

## 1: Bell + Howell Vintage Camera Parts & Accessories | eBay

*Here's a How-To thread an 8MM manual-threading projector - get the movie playing and rewinding the film back on to the original spool.*

Ellison ; Updated September 15, Threading any Bell and Howell projector is a simple and easy task. The objective is to thread the film in the projector so that it flows smoothly throughout the entire length of the film without any interruptions. The most common interruption is that the loop in the film is lost causing the film to skip in the sprockets. Swing out the reel arms of your projector. In some older vintage models the reel arms are stationary. Snap the film reel and take-up reel into place. The reels will be rotating in a clockwise direction. This means that, as you look at the reel containing the film, the film will hang out of the right side of the reel. This will enable you to be sure that the film is loaded correctly. To avoid any threading confusion, remember that the reels move clockwise, therefore the film will always feed out of the right side of the reel as you look at it housed on the projector arm. Flip the direction lever to "Forward. Manual Threading Open the first thread sprocket by pushing down on its metal housing. Fit the film perforations over the sprockets and close the housing. Leave no slack between the reel and the first sprocket. Open the lens gate. Leave about an inch of slack in the film by forming a loop in it before it rests over the lamp opening. Close the lens gate. Leave another inch of slack in the film by forming another loop in the film before feeding it into the second sprocket. Open the second sprocket by pulling up on its metal housing. Thread the film into the slot in the take-up reel. You should have enough length of film leader to do this. Turn off the motor and finish threading the film into the take-up reel. The projector is now threaded. Turn on the motor and lamp switches to watch the film. Automatic Threading The setup is the same as the manual setup. Rather than manually threading the projector, simply flip the direction lever to "Forward" and the control switch to "Motor. The film is threaded automatically. The film should automatically be taken up by the take-up reel. If this does not happen, turn the lamp and motor off and thread the film manually into the take-up reel. Warning Never turn off the motor while leaving the lamp on. The heat from the lamp will burn the film in the lens gate. Always turn off the lamp before turning off the motor. About the Author Based in Troy, Mich. Ellison is a cartoonist, artist and writer.

### 2: Bell & Howell |

*Threading any Bell and Howell projector is a simple and easy task. It doesn't matter whether the projector is 8mm or 16mm, manual or automatic threading, the principals are the same. The objective is to thread the film in the projector so that it flows smoothly throughout the entire length of the film without any interruptions.*

What is claimed is 1. In a motion picture projector operable in normal projection modes, in a threading mode and in a film rewind mode, the projector having a film supply to which the trailing end of a film is attached, means for transporting a length of film from the film supply, a film take-up for winding up a length of film, and rewind means for returning the length of film to the film supply, a film threading and rewind conditioning assembly comprising: Apparatus as in claim 1 wherein said film tension sensor includes a finger under which film passes during normal projection modes, said finger being engaged by film responsive to tension when said film transport means of said projector tends to pull the trailing end of the film from the film supply. Apparatus as in claim 1 including means to move said film stripper means and said film drive means sequentially into and out of threading condition. Apparatus as in claim 1 including actuator means for initiating conditioning of said projector for a threading sequence, said actuator means being operatively coupled to said film drive means and said film stripper means to displace same to threading condition. Apparatus as in claim 4 wherein said actuator means is operatively coupled with said film stripper means and said film drive means to remove same to non-threading condition. Apparatus as in claim 5 including means coupling said actuator means with said stripper means and said film drive means for moving said stripper means into threading condition before said film drive means is moved into said threading condition and for moving said film drive means from said threading condition is said same sequence. In a motion picture projector having film supply means to which the trailing end of a film is attached, means for transporting a length of film from the film supply means, a film take-up means, and rewind means for returning the length of film to the supply means, film stripping and feeding apparatus comprising: Apparatus as in claim 7 wherein said actuator means is coupled to said drive means by a lost motion connection. Apparatus as in claim 8 wherein said actuator means is manually operable lever means mounted for pivotal movement, said lever means being in lost motion connection with said film drive means, and being engageable with said link means for returning said film drive means to non-threading condition. In a motion picture projector having film supply means to which the trailing end of a film is attached, means for transporting an elongated length of film from the film supply means, a film take-up means, and rewind means for returning the length of film to supply means a stripper apparatus comprising: Apparatus as in claim 10 including means for biasing said film rewind sensor against movement; and switch means in electrical circuit connection for activating the rewind means of said projector when said film lifts said finger due to end of projection tension on the film. This invention relates generally to a motion picture projector and more particularly relates to a film handling mechanism arranged for stripping the leading end of a film from a film supply means for guiding the film into the projector, and for activating a film rewind assembly when the stripper mechanism is actuated in response to film becoming taut along the film path at the end of a projection sequence. A continuing theme in the development of motion picture projectors has been the reduction of manual manipulations of the film by the user. Although a particular convenience found on present day motion picture projectors is the automatic threading feature, a common approach requires the operator to place the film reel on the projector and manually insert the leading end of the film into a threading mechanism of the projector. From this point in the projector, the film is automatically transported past the projection station of the projector and onto a take-up. A recent development to further reduce the manual manipulations required and to provide for a more desirable storage facility than open reels is in the area of film cassettes. In the individual cassettes, which may be stacked together for film projection in sequence, a reel of film is enclosed, and thereby protected against accumulation of dust on the film. With respect to cassette loaded automatic threading projectors, the leading end of the film is usually wound within the confines of the cassette and must be stripped from the outer convolution of film within the cassette by automatic means before being transported into and through the

