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B E L L   &   H O W E L L

S T A N D A R D   F I L M   S P L I C I N G   M A C H I N E S

I N S T R U C T I O N S

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O T H E R   " B E L L   &   H O W E L L "   E Q U I P M E N T

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S T A N D A R D   35mm.

Film Perforating Machines  
Studio Cameras  
Portable Automatic "EYEMO" Cameras  
Photo and Projection Lenses  
Continuous Contact Printers  
Non-Slip Sound Printer  
Developing Machines  
Developing Control Instruments  
Film Measuring Machines

16mm. LABORATORY EQUIPMENT

Picture, Optical Reduction Printer  
Sound, Optical Reduction Printer  
Contact, Continuous Printers  
Film Developing Machines  
Developing Control Instruments  
Film Splicing Machines  
Film Measuring Machines

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And a varied line of ACCESSORIES

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16mm. SOUND REPRODUCERS - 16mm. CAMERAS - 16mm. SILENT PROJECTORS  
and ACCESSORIES

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8mm. CAMERAS, PROJECTORS and ACCESSORIES

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B E L L   &   H O W E L L  
STANDARD FILM SPLICING MACHINE  
I N S T R U C T I O N S

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The Bell & Howell splicer has been designed not only to make perfect splices, but great care has been taken to insure the comfort and safety of the operator.

This splicer is very simple to use and will give a long period of satisfaction if treated with reasonable care. The following instructions are outlined in detail to facilitate the proper use of the machine for all types of work.

Connect the heating coil cable (0514. Figure 6), then sit comfortably at the machine, so that the feet can be kept on the pedals - always. Lock pedals in position by depressing the heel of the pedal. Keep hands clear of blades, as much as possible, in case a pedal should accidentally be released. However, even if this should occur, the safety toggle links will prevent injury to the hands. At the same time, even this will be avoided if the feet are kept on the pedals all the time.

Before starting to splice, see that the blades are clean. (Ordinarily, the splicer will be as shipped from the factory. Instructions for changing cutter plates will be found on page Four).

Select the correct type of scraper blade (negative or positive) according to the type of splice being made. Place the blade in the scraper block (0509 Figure 3) and set it on the gauge on the service shelf as shown in Figure 4. Press the blade down on to the guide (#3722) and tighten the scraper block screw. The blade is now set to scrape the film correctly.

#### First Operation

Pull the lock lever (#0516) forward and push back both pedals, allowing them to catch on the splicer base. Place film "B" emulsion side up, in position on pilot, so that frame line is in line between the two bottom blades, as shown in Figure 3. Release the right hand pedal, bringing the right-hand arm and blade (#3404) down. Lock the two right hand blades together by pushing back lock lever #0516. Then push back right hand pedal, lifting both right hand blades as shown in Figure 4.

#### Second Operation

Place film "A" emulsion side up, in position on pilot as shown in Figure 4, so that the frame line is also in line with the right hand end of the



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blade. Release the left hand pedal, bringing down the top left hand arm (#3302).

### Third Operation

Place the scraper block (#0509) on the top left hand blade (#3401) so that the blade can scrape off the emulsion from the exposed strip of Film "A".

### Setting the Scraper Blade

To the left of the service table will be found a gauge on which the scraper blade is set. The scraper block is placed on this gauge so that the blade rests on the little knife edge (#3722, Figure 3). The clamping screw of the scraping block is loosened until the blade is set correctly. It is then tightened to hold the blade firmly in position. When adjusted correctly, the blade will just scrape the emulsion off the film without cutting the celluloid base. To adjust the gauge, turn the screw (#3728) to adjust the knife edge to the correct height.

Place a very small quantity of cement on the scraped film, taking care to replace cork in cement bottle to avoid evaporation and consequent deterioration of cement.

(It is a good idea to fill the small cement bottles on the splicer each morning.)

Use only the best cement, and keep the bottle tightly corked at all times. Special Bell & Howell cements are made for both regular and non-flamable stock.) With the brush, put a small quantity of cement on the portion just scraped.

### Fourth Operation

Release right hand pedal, bringing down both right hand blades as shown in Figure 5. Release lock lever (#0516) by pulling it forward. Wait a second or two and push back both pedals lifting both upper arms. Pull pilot lever (#3405 Figure 3) releasing film. Wipe splice with piece of clean lintless cloth and wipe all blades. Two or more times a day, clean all blades with a little alcohol or acetone. Reverse the scraper blade or use a new one as often as is necessary to scrape the film properly. At the end of the day, disconnect the heating coil and clean the machine thoroughly.

### 35 mm., 16 mm. AND 8 mm. COMBINATION SPLICER

This is shown in Figure 2.

