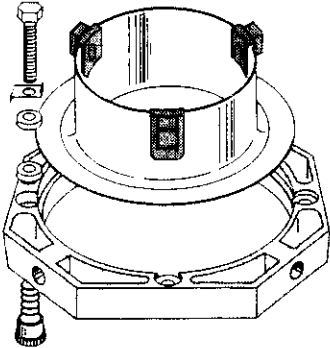
e) Place Front Diffuser into position. Secure corners first, then close sides.

f) Place Closure Cowl around flash head and Wafer Ring to close rear opening.

Disassembly: reverse the above sequence. If difficult, see page 5

DO NOT DISASSEMBLE BY PLACING WAFER ON THE FLOOR.

Section One— The Wafer Ring



Additional Wafer Ring notes:

Placement of nuts- We prefer "thumb" nuts placed "inside" the lightbank (nut against metal), you may prefer them "outside" the bank (nut against nylon washers). As you choose.

Chimera Banks on Wafer Rings- Works well though sometimes the rounded end caps of the Chimera support wands may allow the wands to slip out at an inopportune moment. We suggest "sharpening" the caps to improve their "grip".

Chimera Rings with Wafer lightbanks- Not an intended match. The Wafer wands are a larger diameter than Chimera wands and will become jammed into the bottom of Chimera's wand holes. Also the "exit" angle of Wafer wands will be more extreme than intended for the reflective shell making disassembly very difficult. If you must use this combination, open up Chimera's wand holes with a drill and the next larger drill bit- that ring should still work fine with your Chimera lightbank.

The aluminum Wafer Ring serves as the structural basis of the Wafer Diffusion Bank (may also be used for Chimera and Photoflex banks) and attaches the Wafer to the flash head. Each Wafer Ring consists of an outer ring which will support the diffusion bank and an inner adapter ring which mounts to your particular brand of flash head. In most cases, the Wafer Ring has been pre-assembled and attaches to your flash head's reflector support system in the same way as your reflectors attach (See specific notes below). Each Wafer Ring features:

Tension release notch- Note the *red dot* marking one of the four holes in the outer support ring into which you will be inserting the Wafer wands. This marked hole has a special tension release notch at a lesser angle making assembly and disassembly easier. Use this notched hole **LAST** during assembly and **FIRST** in disassembly. (Except the HexOval.)

Rotation- The outer support ring rotates on the inner adapter ring. You adjust the ease of this rotation by changing the tension on one or both of the "thumb nuts".

Interchangable- All our inner adapter rings can be easily removed and exchanged with a different inner adapter ring specific to another brand of flash head. To do this, remove [then replace] the four retention nuts, the bolts and the one of each pair of nylon washers. A 1/8" Allen wrench and a 3/8" socket wrench are helpful in removing the two opposite "lock" nuts.

Specific Notes on Attachment and Special Assembly:

Ascor QC8- Attach as you would a reflector.

Balcar-All models- Attach as you would a reflector.

Bowens-Mono (Older Monolight and "Quadmatic" flash heads- Position adapter ring's flange between the edge of the flash head's fixed reflector and the outer housing, align the two "fingers" with the notched openings in the adapter ring and tighten fingers. Some "Quad" heads have a protective pyrex shell held in position by two spring/hook assemblies which may obstruct the adapter ring's placement. If so, aim the flash head straight up (for gravity) and carefully unhook each assembly, attach the Wafer Ring and re-attach the assemblies.

Bowens-Prolight, Traveller (or Voyager [Bogen]), and 3KHS- Attach as you would a reflector.

Broncolor- Universal (Older light blue flash heads)- Attach as you would a reflector. Note that the diameter of the flange on our adapter ring is slightly smaller than the corresponding flange on your reflectors. This is for easier clearance of the closure lever.

Broncolor Pulso, Flashman, Impact- Attach as you would a reflector as our Bron adapter is made with the same part used on the Bron reflectors. The Broncolor design already allows about 350° of rotation, so you may wish to lock down the rotation of the Wafer Ring by tightening its thumb nuts.

Calumet-Traveller and Series 2- see Bowens-Prolight as above.

Calumet-Series 1- see Bowens-Mono as above.

Comet- When assembled, attach as you would a reflector. Due to shipping reasons, the inner adapter ring comes *unassembled* from the outer support ring. An 1/8" Allen wrench is included, a 3/8" wrench or pliers is also needed to help tighten the lock nuts. To assemble:

a.] Remove the four retention nuts, the bolts and one of each pair of nylon washers from the outer support ring..

b.] Place the inner adapter ring against the four remaining nylon washers with the adapter's flange up and away from, not through, the outer support ring.