projector. It will be appreciated that the film roll on the reel in the cassette may be of any length, between a maximum and a minimum, which the projector threading mechanism is designed to handle. In projectors of the class in question, the stripping process is usually accomplished by a wedge shaped stripper which rides upon the outer surface of the film stripping the leading end from adjacent convolutions. A film drive cooperates with the stripper to force the film along the threading path and into the projector for transport of the film toward the take-up. Generally, a separate mechanism is necessary to sense the tension in the film required for actuation of the projector for initiation of a rewind sequence. Another improvement by which manual handling of film is reduced is the automatic rewind feature by which film is caused to be rewound into the cassette at the completion of a projection sequence. A primary method of causing automatic rewind to be initiated is to attach the trailing end of a film to the supply to cause an increase in tension between the film transport and the supply when the end of a film projection sequence is reached. To reduce the possibility of film damage during high speed rewind operation, the substantially straight line rewind path is desirable to reduce the tendency of film to break under the increased strain caused by pulling the film at higher torques and speeds. The present projector seeks to overcome the separate mechanism required for film stripping and rewind actuation by providing a dual function mechanism arranged for stripping the leading end of a film from the adjacent convolution of a film supply, and for sensing film tension. In addition to stripping film from the supply, the mechanism guides the film into the projector along a substantially straight line threading path. Such a path functions to reduce the incidence of mis-threading and to enable the film to be fed to the projection station of the projector with less probability of buckling than might occur in a threading path having several undulations. From the projection station, the film is transported to a take-up. Alternatively, the mechanism functions as an end of projection sensor as the film transport and take-up cause the film between the supply means and take-up to become taut since the trailing end of the film is attached to the supply. The mechanism is arranged with one portion pivotal about a first axis for forming a film guiding channel to direct film stripped from the supply means toward the projection station when that portion is pivoted about the axis by an elevator mechanism which may be manually actuatable. A second pivot axis enables another portion of the mechanism to be displaced to a film rewind assembly activating position in response to film tension. Following rewind of the film into the cassette or supply means, the mechanism is automatically reconditioned for a subsequent film threading operation. The film stripper and a film drive are coupled to the elevator for sequential displacement to and from threading and non-threading conditions responsive to links and selected springs which cause the film drive to follow the stripper into and out of threading condition. A primary object of this invention is to provide an improved mechanism for stripping a film leader from a reel of film and for sensing the end of a film and actuating a film rewind mechanism. Another object of this invention is to provide an improved dual function mechanism which is manually actuated for threading of film into the projector and is automatically actuated responsive to film tension for activating the rewind mechanism of the projector. A further object is to provide for sequential displacement of the stripper and film drive into and out of threading condition. The above and other objects and advantages of this invention will become obvious from the following description of a preferred embodiment when considered in conjunction with the accompanying drawings. In a known manner, not shown, the trailing end of the film is attached to the hub of the reel. Intermediate the film supply and the film take-up, a film projection station is shown schematically as a lamp 18 and a projection lens. To feed film from the supply 12, a threading mechanism 22 including a stripper assembly 24 and a film drive assembly 26 is movable from a non-threading condition to a film threading condition whereby the leading end of the film is automatically withdrawn from the cassette 12, and fed toward a shuttle 28 proximate the projection station. Powered components of the projector are driven by a drive motor shown schematically at 30, which motor is connected to the components by the usual mechanical connections, represented by dashed lines. After the film has been introduced into the projector, the film transport mechanism or shuttle 28 drives the film toward the take-up along the remainder of a substantially conventional guide path. A puck drive 32 represents a rewind mechanism for the projector. The puck is introduced into the cassette to engage a flange of the reel for rewinding of the film onto the reel after the length of film has been projected. When the end of the film is rewound into the cassette, the cassette may be

replaced for another projection sequence. As shown in more detail in FIGS. During projector operation sequences other than threading, these assemblies are enclosed within the projector housing 42 in alignment with a film access opening 44 formed in the casing. For threading of film into the projector, a cassette 12 is aligned on the casing with the access opening 44 to permit entry of the film threading mechanism into the cassette for engagement of film as shown in FIG. In this embodiment, portions of the stripper assembly and drive assembly are elevated into the cassette by a threading actuator lever 50 having a control button portion 52 extending through a cutout 54 in the casing. The stripper assembly 24 includes a stripper member 56 pivoted about an axle 58 which is mounted on an upper portion of the mechanism support plate. A dual action spring 60 is connected to an end of the stripper member 56 adjacent the axle to bias the stripper member into both non-operating and operating positions, as described hereinafter. Adjacent the operative end of the stripper member is mounted a pointed film separator or nose portion 62 which is held against the film under the biasing of spring 60 when the stripper member is in threading condition. At the juncture of the nose portion and stripper member is carried a roller 64 which rides on film stripped from the supply to prevent damage to the film as it is fed past the stripper member. Proximate the stripper assembly 24, the film drive assembly 26 is mounted pivotably about a shaft 66 fixed in the mechanism support plate. The drive assembly includes a plate-like belt carrier or feed panel 68 on which a pair of pulleys 70, 72 are supported. A drive belt 78, entrained about the peripheral grooves of the pulleys, is arranged to extend beyond the belt carrier to engage film when elevated for a threading sequence. The pulley 70 at the end of the carrier 68 of the drive assembly, proximate the pivot shaft 66, is arranged relative to the carrier so that the belt is substantially enclosed in the carrier and the film is guided on the carrier alone. With the film drive assembly 26 raised for engagement with the film, the leading end of the film is driven against the separator 62 thereby causing that end to be separated from the adjacent convolution. Until introduction of the film into the projection station, the film continues to be driven by the belt along a path between the stripper member and the drive assembly. The threading actuator lever 50 is mounted within the casing of the projector for movement about an axis shown as a shaft. On the end of the lever opposite the externally extending button portion 52, a stud 82 is arranged for cooperation with the film drive assembly. The stud 82 extends from the lever into a slot or receiver 84 formed in the belt carrier 68 as a lost motion connection whereby the lever can move through a limited arc without actuating the film drive assembly. Downward displacement of the lever button portion 52 causes the stud 82 on lever 50 to move up allowing the belt carrier to follow. A coiled spring 86 about a shaft 88, fixed in the mechanism support plate 40, has one end 86a which urges the carrier against the stud. This tendency lift is occasioned by engagement of spring end 86a against a lug 92 which extends from the surface of the carrier into the path of the spring end. Hence, this spring 86 and the lost motion connection allow the belt 78 to engage the film with a force independent of the force applied to the lever. That is, the lever bottoms out before the stud 82 can push the belt carrier against the film. A torsion spring 94 is connected to the lever to bias the lever to a non-threading condition, thereby returning the button 52 of the actuator lever and belt carrier 68 to its undepressed condition. Upon activation of the threading actuator lever 50, the stud 82 is lifted to engage the belt carrier 68 with the film. As the carrier is raised the spring 86 in engagement with stud 92 is rotated clockwise as shown in FIG. The spring 60 having a U-shaped end 60a looped around the stud 92 causes the stripper member 56 to be moved likewise. That is, as the belt carrier is raised, stud 92 influences the spring 60 to rotate the stripper member into engagement with the film before the movement of the belt carrier is complete. After threading of film is complete, the stripper is biased by the spring 60 against the film. When the actuator lever is released for movement to the non-threading condition, the carrier and therefore the stud 92 cause the springs 60 and 86 to be displaced for movement of the components to which they are connected. A film guide return link member 96 is actuated simultaneously with the return of the threading actuator lever 50 and the film drive assembly 26 from their respective threading conditions. The other end 86b of the coiled spring 86 is connected with an end of the return link member to one side of the pivot axis 98, on which the link member is mounted. As the stud 82 on the lever 50 is lowered, the initial movement is in the free path within the slot, followed by engagement with the slot perimeter walls to lower the carrier. Thereafter, the stud engages the link member 96 to positively displace the member to a non-threading condition. Adjacent the exit