It is used in the same manner as the regular splicers. To set the splicer



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for splicing 35 mm. film, pull back the 16 mm. pilot lever and swing over the little locking piece, as shown in Figure 2. This locks the 16 mm. pilot down flush with the cutter blade.

To splice 16 mm. or 8 mm. film, merely release the 16 mm. pilot lever, allowing the pilots to come up into position.

It is not necessary to retract the 35 mm. pilots when splicing 16 mm. film. This combination 16 mm. and 35 mm. splicer is set to make a regular positive splice .072" wide, on both 16 mm. and 35 mm. film. Special blades can be secured on special order, if splices of any other width are desired.

#### COMBINATION MODELS

Any Bell & Howell splicer can be set to make splices of different widths by changing two or more of the cutter blades. The following table gives the part numbers for these blades:

	Full hole Positive Splice (.156" Wide)	Regular Positive Splice (.072" Wide)	Negative Splice (.030" Wide)
Left Upper Clamp Plate Cutter	3239 #3	3401	3401 #4
Right Upper Clamp Plate Cutter	3240	3404	3404
Right Lower Clamp Plate Cutter	3241	3423	3403
Left Lower Clamp Plate Cutter	3242	3422	3402

The full hole lap splice is listed in the Society of Motion Picture Engineering standards but is not recommended.

Regular positive splices are eminently satisfactory for release prints and allows smoother running of the film over the projector sprockets than the full hole lap.

The negative splice is narrow enough to be unnoticeable in projection but wide enough to give sufficient strength for all ordinary work.

The special negative scraper blade used in the Bell & Howell negative splicer scrapes both ends of the film on a bevel instead of just scraping the emulsion off as in the positive splicers.



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In practice, this gives the greatest possible strength for the narrow width of this type of splice. It is very pliable and runs smoothly over sprockets.

### Splicer Pilot

Positive film is usually perforated with rectangular perforations while negative film is usually perforated to the Bell & Howell Standard perforation. Inasmuch as the rectangular perforation is .005" wider than the standard splicers equipped with rectangular pilots, (part #3821) cannot be used to splice film with Bell & Howell standard perforations.

### Changing and Adjusting Blades

With the exception of the "T" ended blades, the cutter blades can be reversed, thereby requiring a minimum number of regrindings. All blades can be reground many times. This is best done at the factory unless a precision grinder is available.

The blades are fastened on the arms by screws from the back. (The lower, left blade is fastened by bolts). One of the screws will be found to be an eccentric, which is locked by a set screw from the side or from the corner of the arm casting. This eccentric screw serves to adjust the blades so that they just clear each other. When so set, the eccentric is locked by the set screw and the other screws tightened up to hold the blades firmly in position.

### Replacement Parts

Other than scraper blades, replacement parts are very rarely needed. Following is listed those parts that may occasionally need replacement.

<u>Part</u>	<u>Part Number</u>
Positive scraper blade (slanting end)	3429
Negative scraper blade (square end)	3618
Pilot spring	3409
Clamp spring (on leg)	3518
Toggle link spring L. H. (short)	3704
Toggle link spring R. H. (long)	3705
Toggle link auxiliary spring	3729



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### Lubrication

The lubrication of the splicer is naturally of importance in keeping the equipment in perfect operating condition.

Two oil holes will be found on the main bearing of each leg and one on the bearing for each upper arm. These should get a couple of drops of oil once a week.

Also, oil the slide for the toggle link spring (#3705 Figure 6) once a week. A little vaseline should be put on the long pin inside the main clamp springs on the legs once a month. If this is not done, these pins will wear excessively. Once a month, a little oil can be put on the pedal bearing and on the lock lever (#0516) bearing.

Careful observance of these simple instructions will insure high class work over a long period of time.