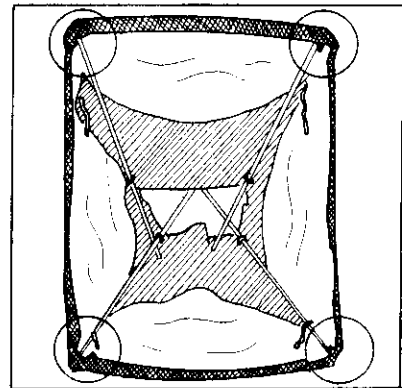
c.] Replace washer, bolts and nuts. Do not tighten "lock" nuts so tightly as to restrict free rotation of the outer ring on the inner ring- use the "thumb" nuts to control rotation.

Dynalite- Position adapter ring against the Dynalite flash head's accessory "boss" (the bump that holds external reflectors, barndoors, etc.). Tighten the three nylon bolts behind this "boss". (We use nylon bolts to avoid marring the flash head, but will substitute steel bolts upon request.)

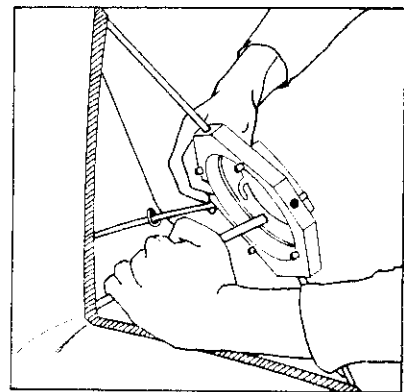
Elinchrom- Attach as you would a reflector and lock bayonet. *Caution.* Older Elinchrom flash heads may not have a locking bayonet. This allows the Wafer Ring to be *unintentionally* removed if rotated the "wrong" direction perhaps "removing" the modeling lamp and flash tube at the same time. We strongly suggest that you obtain the upgrade kit from your Elinchrom dealer.

Norman-LH2000 (older metal flash heads) and LH2400 (new "improved" plastic flash heads)- Attach to the Norman LH2000 as you would a reflector except we

ASSEMBLY:

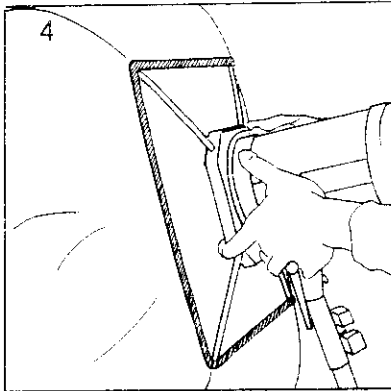


A1) Each of the four wands should be installed into the inside corner pockets of the Wafer Reflective Shell.

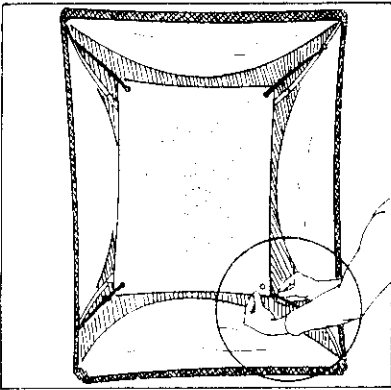


A2) Insert aluminium ends of the four wands into the respective wand holes in WAFER Ring.

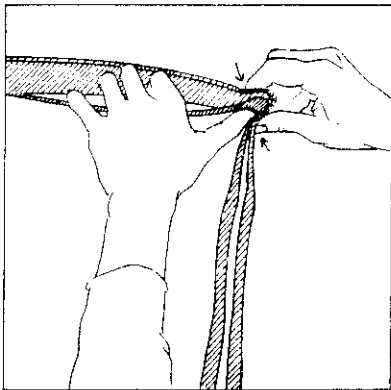
Note: The Special Tension Release Notch indicated on the WAFER Ring should be used last on assembly and first on disassembly.



A3) Attach WAFAER Ring (with WAFAER Reflective Shell) to reflector supports of specific light housing.



A4) SNAP the four corners of Graduated Deflection Panel onto respective inside elastic bands. Printed side of panel (slightly blue halftone dots) should face away from light.



A5) Place the Front Diffusion Screen into position. First, secure Velcro to Velcro into each corner with a good pinch. Then close up the sides, starting in the middle and working into the corners.

Wafer Assembly

use two bolts/bolt inserts instead of the spring pins on the Norman reflectors.

The LH2400 uses two spring metal clips to "bayonet" the reflectors into place— maybe good for reflectors but too light-duty for lightbanks. To replace the upper spring metal clip with the adapter's included support bar:

a.] Remove the round handle and the spring clip from the top of the LH2400.

b.] Position the support bar with its "center" hole pressed down around one of the adapter ring's threaded bolt inserts with the "holeless" end of the bar against the adjoining face of the adapter.

c.] Put adapter ring's "boss" (the "bump" around the inside opening) against the front of the flash head, position the end hole of the support bar over the round handle's threaded hole in the LH2400 and replace handle through support bar.

Note: assembly to the LH2000 *does not use* the support bar and the LH2400 *does not use* the bolts except possibly to retain the support bar

Novatron-Barebulb model— Attach as you would a reflector. Re: Standard Novatron flash head— Its deep fixed reflector is excellent with umbrellas, but inappropriate with lightbanks especially with the "barebulb" Novatron available. The barebulb flash head is a good investment for use with Wafer and many other applications.