end of the film path formed between the stripper member 24 and the film drive assembly 26, a film guide channel assembly is located. This channel assembly includes an upper channel guide portion which is formed by an elongated ledge portion bent from the mechanism support plate. This ledge portion is substantially planar but terminates with an arcuate film exit end whereby film is turned toward the projection station. To cooperate with this fixed upper channel portion, a pivoted lower channel film guide portion is arranged for movement about a threading position as shown in FIG. By actuation of the threading actuator lever 50, the lower channel portion is permitted to be raised into a predetermined spaced relation with respect to the upper channel guide portion by the lifting of the end of the film guide return link 96 and spring 86b. A finger on the return link extends into a cutout in the lower guide portion to pivot that portion. As seen more clearly in FIG. The lower channel portion is supported pivotably about a shaft defining a primary axis adjacent the film exit end of the channel portion. Carried about the axle is a film roller about which the film passes during normal projector operations. From roller, the film is guided by the arcuate portion of the upper guide channel over the roller, and toward the projection station of the projector. Proximate the film entry end of the film guide channel is positioned a slightly arcuate finger member of a rewind film sensor, under which the film passes upon entry into the film guide channel. The sensor is pivoted about an axis carried movably by the lower channel portion intermediate its ends, and can be rocked as film tension causes the film to lift finger. A coiled spring about this axis has one leg engaging the lower channel portion thereby causing the other leg to bias the rewind sensor to a non-threading position as shown in FIG. Biasing by the latter spring leg occurs as the leg engages a switch contact stud fixed to the sensor member radially of the axis about which the sensor pivots and radially of the axis about which the channel portion pivots. The arrangement of these pivots causes the contact stud on the sensor to move toward a circuit closing condition only when the channel portion is in non-threading condition. To activate the rewind mechanism 32 of the projector, a normally open circuit not shown is provided having a switch arranged to complete the circuit when required. The switch is fixed to the mechanism support plate 40 in the path of the contact engaging member carried by the sensor. When the circuit is completed, the rewind drive of the projector is actuated, in this embodiment, causing the reel drive puck 32 to be lifted from the solid line position in FIG. Also, necessary mechanical connections are made at the same time to cause the motor 30 to power the puck until the circuit is de-energized.

### 3: Bell and Howell Foton camera | www.enganchecubano.com Photography Forums

*HardluckCharlie shows how to Thread, engage, and rewind, a Bell & Howell RA Regular 8mm Projector. This projector or one similar is available on eBay. HardluckCharlie's eBay Seller ID is.*

Our reconditioned units include a 90 day warranty except for bulbs. Extended warranty available at additional cost if desired. Easy loading, late model, loop restorer, quartz halogen watt bulb. Loud clear sound, steady picture. Adjusted to new specs with our 90 day guarantee, an excellent machine Rebuilt with new worm gear and all necessary adjustments. Easy threading Auto Load Easy to use, quiet, solid state, quartz halogen high output bulb. Adjusted to new specs with our 90 day guarantee.. Beautiful brand new projector has been sitting in a warehouse unused. The Singer Graflex is one of the few projectors that has an adjustable pressure plate that helps run warped film, loud sound, steady picture, easy threading. Easy on film, great for viewing archival prints. This might be the last opportunity to get a NEW projector Easy to load, bright steady picture, loop restorer, quartz halogen watt bulb, still function. Lubed and reconditioned to run like new. No front cover, otherwise totally complete. Has a variable speed for slow, fast, or normal projection. Depending on availability, we will supply a reconditioned Bell and Howell or Revere 16mm silent projector with variable speed. These are excellent for viewing your 16mm silent film on the big screen, or for 16mm telecine use. Set up your camera, adjust the speed control so the flicker disappears, and you are making flicker free film to tape or DVD transfers. With our 60 day guarantee against defects Movies to video in one easy step. Also does slides to video, and even pictures to video Optional power supply from Radio Shack required for pictures This unit has a couple nicks in the frosted plastic projection screen.. I would sell this normally for. Fully automatic sprocketed unit. High resolution camera, pixels, lines of resolution. Rebuilt to new specs. A new product especially designed for the TP&#x2013; high resolution camera and mount fits right in the lens barrel. Instant multiplexer and camera all in one unit. Plug in the video out to your VTR and you are recording. The best telecine RCA made. Professionally duplicated, operation and service.. We have the full line of belts for this projector Included is S-VHS out, plus auto white balance. LED light source replaced the old projection lamp. Simply connect to your video recorder, and you will be immediately transferring professional flicker free 16mm optical sound or magnetic films in a jiffy. High resolution chip gives outstanding resolution and clarity. Connect to your analog card in your computer and you will be burning DVDs in no time. Transfers at 24 frames per second, with various computer programs you can reduce the speed to silent 18 or 16 fps for home movie transfer. Unit is thoroughly checked, and was reconditioned as needed. Presently one unit in stock, with our usual 90 day guarantee We have a couple parts machines.. These machines are not runnable. We add S-VHS out and auto white balance. This is the fastest, sharpest lens made by Bell and Howell. Made in Japan, 51mm 2 inch , fast f 1. Accepts Filmovara or scope lenses with proper adaptors. Replace your lens with the sharpest lens you can get for the best, brightest picture you can achieve with a Bell and Howell projector. Same specifications as the Filmovara above.. Filmovara zoom lens for to series bell and Howell 16mm projectors. This lens replaces your present lens Like New zoom lens with a range of 1. For to series. Fits as all EIKI sound projectors. Fits as all ELMO sound projectors. Original equipment Elmo projection lens. Fits all EIKI sound projectors. High quality Eiki super 16 original Eiki equipment Specify your make and model of projector and we will supply the correct adaptor for this lens.. We have one of these fine lenses with an Eiki adaptor Available in Matte white.. Available in Matte white Telescoping aluminum legs are the ultimate in portability, durability, and versatility. Height adjustable from 32" to 56". Removable legs clamp to back of platform, which has a carrying handle. We can supply you with round rubber belt material.. We can also supply you with flat rubber belt material.. When replacing the rear arm fabric belt this should be replaced on the inside arm gear if you have a rubber shoe When replacing the rear arm fabric belt this should be replaced if the rubber has worn off, or the rubber is sticky High quality USA Bristol 6 point Allen type wrench set has all of the applicable sizes plus a heavy duty handle for servicing the to Bell and Howell. Needed to remove worm gears, arm gears, fans, etc.. Models , , , available. New Original manuals from our stock of new Bell and Howell parts. A must if you are doing repairs. Complete assembly, disassembly, lubrication, repair. Most

16mm models from to series. Let us know the model you require Keeps the Elmo running smooth as silk! This is a complete kit of all 4 rollers. Return your worn rollers to us The flat belt system was changed by Elmo to a cogged belt system for better take up consistency. Even with a new flat belt, the rewind will not work properly. The solution is to replace the bottom shaft with a cogged pulley, and use the cogged belt. If your projector has a White, or Dark Gray plastic upper spindle where the reel attaches this new belt will help "take up" issues Improved long life black plastic. For to series.. For projectors with still function the above worm gear can be used.. This part is the drive gear for the bottom sprocket We have new and used parts for the 16mm models to the series. Let us know what you require. Use as a loop or cut to put on a reel.. Specify by part number, or number of teeth, when ordering.. Heavy 12 gauge wire for best audio Neat little pencil size tool with magnetic end. A must for servicing projectors. Keep magnetic end close when removing clips. Catches them from being lost. Retrieve screws and nuts that fall into the projector innards. Great for any mechanic application.