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# BELL & HOWELL STANDARD FILM SPLICING MACHINE

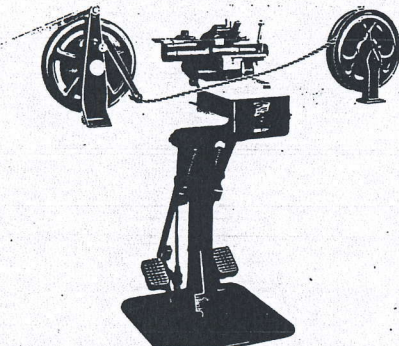


FIG. 1

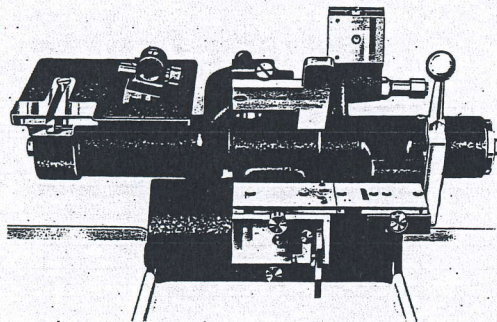


FIG. 2

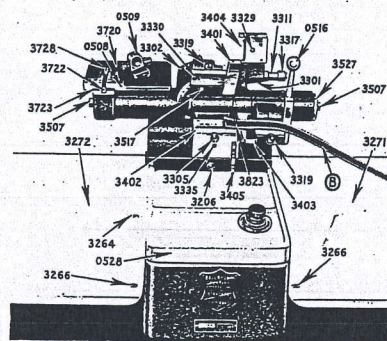


FIG. 3

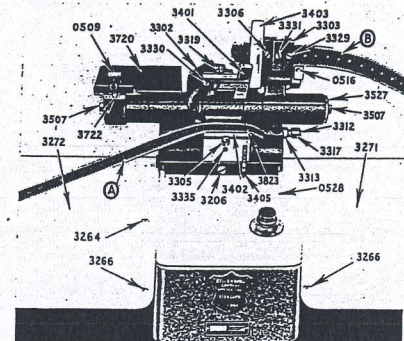


FIG. 4

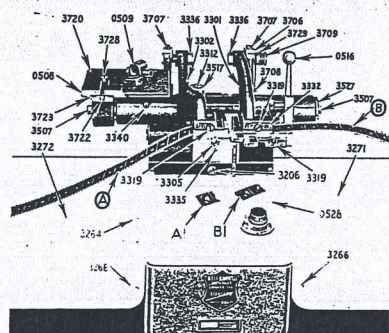


FIG. 5

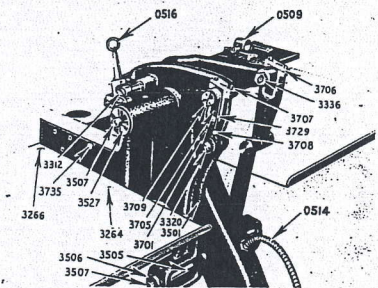


FIG. 6

FIG. 1 - THE BELL & HOWELL STANDARD FILM SPLICING MACHINE WITH REWINDS.

FIG. 2 - THE BELL & HOWELL COMBINATION 16MM & 35MM FILM SPLICING MACHINE,

SHOWING 16MM PILOTS RETRACTED FOR SPLICING 35MM FILM.

FIG. 3 - FIRST OPERATION. FILM B IN POSITION ON PILOTS.

FIG. 4 - SECOND, THIRD & FOURTH OPERATIONS. FILM B CLAMPED BETWEEN UPPER & LOWER RIGHT-HAND BLADES. FILM A IN POSITION ON PILOTS. SCRAPER BLOCK SET ON GAUGE.

FIG. 5 - MAKING THE SPLICE.

FIG. 6 - REAR VIEW OF SPLICER SHOWING SAFETY TOGGLE LINKS.

(MAIN PART NUMBERS INDICATED TO FACILITATE REPLACEMENT.)

## CONDENSED INSTRUCTIONS

SIT COMFORTABLY AT MACHINE - KEEP HANDS CLEAR OF BLADES - KEEP FEET ON PEDALS ALWAYS - USE CORRECT SCRAPER BLADE & SEE THAT CUTTER BLADES ARE PROPERLY ADJUSTED - CONNECT HEATING COIL - PULL LOCK 0516, PUSH BOTH PEDALS TO LIFT UPPER BLADES - PLACE FILM B AS IN FIG. 3 - DROP RIGHT-HAND UPPER BLADE 3404, & PUSH 0516 TO LOCK TO RIGHT-HAND LOWER BLADE - PUSH BACK RIGHT-HAND PEDAL, LIFTING BLADES AS IN FIG. 4 - SET FILM A IN POSITION & LET DOWN LEFT-HAND UPPER BLADE 3401 - SET SCRAPER BLOCK 0509 ON GAUGE & ADJUST SCRAPER BLADE (FIG. 4) - SCRAPE EMULSION ONLY FROM FILM A - PUT SMALL QUANTITY OF FILM CEMENT ON SCRAPPED FILM - RELEASE RIGHT-HAND PEDAL, BRINGING DOWN RIGHT-HAND BLADES (FIG. 5) - ALLOW TWO OR THREE SECONDS FOR CEMENT TO SET - RELEASE LOCK 0516 & PUSH BACK BOTH PEDALS - REMOVE SPLICED FILM & WIPE CLEAN - WIPE BLADES CAREFULLY & CLEAN TWICE A DAY WITH ALCOHOL OR ACETONE.