Photogenic-heads with removable reflectors Attach as you would a reflector. The Photogenic design already allows full rotation, so you may wish to lock down the rotation of the Wafer Ring by tightening its thumb nuts.

Profoto— As Comet above.

Speedotron-All Blackline and M5 Brownline— Attach as you would a reflector. *Caution:* The Speedotron flash head lacks any bayonet lock. The Wafer Ring may be *unintentionally* removed if rotated the "wrong" direction (possibly "removing" the modeling lamp and flash tube at the same time). Tighten your Speedotron head's bayonet posts and keep the Wafer Ring adjusted loosely to *reduce* this problem.

Sunpak 4000— Attach as you would a reflector.

Venca— As Comet above.

Wafer Ring Only— Attach or interchange any adapter to a Wafer Ring by following the *Comet* instructions as above.

Section Two - Wafer and its Assembly and Disassembly

The Wafer Diffusion Bank is a unique flash head accessory which transforms raw flash into a broad even light better suited to the constraints of film contrast and commercial advertising aesthetics than any similar product available. The Wafer features a very narrow profile, silver with white interior surfaces, a removable front diffusor, a fiberglass closure around the flash head, two graduated inner baffles for contrast changes and a "duffle" style stowage bag.

Assembly of the Wafer Diffusion Bank onto the Wafer Ring is the a simple "pole-in-a-hole" concept- put each of the four wands (the poles) into each of the four holes in the four corners of the Ring. Use the special notched (*red dot*) hole last and make certain each wand is well seated in the bottom of the hole, especially the last notched hole.

Disassembly is a little more difficult than assembly due to the tight fit of the reflective shell on the four wands:

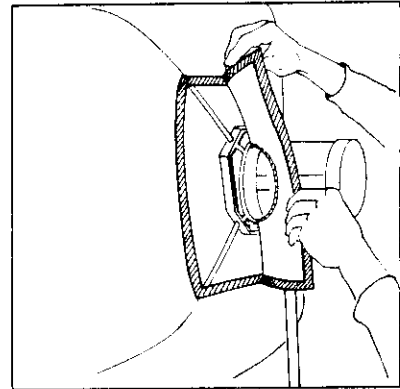
a.] Remove the Wafer from the flash head. And begin with the wand in the notched hole (*red dot*). Brace the Ring opposite this notched hole with one hand and with the other hand, lever the wand back towards your body thus reducing the forward tension between the wand and the inside wall of the hole.

b.] At the same instant the wand is levered backwards, press the thumb against the side of the Wafer Ring to move the wand out of the hole and away from the Ring at least a quarter inch. Let the wand fall into the release notch from which it will be much easier to remove.

c.] Remove the remaining three wands in much the same manner.

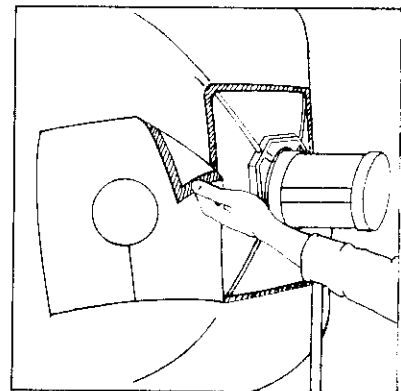
Alternate Disassembly Method #1- Brace the Ring against hip with one hand. Use the entire strength of other hand and arm on wand to lever the wand backwards as above and remove the first wand.

If all else fails, Alternate Disassembly Method #2- Leave Wafer attached to the flash head and the flash head on the light stand. Back the light stand against a wall (table or post). Remove the front diffusor and then baffle from the Wafer. Rotate the notched hole straight down. From inside the lightbank, brace the upper wand with one hand while grasping the lower wand near the Ring hole with the other hand, placing forearm and elbow against the wand. Push wand towards the wall with elbow and

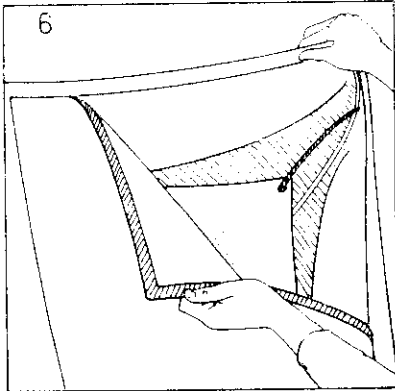


A6) Place Closure Cowl around the Wafer Ring and secure Velcro to Velcro on rear opening.