### 4: Bell and Howell Movie Projectors for sale | eBay

*Sound Projector This is the a USA made Bell & Howell manual threading model which is smaller, lighter, and more portable than usual. The sound output is of excellent quality through a large built-in magnetic coil speaker.*

For ultimate economy J. Screened pictures must be steady and flickerless. They must be brilliant, even on the largest of screens that you may have occasion to use. Filmo Projectors ably meet these requirements. These machines are, as they have been for twelve years, generally conceded to be the finest available for showing 16 mm. And the present-day Filmos offer far greater illuminating power than former models. Lamps of , , and watt sizes are now standard equipment. There are other considerations in selecting a projector which are equally as important as the picture quality achieved by a demonstrator. Your projector must be so constructed that it will not only give the desired results when new, but will continue to perform excellently, with constant, uninterrupted dependability, for many years to come. In the two seasons of "A Century of Progress" Exposition in Chicago, a large number of Filmo Projectors were operated continually for ten and twelve hours a day, seven days a week, for ten months. This use was equivalent to showing two reels a day, days a year, for twenty years! Nevertheless, when the Fair closed these Filmo Projectors were still giving the same fine service, the same fine picture results, as they did when origi- nally demonstrated to their users! Your films are often irreplaceable. Your projector must give them every protection from picture surface abrasion and from perforation wear. How Filmo Projectors excel in this respect is explained on the following pages. There are Filmo 16 mm. Projector models to meet every requirement, from the new Watt Model , capable in large auditoriums, to the moderately priced Model S. This booklet describes them all. This and the following page tell what is beneath the surface of a Filmo Projector. The light source is a watt, watt, or watt biplane filament lamp, according to the model selected. The shutter, being of the disk, focal plane type, permits the most efficient placing of condenser and lamp close to the aperture plate. This type of shutter gives the most uniformly bright screen illumination. The lamp is rigidly locked in precisely its correct alignment on the axis of the optical system, as is necessary to utilize its full brilliance. The condenser and reflector are instantly removable, without tools, for the occa- sional cleaning which is required to main- tain their full efficiency. The reflector has an external micrometer adjustment to assure correct alignment and uniform screen illumination, espe- cially advantageous for Kodacolor. The rest of the time the film is held absolutely stationary by side tension springs. Tests prove this 9 to 1 ratio scientifically correct. The low shut- ter frequency usually associated with lower ratios causes flicker. Higher ratios, because of rapid acceleration involved, impose more strain on film perforations. Gear drive from motor to mechanism insures uniform speed and virtual elimination of accelera- tion period with its flicker. Friction type precision speed control, once correctly set, permits stopping and starting without the adjustments fre- quently required with rheostat speed con- trols to provide sufficient motor torque for starting. Side tension springs control the film at the aperture. Surface tension springs, which press on the film emulsion, resulting in scratched film, are not employed in Filmo. Shuttle tooth movement is straight in, straight down, and straight out, so that there is no "sawing" action to cause wear on the film perforations. Sprockets are large, to avoid bending the film sharply. The film travels in a straight line â€” no side twists which might strain the film and tend to open the splices. Air cooling and an automatic safety shutter protect the film fully from heat. Threading takes but a moment, facilitated by large sprockets and independently operated sprocket guards. A touch of the starting button puts the projector into action. Turning a knob tilts the projector to place the picture squarely on the screen. A slight turn of the lens and the focus is perfect. A manual framer per- mits eliminating the visible frame line when projecting out-of-frame prints. Con- trols are spaced to prevent confusion in manipulation, even in the dark. The lamp house has heat - dissipating fins which supplement the cooling action of the forced air draft on the film at the aper- ture and on the lamp. This keeps the lamp within its maximum safe temper- ature, prolonging lamp life. The lamp is removed by holding the coolest section â€” the base. Replacements can be made quickly, without using gloves or tools. At every revolution, vital moving parts of the Filmo mechanism contact oil felts which release exactly the correct quantity of oil. Under average personal use, monthly oiling is sufficient. A guard protects

the film from oil. They are now used by leading automotive manufacturers, and for many years have been standard in Filmo Projectors. Its high heat conductivity results in cooler operation. These accurately machined castings are interchangeable, assuring simple, completely satisfactory replacement in case of accidental damage. The lens and filter assembly and the auxiliary condenser for showing Kodacolor pictures can be added by the owner at any time, without any changes in the machine. The Filmo condenser is instantly withdrawn, by its external handle, for cleaning. The Filmo reflector, too, is easily removable, without tools, for the essential cleaning. A micrometer reflector adjustment, easily accessible, contributes to uniform illumination. Shuttle tooth H moves in a rectangular path — no sawing on film perforations. Cam J imparts vertical movement; cam D imparts in-and-out movement. Only in Filmo is the lamp removed by grasping its coolest portion, the base. Helical gears, necessary for quiet operation and long life, are used in Filmo Projectors. Its great illuminating power recommends it for presentations before large audiences. Its foot film capacity permits a one-hour program without interruption. Its dependability and longevity are assured by the fact that it includes all the time-proved features of design and construction presented on pages one and two. It may be operated on 110 volt, to cycle alternating current or on 220 volt direct current. Add to the above-mentioned basic advantages the distinguishing features presented on the next page, and you have the new Filmo Auditorium Projector. The most powerful light source ever used in a 16 mm. Permits precise control of the current voltage fed to the lamp, assuring maximum screen illumination and permitting reduced illumination when desired and preventing overloading the lamp and the resultant shortening of its life. Adequate for all line currents between 110 and 220 volts. Results in an increase in illumination considerably greater than that attributable to the increase in lamp wattage. Fine optical quality results in sharp focus clear to the corners of the screen. Focusing is made quick by two-speed focusing mounting. The standard lens may be replaced instantly with any one of a full range of extra lenses to meet special requirements, from the 0.5 to 100 mm. Smaller reels, of course, may also be used. Variable resistance unit and illuminated voltmeter are standard equipment on Filmo. Electrical governor permits adjustment of operating speed from 16 to 24 frames per second. Turning a knob at the base front tilts the projector upward; a knob at the rear elevates the rear for a downward tilt. The film take-up spindle is driven by its own independent motor. Take-up tension is correctly regulated for reel size, for alternating or direct current, and for line voltage variations by a rheostat with clearly marked setting points. The take-up motor provides the power for rapid, automatic film rewinding. Illuminates 1 the sprockets and film channel, for threading in a darkened room, and 2 the voltmeter dial. Assure correct operation, preventing the damage which might be caused if incorrect manipulation were possible. Cushions the film take-up tension, preventing sudden jerks on the film if it is left slack when threaded onto the take-up reel. A twin fan, driven by a powerful motor, passes a great volume of cooling air over the lamp. This, with the heat dispersal effected by the finned lamphouse, keeps the lamp at the proper temperature for safe, economical operation. After passing the aperture, the film travels through a film conditioning channel where it is cooled and humidified by a blast of air which has been passed over humidifying pads. Neutralizes magnetic radiations, generated by the motors, which might be picked up by your radio speaker. Dark silver grey crinkle-baked enamel. Fittings are in black and in polished nickel plate. Covered in black fabric leather. Accommodates projector, two foot reels, two foot reels, and extra lenses and lamps. Complete extra equipment for Kodacolor projection. No change in price. This interlocking assures correct operation. Passing in a forced draft over this humidifying unit, cool air picks up moisture and moves on to the film conditioning channel pictured below. In this channel C the film is cooled and humidified after passing the aperture. Below — The Filmo Auditorium Projector case accommodates films and extra lenses and lamps. FILMO Model 16 eii in. M watt projectors of highest quality, at moderate prices. ODELS are new Filmo Projectors which offer a number of decided new advantages. Their watt lamps and high efficient optical systems provide ample illumination for all occasions except where absolutely the maximum possible screen size and brilliance are required, when the Filmo Auditorium Projector see page 3 is recommended. The foot film capacity of Models is sufficient for a one-hour program without a stop for rethreading. For use in the home, school, church, and club, and in halls and auditoriums of moderate size, Models are ideal. Their only points of difference are:

### 5: VINTAGE 'S BELL & HOWELL H CINE/FILM PROJECTOR - \$ | PicClick CA

*From a UK catalogue of , talking about the Bell and Howell Autoload II - "The light source is a revolutionary new lamp, a volt watt Dichroic which incorporates a heat filtering device.*

They have a great selection of used vintage cameras. I went in looking for some negative hanging clips, and a lens cap for my Minolta SR-T I left with those items, plus a new camera. I had been looking to try something different and decided that I wanted to try a 3D or stereoscopic film camera. Not as popular as Realists or Kodak stereo cameras, but well-built. The camera is a rangefinder focus with the film advance knob on the top. A spirit level is located in front of the rangefinder window, with a recessed shutter release button on the front of the camera with a cable release port. The Expo Sure display lets the photographer control f-stop and shutter speed. Using the Expo Sure makes it much harder to incorrectly expose an image. Another great feature is the red dot on the camera below the clear rangefinder focus knob. It indicates the distance of focus. A red line on the focus knob itself indicates the focus distance out to infinity. Two red triangles indicate the closest and furthest points of focus for the f-stop set. Why is this important? To create an effective 3D image, it has to have a foreground, middle ground, and background. Keeping in mind that this is my first attempt with this type of camera, I have two issues with the Stereo Vivid. The first is film loading. I think TDC knew that loading and rewinding film in this camera was going to be an issue for photographers, so much that they actually printed the instructions on the bottom metal plate of the camera. To load film, the winding knob on the right must be rotated to the left until it stops. Next, rotate the middle sprocket, located between the film gates, to the left until it stops. When threading the film from the cartridge to the take-up spool, the film must go under the sprocket mentioned in the previous step. I admit I wasted two rolls of film before figuring out what I was doing wrong. The other issue are the size of the film gates inside the camera. The film gates are the area where the film is exposed, left and right lenses. They are too wide, resulting in images overlapping each other on the negative. I created the images using the free software, StereoPhoto Maker. To view the images in 3D, sit back from your display, keep your head and eyes horizontally level, and slowly cross your eyes. As you cross your eyes, focus on the middle image. The more you focus, and lock the image focus with your eyes, the easier it will be for you to explore the details of the image. If you feel that this is causing too much stress on your eyes, move further away from your display. And despite what your mom said when you were a child, doing this will not cause your eyes to stay this way. Click each image to make larger.

## 6: Bell And Howell Projector User Manuals Download - ManualsLib

*vintage 's bell & howell h cine/film projector - \$ Brand new and unused vintage G B Bell and Howell 8mm film projector model H, made in the U.K. A remarkable piece of equipment for collectors of classic movie memorabilia.*

This is a division of application Ser. What is claimed is 1. In a motion picture projector having a lens defining a projection axis, means defining a film path through the projector and across the projection axis, film supply means including a supply reel from which film is fed to the projection axis, film take-up means to which film is fed from the projection axis, and a film drive shuttle for moving film across the projection axis, the invention comprising: The invention defined in claim 1 wherein said projection includes in proximity of said projection axis a film pressure plate means and film side guide means and wherein said film path control means is effective to enlarge said film path by retracting said film pressure plate means and said film side guide means for engagement with the film. The invention defined in claim 2 further comprising means adjacent said film path and associated with said control circuit means responsive to completion of rewind of the film to effect termination of rewind operation of said projector. The invention relates to a multiple septum magazine and to a projector with which the magazine is usable. Particularly, the magazine is adapted to support several reels of film to enable sequential projection of the films with minimum attention by the operator. The projector includes an automatic control and rewind feature further enabling the sequential projection of a plurality of reels of film. The known projectors, even those of the automatic threading variety, are usually constructed such that following projection of a single film, one or more manual steps must be performed prior to rewinding of the film onto the supply reel. Specifically, when a film has been projected, the operator must clear the film from the guide path, rewind the film onto the supply reel, remove that reel, and replace it with a new reel of film. Thus, several manipulative steps must be performed by the operator between the projection of two reels of film. Other problems which must be overcome to have a successful multiple septum magazine accepting projector include feeding the respective films from the magazine at the desired time, and once the film is projected, rewinding it upon the supply reel, and indexing the magazine to present a new film for projection. To rewind the film onto the supply reel in the shortest possible time requires high speed movement of the film. Normally, without clearing the film from the film path used for normal forward projection, this cannot be accomplished because of the drag developed by the film moving between the film gate and the aperture plate, the drag caused by the side guides and the presence of the shuttle tooth in the film path. Ordinarily, the shuttle tooth must be moved at an equally rapid rate to prevent damaging the film due to tearing of the sprocket holes therein. The present invention attempts to solve these several problems by providing a magazine in which a plurality of reels of motion picture film may be supported relative to a projector capable of sequentially projecting the films. Particularly the magazine incorporates means to permit it to be indexed relative to the projector. It also includes a provision enabling a drive means of the projector to cause the film to be fed through a guide path to the projection area of the projector and subsequently to a take-up means. The projector construction permits automatic rewind of the film after the film path has been cleared to enable relatively free movement of the film therethrough. Film actuated sensors condition the projector for the sequences necessary to automatically controlling the film movement from threading through rewind. This projector includes a novel magazine indexing mechanism which includes a provision which, after a length of film has been projected, automatically indexes the magazine to enable projection of another film and to automatically actuate the projector to project that film. Throughout the projection and rewind sequences relating to a particular film, an end of that film is retained on the supply reel by a novel shock-absorbing unit. An object of the invention is to provide a novel magazine to support a plurality of webs of flexible, elongated material for sequential handling. Another object of the present invention is to provide a multiple septum magazine for holding a plurality of reels of motion picture film for sequential handling, the magazine including means to permit indexing of same relative to the projector. Still another object of the present invention is to provide a magazine having a plurality of septums therein for maintaining a plurality of film within the magazine in spaced relation one to another and being provided with mechanisms to permit indexing