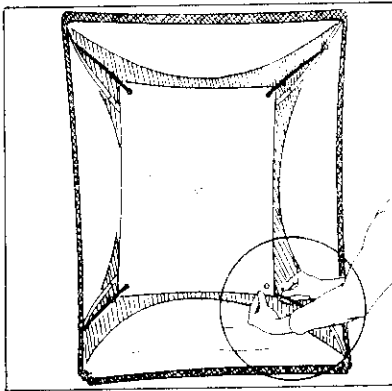
DISASSEMBLY:



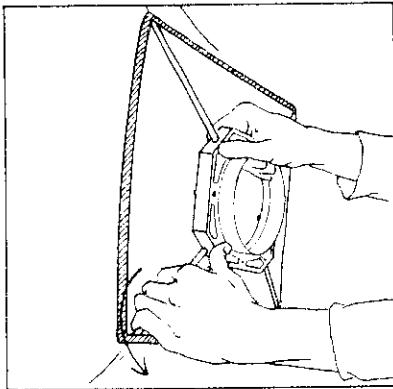
D1) Remove Closure Cowl. You may choose to store Cowl by attaching Cowl to side of rear opening.



D2) Remove the front Diffusion Screen — taking care to pull on the Velcro strip and not on the screen itself — fold and store. SEE OPTION D5



D3) Remove Graduated Detector Panel and restore in clear tube. SEE OPTION D5 BELOW.



D4) Remove WAFER Ring from light housing. Then remove Wands from Ring by pulling back on Wand to release forward tension against inside of hole and at the same time pushing the thumb against the WAFER Ring to slide the Wand out of the hole.

Wafer Assembly

forearm to reduce tension as above while pulling down with the hand to remove wand from hole. Easy! Use caution so as not to damage your flash tube/modelling lamp during this procedure.

Additional Notes for Wafer 200, Strips and HexOval:

Wafer 200— The largest Wafer Diffusion Bank uses a two part aluminum wand to keep its collapsed storage size only 40" in length. (This one meter length is more or less an industry standard, cf: Manfrotto light stands, Gitzo tripods.) The outer (lower) half section of this two-part wand is black in color and pre-bent. This pre-bent section should remain in the corner pockets of the reflective shell and behind the elastic stay provided. Note that one end has a silver insert to join into the inner (top) silver wand section.

To assemble, let gravity help you on this big one— begin with a short 4-1/2 foot side "overhead" and insert each of the straight silver sections onto the black pre-bent sections already in place inside the Wafer. Then, with "everything still up in the air", insert these first two wands into the Wafer Ring. Now add the silver section to the two remaining pre-bent sections down at your knees. Insert the third wand into Ring. Stop to check that first three wands are bending outwards and that each 2-part wand is seated properly into each other and into the Ring. Complete the fourth wand placement in notched hole (red dot).

Disassembly can be accomplished by any of the methods described above, but consider Alternative #2 first.

Wafer Strips The strip diffusion bank is half the width of our standard Wafer Lightbank, but the same length and depth, same baffles and performance. Each Wafer Strip includes a full width diffusor and a half width diffusor to be used individually, that is one or the other but rarely both. Use the full width for linear coverage but lateral contrast— 3/4 portraits, long table top. Use the half width diffusor for long highlights in the subjects. portrait rim light and long narrow subjects.

To assemble the Strip, start by placing the two wands of a short side into the top side of the Wafer Ring. Then complete the third and fourth wand placement of the other end.

Wafer HexOval— The HexOval diffusion bank is a unique oval shaped, six wand bank especially designed

for fashion work and portraits because its oval shape matches the shape of the face for greater highlight-to-shadow modeling. HexOvals also have the best depth-to-light surface ratio making them the thinnest Wafer in the family. Support “widgets”, necessary for the extra fifth and sixth wand, come with the HexOval so that a special Wafer Ring is not required (also longer bolts, lock nuts and an Allen wrench are included with the “widgets”). To attach these fifth and sixth “holes” to the Ring:

a.) Remove two opposite lock nuts (or thumb nuts) and Allen bolts from the Wafer Ring using the Allen wrench included and a 3/8" wrench or pliers. Do not remove the nylon washers.

b.) Align the “widget’s” smaller hole over the bolt’s hole against the nylon washers with the “widget’s” wand hole against the outside wall of the ring.

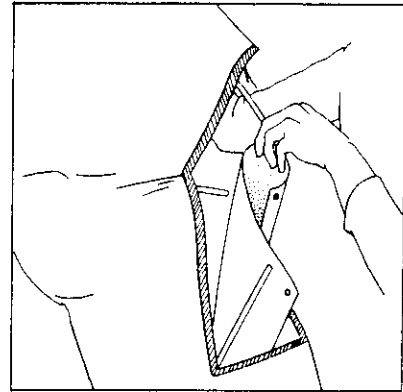
c.) Replace the longer Allen bolts included through “widgets” and replace lock nuts.

Assemble the six wands into the now six holed Wafer Ring. Make certain that the two “end” wands of your oval shaped bank (the fifth and sixth wands) are placed into the holes in the two “widgets”– note the two black retaining loops to help to quickly identify the two “end” wands (vs the other four white loops). For easier assembly, place the “end” wands into the “widgets” last. Placement of the HexOval’s front diffusor begins at these same “ends”, then adjacent corners and finally close up the six sides. To disassemble, reverse the sequence.

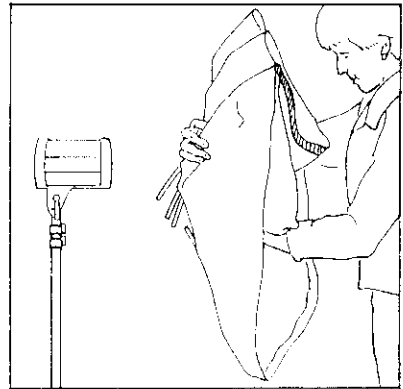
Section Three - Wafer Inner Baffles

Wafer’s two unique inner baffles let you change the difference in measurable light values from the center to the corner (the “hot” spot or lack thereof) across the front diffusor to match your particular need. “Screen 1” has a more translucent graduated half-tone dot pattern printed onto its surface and “Screen 2” has a more opaque graduation. After making your own tests (see margin), you may choose to use either the #1 or #2 baffle singly, perhaps neither baffle, or rarely, both baffles together. Both are color corrected to result in a slight warmth (200°K).

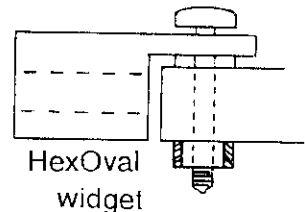
Why Baffles? Different manufacturers’ design of the flash tube and any integrated reflector can greatly vary the way in which the flash is projected within a diffusion bank and whether or not the light values on the front



D5) OPTION to D2/D3 ABOVE: Leave Front Diffusion Panel in place and remove Graduated Deflection Panel through the rear opening and store in clear tube.



D6) Fold WAFER and store with WAFER Ring in Transport Case.



HexOval
widget

Specific evenness- The following guide should serve only as our opinion of expected difference in light values from the diffuser's center to corners.
MAKE YOUR OWN TESTS:

'BAREBULB' Flash such as
Bron Pulso (Swiss), Profoto (Sweden),
Comet (Japan), Speedotron (USA),
Novatron Barebulb (USA)
No baffle-1.3 stop #1-.7 stop #2-.2
stop #1+2-Not Rcnd

FLAT REFLECTOR Flash such
as Bowers Traveller (England), Bron
Impact (Swiss), Elinchrom (Swiss),
Norman LH2000 (USA), Balcar with a
dispersal ring (France).
No baffle-2 stops #1-1.2 stop #2-.6
stop #1+2-.2 stop

CURVED REFLECTOR such as
Bowers Mono (England), Bron
Standard (Swiss), Balcar (France),
Dynalite (USA)
No baffle-3 stops #1-2 stops #2-1.3
stop #1+2-.5 stop

diffusor are relatively even. As an example, certain flash heads offer an extended "bare-bulb" flash tube without any integrated reflector— more light goes into the sides of the diffusion bank than goes straight forward. Conversely, some flash heads use a integrated parabolic reflector behind the flash tube to focus most of the light forwards allowing very little of the light to go into the sides. Between these extremes are most other flash head configurations which use a flash tube positioned against a flat reflective surface so that some light is pushed forward and some light goes into the sides. The Wafer's unique inner baffles "catch" any of these various light projections and change it to match your wishes.

Intended use- Effectiveness of the baffles assumes proper use of the Wafer. Bring the Wafer as close to your subject as possible. Only when a diffusion bank is positioned as close to the subject as possible does light evenness or lack of evenness show itself on the subject. The possibility of closeness is one of three unique reasons to illuminate using a diffusion bank. (The other two reasons are an unobstructed reflexive highlight in the subject and the opaque backing to avoid spill onto other studio objects or flare back into the lens.) If you must use the Wafer at some distance from the subject, say more than the diagonal measurement of the front diffusor, the light reaching the subject will probably already be measurable even with or without the baffles, so you may choose to use the Wafer *without the baffles* to gain the added light efficiency.

Color Temperature- The combination of the various Wafer layers— the silver fabric, white ellipsis, fiberglass cowl, baffles and fabric front diffusor result in a minus 200°K shift in temperature to the warm. As the inner baffles uses slightly blue inks, this color choice is arbitrary. American photographers want a warmer bank, Europeans want one neutral and Japanese want cooler, we kept the Wafer in the middle of the question. Two final notes: a) One size baffle works in all sizes and shapes of the Wafer diffusion banks. b) Color temperature shifts to neutral when #1 and #2 are used together.

Tests- We strongly encourage you to make your own tests. of light contrast and color in order to establish your own guidelines for different subjects and film emulsions. Measure the brightness on the diffusor's surface itself, not some distance from the diffusor where the light values are already mixing. It is best to use a spot

meter or flat incident disk. Measurement of color should be at the diffusor and at the subject.

Section Four.-. Wafer Accessories.