such that each of the reels of film will be sequentially projected. Yet another object of the present invention is to provide a motion picture projector on which a magazine containing a plurality of motion picture films is selectively positioned and each film automatically fed into the machine, projected, and rewound. An additional object of the present invention is to provide a motion picture projector having a mechanism to automatically condition the projector for rewind of the motion picture film. A still additional object of the present invention is to provide a novel mechanism for use with a magazine wherein the film is returned to the magazine upon completion of the projection of a length thereof. Another additional object is to provide a motion picture projector with a novel mechanism to clear the normal film path thereof of normally interfering mechanisms enabling the film to be moved freely along the path. A still further object is to provide a motion picture projector with a magazine supporting portion over which a magazine may be indexed relative to a film entrance path of the projector to permit the respective films in the magazine to be threaded into the projector. Another further object is to provide a motion picture projector which cooperates with a magazine and includes means to sequentially project a length of film supplied in the magazine, means to rewind the projected film, and means to index the magazine when the length of the projected film is returned to the magazine. A yet further object is to provide a novel shock-absorbing unit for a supply reel wherein film breakage is reduced to a minimum. Other objects, features, and advantages of the present invention will become apparent from the following detailed description of certain preferred embodiments thereof taken in conjunction with the accompanying drawings in which: A portion of housing 14 is formed as a support section 18, such as a substantially planar plate, relative to which the magazine 12 is positioned to be moved. A film entrance slot 20 is located in the plate 18 such that a film 22 may be fed from the magazine into a film handling mechanism 24 and onto means for taking up film such as a take-up reel. The film handling mechanism 24, generally located in the projection area, is driven by a motive means such as motor 34 in a conventional manner. Certain components of the film handling mechanism are located adjacent to or normally in a film guide path 36 through the projector. The reel is supported on the projector housing 14, for taking up film in a conventional manner following passage through path. As the film 22 passes through film entrance slot 20 in plate 18, it enters the upper portion of the film path 36 passing between a pair of channel members 40, 42, one of which is pivoted to move about an axis. The channel members have opposing modified "S" mating surfaces. Adjacent the pivoted channel member 42, so as to be actuated thereby, is located a normally open type, microswitch or sensor 48 having a contact member 50 formed as a biasing spring to urge the pivoted channel member into its normal position. The sensor 48 is responsive to the tautness of film in film path 36 and is connected in the operating circuitry of the projector to determine completion of projection of the film and to condition other portions of the circuitry to initiate a rewind sequence of the film. The activation of the sensor 48 occurs when the film becomes taut in the film path and acquires a linear configuration bearing against the movable channel member so as to move same. This tautness is caused when substantially a full length of film on film supply means herein shown as a supply reel 52 to which an end 22a of the film is maintained, has been projected and the film handling mechanism 24 continues to attempt to feed the film through the film path. Below the channel formed by members 40, 42 is positioned the lens carriage-film gate support 54 including a pressure plate 58 and a projection lens. A conventional lens focusing knob 61 extends from support. To one side of the pressure plate is positioned a fixed side guide 62 which normally engages the film. Adjacent the opposing film edge is located a movable side guide 63, which is urged into engagement with the film edge by conventional means. Accordingly, when normally disposed, guide 63 together with guide 62 comprise means defining a portion of path. An inclined flange 64 is formed along the edge of guide 63 remote from the film. Means comprising pressure plate 58 together with an aperture plate 66 defines a portion of path 36 behind lens 60 across the optical axis. Said pressure plate bears against one face of the film for maintaining the other face of the film against said aperture plate through which the light from a conventional lamp not shown, located in lamp housing portion 70, will project the image carried by film 22 onto a screen not shown in a conventional manner. A resilient member 74, such as a coiled spring, is mounted in an operative manner to urge the lens carriage-film gate support 54 into a position aligned on the projection axis of lens 60 with the pressure plate 58 against the film 22, substantially as shown in FIG. From the projection area 24, the film is subsequently fed

to the take-up reel 26 onto which it may be threaded either manually or automatically. The reel is mounted in a substantially conventional manner on a spindle 76 supported on housing 14 and may be driven from motor 34 in a conventional manner. Means for intermittently moving film 22 through the film path in the projector comprises a shuttle drive 80 having a film engaging component such as shuttle tooth 78 for effecting film movement during projection. The shuttle tooth is normally cyclically movable into film path 36 to engage sprocket holes 82 in the film. The shuttle tooth, a shutter 79 and other components of film drive mechanism 24 are synchronously operated by drive motor. A manual advance wheel 84 is mounted on a rotatable shaft 86 to permit manual operation of the shutter 79 and of the shuttle tooth 78 in a conventional manner. Between a stop portion 90 attached to the shaft and one of the lugs 88 is positioned a coiled spring 92 to urge the shaft exteriorly of the machine. The shuttle drive 80 is mounted to be moved by a shuttle control cam 91 fixed to shaft. Longitudinal movement of the shaft, causes similar movement of the shuttle tooth relative to the film path. Thus, the tooth is held out of engagement with the film, when the shaft is held against the biasing of spring. The reversible motor 34 is provided with transmission means which may be in the form of pulleys 93. The transmission pulleys are connected to drive various machine components by belts 96, 98 which respectively ride in the V-grooves of the pulleys 93. A shaft of the motor 34 extends both forwardly and rearwardly of the motor body. The belt 98 on pulley 94 transmits motion to a pulley 99, formed as a rim for shutter 79 thus driving the shutter, shuttle drive 80 and other driven elements operably connected to shaft. On the front end of motor shaft is fixed a clutch member having a friction face. An end flange of the drive pulley 93 cooperates as the other clutch surface when the pulley is moved on the end of shaft and the clutch surfaces engaged. The drive pulley 93 is mounted on drive shaft such that the clutch surfaces are normally loosely engaged so that although pulley 93 is not positively driven, it is rotatable with shaft. Belt 96 is entrained around pulley 93 and another pulley to transmit rotation thereto. Pulley is fixed to a shaft which is supported in a bracket fixed to the housing. A similar pulley is mounted spaced from pulley along the shaft to transmit the drive through a belt for driving a dual rimmed driver roller which comprises means for transferring film into and returning film from path 36 from and to the film supply means. Driver roller is mounted on a shaft which is rotatably supported in a pivoted arm. The end of shaft opposite the driver roller has a pulley fixed thereto. About the pulley is looped the other end of belt. The arm is mounted to pivot on a shaft supported on a bracket, which is preferably attached to the support plate. The end of the arm remote from the driver roller support shaft is attached through a resilient connection to a movable member of a solenoid or other operator mounted on the housing. A stop is adjustably mounted on the housing to limit the movement of the arm when solenoid is inoperative. Movable positioned atop support plate 18 is a preferred embodiment of the magazine 12 in operating position. This multifilm magazine, as seen more particularly in FIGS. These sections are joined together along one longitudinal surface by hinge structure. The sections are retained together when closed by a latch structure, e. An interior surface of the support section is substantially semicircular and has a plurality of relieved portions or grooves spaced apart sufficiently to permit a pair of reel flanges 52a, 52b of adjacent supply reels 52, 52 to seat in the groove without their adjacent surfaces engaging one another. Between each pair of grooves is an unrelieved portion which is of a width a little less than the width of the film 22 to be contained on the respective reels in the magazine. The depth of the groove relative to the unrelieved portions is sufficient to prevent shifting of the reels longitudinally in the multi-reel magazine, but slightly less than the diameter of a "full" roll of motion picture film, e. The interior surface a of the closure section is preferably similarly grooved to form a substantially complete bearing and protective surface for the reels of film therein. A plurality of grooves a are aligned with the grooves of the support section, as the unrelieved portions a are aligned with the other unrelieved portions. It will be readily seen that substantially half of each groove adjacent an unrelieved portion and that unrelieved portion form a chamber or septum for a reel of film. Extending longitudinally of the magazine 12 is a rod having a reduced tapered end and a knob fixedly secured to the end opposite the tapered end. The rod is supported in a pair of semicircular bearing surfaces, a in each of a pair of end plates, a of support section. In the other end plates, a of closure section are formed similar semicircular bearing surfaces, a to retain the rod, and the reels 52 positioned thereon, in position when the magazine is closed. The rod passes through the conventional spindle opening in each reel