Wafer "Hard" Diffusor-- This optional diffusor uses a translucent plastic material (*Lexan®* or *Translum2®*) in an aluminum frame to create flawless straight edged reflexive highlights in the subject. The Hard Diffusor replaces the Wafer's fabric diffusor. *Translum2* has the same light quality as our fabric diffusor and is about 600 K° warmer. *Lexan* features excellent durability, mimics the light quality of Plexiglas® and is about 700°K warmer than our fabric diffusor. (Unfortunately, all plastic materials we have tested which mimic the light quality of our fabric diffusor, though "reflectively" neutral, are "translucently" warm. If you need a neutral color, both Rosco and Lee offer light blue gels in 200°K increments.)

To assemble, find included: the diffusion material rolled in a cardboard tube; black aluminum frame faced with double sided tape and Velcro® on the outside edge; and four corners to assemble frame.

- a.] Place corners into both ends of the longer frame sides, then connect shorter sides.
- b.] Unroll the diffusion material and the "kraft" paper onto a flat work surface. Use the paper to keep the diffusion material clean. Weight or tape the diffusion material down onto the work surface.
- c.] Completely remove backing of the double sided tape from the frame and slowly place onto the diffusion material— long side first, then short, long, then short. Hint: For better tautness, bow the sides very slightly just as they are attached by pushing on the midpoint of the velcroed edge.
- d.] Press frame and diffusion material firmly together to assure attachment and trim excess material with mat knife. With Lexan: score first, fold over and break excess away.

Notes: 1) *Adhesive failure--* Sooner or later even the best adhesives fail when exposed to heat and UV. We suggest the use of pop rivets in addition to the double sided tape for long term use or when attaching heavier materials to the frame such as plexiglas or Polaroid's polarizer.

Test for contrast and color variations -

Use a single roll of film to eliminate differences in film stock and processing. A short roll is fine— 120 or 135-12. Choose a colorful subject with reflexive highlights if possible. Subject should be about the same size as the diffusion bank you intend to test.

Expose test roll as follows:

[Frm 1.] Direct flash , no diffusion bank.

[Frm 2.] Minus 1/2 stop bracket of Frm 1.

[Frm 3/4.] Flash plus a known and familiar diffuser in a typical position, not the Wafer— use a favorite umbrella, diffusion screen or another light bank, home-made or bought. And -1/2 stop bracket.

[Frm 5/6.] Flash with Wafer with #1 baffle as close to subject as possible. Bracket.

[Frm 7/8.] Flash with Wafer with #2 baffle, no other change. Bracket.

[Frm 9/10.] Flash with Wafer, no baffle, no other change. Bracket.

[Frm 11/12.] Flash with Wafer no baffle, but pull back Wafer at least four times its present distance to subject. Bracket.

Compare results. Is the Wafer warmer than direct flash? Cooler than your previous method? Do you see any difference with or without the inner baffles? Any difference when the Wafer is moved backwards??

2] *Semi-portability*- The Hard Diffusor can travel in a tube by attaching only the long sides (with pop rivets) and using the short sides with corners as “stretcher bars”. Others substitute Velcro for the double sided tape.

Placement in the Wafer- Attach the Hard Diffusor, with the frame side out, to the Velcro of the Wafer's front opening. This is an intentionally tight fit. Hint: Place the frame at least 3/4" into the Wafer's reflector. Get the frame behind the plastic wand tips hidden in the corner pockets as they reduce the size of the initial opening. Close up sides. Possible gaps at the corners due to the wand pockets may be closed by opaque tape placed behind (inside) the frame.

Barndoor- Our “barndoor” is a 6 inch wide scrim made of 5mm Coroplast®. It is reversible black and white- Use the black side facing the diffusor to control (graduate) or eliminate spill of the light onto the background (or lens) or use the white side facing the diffusor to add to the immediate reflective surface. Our barndoor fits both the long or short side of the Wafer Bank and the single Barndoor will travel together with a Wafer in the stowage bag. To install, recess the Wafer diffusor and attach edge of the Barndoor to the front edge of the reflective shell.

Honeycomb Grid- Use of the Honeycomb Grid results in a shielded and more directional diffusion bank. More importantly when used near the subject, a Honeycomb Grid overcomes the Inverse Law of Light to result in better color “saturation” due to a near/far exposure equivalence (See explanation in margin).

Why HoneyComb is worth its outrageous price- Normally a first meter reading at 6 inches from the front diffusor when compared to a reading at 12 inches should be two stop less light (double the distance). And a reading at 24 inches should be two stops less light than at 12 inches and four stops less than the reading at 6 inches. True with the Inverse Law of Light, but not true with Honeycomb- with Honeycomb, all readings would be the same f/stop. Why? The meter at 6 inches “sees” a smaller, though brighter collection of individual cells. At 12 inches, the meter “sees” a numerically greater number cells equal to their reduced brightness. The same at 24 inches. Until the distance is reached where the meter “sees” all the cells, then the Inverse Law takes over again.