The cooperating plates , , a, and a form respective end walls of the magazine. In one end plate, such as a of support section is formed a magazine moving member receiving slot of complementary shape to an end portion of a magazine moving member. This magazine moving member is an elongated normally coiled non-cumulative force type spring. The other end is wound about a rotatable core supported on an upright rod. The rod is fixed in the magazine support plate. The spring is unwound from about core and a torque created therein when the end portion is engaged in slot of the magazine and the magazine is moved.

### 7: 8mm Forum: Bell & Howell DCT Filmsonic Projector

*This new Bell & Howell product is guaranteed to be free from im- High Speed Rewind Button Framing Knob instructions on film threading. Proper Connection.*

Larry Urbanski says that he finds it to be faster to cut the wires to the motor, remove the motor mount screws, and slip the belt over the motor, splicing the wires when done. This saves removing the end panel. Tom Hudgins, a highly respected film collector and dealer, reports that he has had success with cutting the belt and gluing it together. The only adhesive that he found that works is Bondini No. In a pinch, he has been able to fix a loose belt by removing a short length, and gluing it back together. Replacing the belt on a Bell and Howell - series 16mm Projector. I am referring to the plastic case models here, the metal case ones are slightly different. Inexpensive sets of these are available from Max Gain Systems: Be sure to unplug the power cord before opening the case, there are dangerous moving parts and exposed electrical terminals inside. Remove the back, slide it down the cord. Remove the 2 screws from the front plate that holds the end on. Remove the 2 screws from the bottom that hold the end on. On the plastic case models it is convenient to remove the speaker jack to make it easier to move the end out of the way. On Metal case models, it may help to unplug the amplifier. Be very careful when doing this. Remove the 3 screws that hold the halves of the fan cover together. Remove the 2 screws that hold the fan cover to the base. Remove the fan cover. Loosen the 2 set screws that hold on the fan impeller. Note where the impeller sits on the shaft. Work the belt loose from the upper pulley. Pull the belt out through the hole in the fan cover. Put the new belt in the way the old one came out. Work it around the upper pulley. Put the fan impeller back on and tighten both set screws. Put the fan cover back on and tighten all 5 screws. Put the speaker jack back on the plastic case model. On an early metal case model, this might be a good time to replace the. While the cover is off, this is a good time to lubricate the mechanism. Use only white lithium grease on the plastic gears. Replace the end cover and tighten all 4 screws. Replace the back cover and tighten all 7 screws.

### 8: Film-Tech Forum: 16mm Projectors - which one should I buy?

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Commence by turning the arms fully clockwise into the position shown in Figure 5, making sure that the spring belts are correctly seated in their pulleys and are not crossed. Make sure the take-up belt is seated in the guide pulleys. Figure 2A The feed spool arm has two belts, see Figure 2A; that nearest to the arm is the reversing belt RV, which drives the feed-spool as a take-up when the projector is running in reverse. The outer belt RW drives the feed-spool when the projector is being used for rewinding. The Take-up arm has two pulleys: This movement is assisted by slight movement of the Hand Set Knob. A complete study of these instructions is recommended before operating the projector. Make sure that the transformer tapping screw is set to correspond with the voltage of the mains supply in use. The transformer is fitted with a voltage selector panel carrying two tapping screws. The panel is marked volts. One tapping screw must always be in the 0 or 10 volt tapping. When in the 0 tapping the voltage selected is as indicated by the second tapping screw. When in the 10 volt tapping the voltages as selected by the second tapping are increased by 10 volts, i. The life of the lamp can be conserved by utilising a voltage tapping or resistance above that of the mains supply, e. This results in under-running the projector lamp. In order to make certain of the exact voltage of the mains supply it is advisable to consult the local electrical authority, or if this is not practicable to measure the mains voltage with a voltmeter. It is not sufficient to examine the house meter or a lamp in use and take the presumed voltage from these. Plug the 6 ft. Operating from volt Alternating Current Connect projector direct to the mains using 25 ft. In all cases, the resistance unit tapping must be adjusted to correspond with the voltage of the mains in use. The Standard Line resistance unit supplied is suitable only for watt projection lamps; it may also be used with A. Set the switch for the type of current according to your mains supply. No damage will result if the motor is set for AC when the current is DC, but the speed of the motor will be too great to be controlled by the Speed control. If set for DC when the current is AC, sufficient speed cannot be attained even though the speed control is fully released. Two switches will be found on the rear of the base. The projection lamp will not operate unless the motor is running. The projection lamp should be turned off while rewinding to preserve the life of the lamp. The pilot lamp is automatically switched on when it is pulled out and automatically turned off when it is pushed back into the housing. This lamp operates independently of the motor or lamp switch. To replace the pilot light bulb, unscrew the guard by turning it counter-clockwise. Connect the projector to the mains in accordance with the instructions see Preparing to Operate the Projector. With the projector operating and the lamp turned on, loosen the lens locking screw LL, Figure 1, by turning to the left, and slide the lens L forward or backward until the outlines of the frame are sharply defined. Further to sharpen the focus, revolve the lens first in one direction and then in the other. Lock lens in position by turning the tilt adjustment knob. If the projected image is larger than the screen, move the projector closer. If the image is too small, move the projector farther from the screen. Speed Control If the light on the screen flickers, turn speed control knob 7 counter-clockwise to increase the speed. The proper projection speed for silent films is 16 frames per second or just above the point of noticeable flicker. Threading the Film Figure 2. A - gate lever. B - Hand setting knob Figure 3 Figure 4 Place the loaded spool on the spindle of the top spool arm. The films should be wound on the spool with the emulsion, or dull, side out Exception: The films should come off the bottom of the spool as shown and the objects on the films should be up-side down as they pass through the projector mechanism. Lead the film above the roller J, figure 4, and below sprocket S1, Figure 1. Slide the film as far as it will go. Holding the film snugly around the sprocket with the right thumb and index finger, press on tab T1, Figure 1 to open the guard. Pull gently on the film until the perforations seat on the sprocket teeth. Then release tab T1 locking the film on the sprocket. Lift lever A, Figure 2, upward which will open the film gate. Place the film in the channel as in figure 3 and form the first loop, following the loop outline on the side of the gear case as shown in Figure 3, being certain that it is fully seated in this channel. Form the second loop, according to the outline on the gear case, and slip the film over the second sprocket S2,