A second related difference is honeycomb's challenge to the first rule of broad source lighting- “the closer, less contrast, the farther, more contrast”. Not true with Honeycomb, move closer or farther (until all the cells are “seen”) and the light source stays the same relative size and the contrast stays the same relatively. Both this size equivalence and the exposure equivalence result in improved and unusual color saturation with objects nearer and farther from the light. (Another Honeycomb characteristic is the six sided reflexive highlight from the shape of the collective hexagonal cells- table toppers take note.)

Install the HoneyComb Grid into the Wafer as you would a Hard Diffusion Frame. We recommend attaching a piece of plastic diffusion material to the inside of the honeycomb rather than using the fabric diffusor. Others

photographers use the honeycomb with neither diffusor or baffles, just raw light. Try it, *you* decide which works best for you.

Wafer "Tweak" Filter Kit— is intended to change the color temperature "only a little bit"— about 100° to 150° in the direction of the color of the gel or reflective surface used. Placed *behind* the flash head onto the Wafer's closure "cowl", there is only an influence of color and not the full color of the filter or surface itself. The color mixes against the Wafer's inner baffle so that efficiency and light quality remain largely unchanged. Remember that a Wafer cowl fits any size or shape Wafer.

Hint: To make large and exact changes in color, use full sheets of color gels placed *wall to wall* inside the Wafer.

We have chosen five colors we think you will find as a useful beginning— a blue gel and a blue foil to increase the color temperature by 100° to 150°; an orange gel and a gold foil to reduce the color temperature by 100° to 150°; and a pink to improve skin tones in portraits.

To assemble, find included three color gels, two reflective foils, a paper template and two and a half feet of adhesive Velcro (loop):

1.] Position the gel or foil against the inside reflective surface of the Wafer closure cowl. The die cut gels are *not symmetric*— there is a right and wrong way. Note the nine tabs on the outside edge of each gel.

2.] With mat knife or scissors, cut the Velcro into half inch squares— nine squares per gel.

3.] With the gel or foil laying against the Cowl, attach each piece of Velcro onto the "back" side of each tab between the gel and the Cowl. Repeat with each gel and each foil.

4.] Attach the gel to the Cowl and the Cowl with attached gel onto the Wafer. We suggest you make your own tests with color meter or film to determine the amount of "influence" each surface will have with your particular flash head. Different flash head's tube/reflector configurations together with your choice of Wafer inner baffle will affect the amount of color change (see "Why Baffles?" in Section 3).

Because our choice of colors should only serve as your beginning point, we have included a paper template and extra Velcro so that you can use other colors that fit your particular need. For your nearest cine filter source, see the Rosco and Lee listing in the Appendix or ask your WAFER dealer for the best supplier. Use light colored gels as dark colors seem to have little or no influence. Again, a

World flash manufacturers plus Rosco,
Lee and Polaroid--

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ENGLAND CO15 3RH
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BRON Electronik AG/
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COMET/Koichi Tamauchi
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MULTIBLITZ/Alfred Moberz
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NORMAN/Bruce Belcher
2601 Empire Ave
Burbank CA 91504 USA
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NOVATRON/Jim Gaskin
8230 Moberly Lane
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film test is in order. Make your "with and without" exposures on the same roll of film to avoid differences in film stock and processing variations

Section Five - Some Common Questions Answered

Why use a lightbank? Three important reasons: 1] The clean unobstructed reflexive (incident) highlight in the subject. 2] The possibility of light-to-subject closeness. 3] The lightbank's opaque backing to avoid light spill onto other surrounding objects or flare back into the lens.

Why a lightbank vs. an umbrella? An umbrella is for rain and a light bank for lighting. But seriously, folks! Every possible kind of light has its strengths and weaknesses. No one way is correct for every occasion. There are as many ways to "correctly" light a subject as there are subjects to light. Which is exactly what keeps a good number of different photographers working and, at the same time, keeps a good share of them totally confused.

An umbrella is a large broad source of light and when compared with a lightbank of similar surface area placed at the same distance and position from the subject does results in similar contrast. However, an umbrella's reflective surface is three dimensional (a portion of a concave sphere) sending light in more directions than toward the subject-- great when an umbrella is used with "fill" cards, not so great when shooting in a small green hotel room. A lightbank is a flat, very two-dimensional light source, so that the light is much more directional than an umbrella. Further, an umbrella, due to its pole, must be used some distance from the subject to avoid seeing the pole in the photo. A lightbank can be moved the the very edge of the frame. (Of course, you can get closer with an umbrella by using a "shooting-thru" a tranlucent umbrella, capture the unacceptable "back flash" with a second umbrella, and successfully re-invent the 3-D lightbank--ref: Halo, Brittdome.)

Why WAFER vs. any other lightbanks? First, better light quality which is based on our unique interior surfaces-- the white side ellipsises sewn down onto the silver surfaces. A lightbank with all silver interior results in four bright corners plus a bright center value thus no clear core shadowing, but five shadows. Conversely, all white is too dull. Again, light quality is a question of taste. Which is the

reason for our inner baffle set– to match taste and contrast to subject and texture. Second and the biggest selling reason for Wafer is the thinner profile– better efficiency, stability and mobility. And the more useful design, better physical components and superior workmanship compared to any other product.

What is the best size and shape for a particular subject? If there is a basic rule of thumb, it would be that the optimal size and shape relationship is equal to the size *and shape* of your subject, that is, a standard “breadbox” sized object not larger than 20x30 inches requires a lightbank approximately 20x30 inches– a Wafer 75. A full length photo of five or six people or a table with chairs, then a larger rectangular Wafer 200. For a portrait of a face which is an oval shaped subject, an oval shaped Wafer– HexOval 100 or larger. If a general mix of small subjects– a product one day, two or three people the next, then use a general window light shaped Wafer 100 or 140. And so on. Ofcourse, this is only someone’s current opinion (mine). As the fashions of lighting ebb and flow from hard to soft, it is presently much more a mix of all types of light sources, rules once made, tried and true, should be immediately broken.

What are Strip Banks used for? Wafer Strips are half the width of our regular banks meaning that as “Strips” they are a fairly wide shape. And for that reason, a Strip 140 is excellent vertically for single bank lighting of 3/4 portraits with good head to toe coverage, with better contrast left to right. Or horizontally, for a head and shoulder portrait of several people. The wide strip also makes an excellent portrait fill under or along side our regular banks. Better than a fill card as the power level is controllable. Switch to the second narrow masked diffusor when a long highlight is needed in the subject– a rifle, motorcycle, or portrait edge light or hair light.

Is there a basic one Wafer portrait set-up? Place the Wafer on a stand (or boom) next to camera position. Then rotate the Wafer so that 1/3 of the diffusor is on the farside of the camera axis and 1/3 of the diffusor is under camera axis. Thus fill and form with one flash, one Wafer.

Is there an quick way to change contrast when changing from color film to black and white film? Black and white

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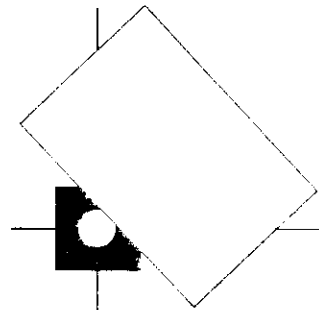
SPEEDOTRON/Armin Lehning
310 S. Racine Ave
Chicago IL 60607 USA
Fax +1 312 421 5079

WHITE Lightning Ultra
Paul Buff, Inc.
2725 Bransford Ave.
Nashville TN 37204 USA
Fax: 615 383-0676

ROSCO- USA made gels
36 Bush Avenue
Port Chester NY 10575
Tel: 914 937-1300
Fax: 914 937-5984
West Coast: 213 462-2233

LEE -- cine gels English made
1015 Chestnut Street
Burbank CA 91506
Tel: 818 843-1200
Fax: 818 954-8520
East Coast: 201 256-7666

POLAROID/Polarizer Division
for direct purchase of
linear polarizing film “HN38”
19x50” at \$100 each
minimum purchase \$200
1 Upland Road
Norwood MA 02062 USA
Tel: +1 617 446 0503
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Wafer Questions

usually needs a little more contrast than color. Without making any other changes, simply open the rear cowl and remove the inner baffle. This should be worth a Paper Grade of contrast.

Appendix-- Glossary of Terms

In attempting to write instructional material to describe new inventions, here are some "invented" word "explanations".

Assembly– To put into working order from a storage configuration. And it is assumed in all cases that "assembly" and "disassembly" can be done by one person.

Diffusion Bank– AKA Light Bank, Soft Box and SoffBox™. All are coinages. The simpler, more logical "Light Box" is not used to avoid confusion with the light box used to view transparencies. George Larson invented the name "Soffbox", a pun on the quality of light intended and the earlier "hard" light boxes made from fiberglass or metal. We have coined the term "Diffusion Bank" in an attempt (to be different and) to be more precise as these light boxes do not produce light, but diffuse it. And remember softness is a warm kitty.

Diffuser– An intentional misspelling to denote the last and final diffusion material through which the light passes from the flash head on its way to the photographic subject.

Flash head– The English and EuroEnglish term for the American "strobe" head. "Flash" is probably a more accurate name as "strobe" is a shorten colloquialism for stroboscopic– great for discos, rare in this trade.

Integrated reflector– The reflector fixed behind the flash tube which cannot be removed. Can be flat or concave, silver or white. Not a reflector which can be added and removed.

Reflexive highlight– The reflection of the light source (here, a diffusion bank) in some part of the photographed subject. Typically the highlight in the subject's eye of a portrait or the highlight a smooth surface of a reflective product.

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and No. 5,023,756

WAFER ≡

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