Figure 4. Again press the film as far toward the projector as it will go and, while maintaining correct loop size, lock the film on the sprocket as for sprocket S1. Close the gate by pressing down lever A as far as it will go. With clutch disengaged turn the hand setting knob B, Figure 2, several clockwise revolutions. This will engage the film with the claw teeth. Should the lower loop slide upward, continue to turn the hand setting knob until the claw teeth are withdrawn when the film may be pulled down to re-set the loop to the outline on the gear case. It is not possible to move the film downward through the gate unless the claw teeth are withdrawn. Again, test the threading with the hand setting knob. The slack in the film should be removed before starting the projector by revolving the take-up spool clockwise. Before Projecting you should be able to answer "Yes" to the following questions. Have you read the preceding instructions? Have you cleaned the aperture and optical components? Are both loops of the correct size? Is the film properly engaged on all sprockets? Is the film gate closed? Is the film properly started on the take-up spool, with all slack removed? Have you tested the threading by turning the hand set knob? Have you learned from the ensuing sections of this manual, how to use the clutch, frame, rewind-run lever and reverse-forward switch? Is the clutch engaged? Projecting Turn on the mains switch, engage the clutch and turn on the lamp. As the first title or picture appears on the screen, carefully revolve the lens, first in one direction and then the other until the title or the picture appears in sharp focus. Lock lens with screw LL, Figure 1. Framing If the picture frame line shows on the screen, turn the framer knob 22 to make the frame line disappear. If the framing moves the picture off the screen, readjust the tilt control. Still Picture Projection To project a still picture, the clutch control lever 34 should be pushed back thus disengaging the projector mechanism. If no picture appears on the screen, the closed section of the shutter is obscuring the light. A small movement of the hand setting knob B, Figure 2, will bring the open section of the shutter into correct position, thus permitting the projection of still pictures. It will be necessary to adjust the lens to focus a still picture. Refocus when motion is resumed. Reversing Always disengage the clutch before changing the film movement direction. The reversing switch 32 is on the rear of the motor housing. Rewinding To rewind the film, lead the end of the film on the lower spool arm to the empty spool on the top arm and fasten to the spool. On the upper spool arm is the rewind lever, see Main Pictures. Do not force the lever if it does not swing easily, but turn the hand setting knob slightly to disengage the gear. Move lower take-up belt on to idler pulley which is the pulley farthest away from the take-up arm. Switch on the motor until it gains speed, then release the clutch, and the film will be rewound rapidly. It can be found on the Main Pictures and Table page. Care and Maintenance of Model Cleaning Optical Parts Before every show, and at any other time that appears necessary, the projection lens and both condensers should be cleaned. Use lens cleaning tissue. The projection lens is removed merely by pulling it forward by the outer lens barrel. The front and rear elements are then accessible for cleaning. If only a slight amount of dust has accumulated on these lenses merely use lens cleaning tissue to remove the dust. The greatest care must be taken when cleaning bloomed lenses to avoid scratching or rubbing the surfaces. Dust may be removed with a soft camel-hair brush applied very lightly and carefully or alternatively lens cleaning tissue may be used with equal care. The same treatment should be given the Magnilite condenser, and the main condenser which are removed from the projector by pulling on the holder handles. Cleaning Film Handling Parts Figure 7 Preparatory to cleaning the aperture open the film gate, remove the lens, and the removable gate shoe. To remove the gate shoe, grasp the metal from F, figure 7, and withdraw. Clean and polish with a soft cloth. If dirt or emulsion has gathered and hardened on the shoe, remove by rubbing with a soft dampened cloth to avoid scratching the polished surface.

### 9: Replacing the belt on a Bell and Howell - series 16mm Projector

*Assistance from the Bell & Howell Industrial Division is available for the solution of special exhibit problems of all kinds. A monograph on experiences with motion pictures at the Century of Progress is available free.*

This has enabled Bell and Howell to provide the Autoload II with a switch for slow-motion projection without the slightest risk of damaging the film due to overheating. To open, simply press down the small button on top of the case and tip the cover off, as illustrated top. Remove the reel from the slot in the projector carton and unwind the power supply cable. I have omitted the instructions on how to connect a plug. Before connection to the mains supply, check to see that the voltage switch is correctly set to correspond with the voltage in use. To gain access to the Voltage Switch remove the Lamphouse Cover 13 by grasping firmly and pulling away from the internal spring clip which secures it to the body of the projector. Before switching on make certain that you replace the Lamphouse Cover. Once the required voltage has been set, further adjustment will be unnecessary unless the projector is used in a location with a different supply voltage. Locate the empty reel on the Take-up Reel 1 arm spindle. The reel will only engage the spindle from one side and must be positioned with the centre slots facing the reel arm. Locate the full reel on the Feed Reel 2 arm spindle. The film should lead off the reel in a clockwise direction with the perforations towards the operator. Threading If your film is being used for the first time or has a ragged end, square off the leader end in the Film Trimmer 14 on the base of the projector. Unwind sufficient film to reach the trimmer making sure that it lies evenly between the side lays provided, until the ragged or damaged end of the film is beyond the trimmer blade. Locate a perforation over the pin provided and trim off, as illustrated. Make sure that the full reel of film is firmly located on the Feed Reel arm spindle before threading. To thread the film into the projector, insert the trimmed end into the threading slot 4 but remember first to press down the Upper Loop Former 3, otherwise if the loop formers are left open the film will only thread as far as the first sprocket. Allow about 2 feet of film to run through the projector. As you pass the film under the Front Guide Roller move the roller to the left, thus releasing the loop formers. Insert the end of the film into the slot of the Take-up Reel then turn clockwise to take up slack film. Once you have mastered the simple instructions above, you will be able to completely thread your projector and engage the film in the Take-up Reel, without stopping the mechanism. As you do this, film tension on the Front Guide Roller will automatically release the loop formers. Before inserting into the automatic Threading Slot 4, ensure that any creases or ragged edges on the end of the film are squarely trimmed off by means of the Film Trimmer attached to the projector base. Check the threading path to see that it is clean and free from pieces of film or accumulated foreign matter which could affect the performance of the projector. It is also recommended that the reel containing the film be closely examined. A bent or otherwise damaged reel is a potential source of trouble. If your projector loses its loop A poorly spliced or damaged film can result in the loss of film loop which is indicated by a pronounced clicking sound at the lens gate associated with picture flutter on the screen. To automatically restore the loop, press down the Upper Loop Former 3 and immediately release. Should this operation fail to restore the loop, it will be necessary to re-form it manually as follows: Open the lens gate and carefully lift out the film from the bottom sprocket. Push back the film, forming a loop to the approximate size shown in the illustration above and engage on the sprocket teeth, making certain that the section of film causing difficulty has cleared the projector. As soon as possible cut out the poor splice or damaged section and re-join the film using a film splicer. The drawings above show how you can identify torn or poorly spliced film. In certain cases, violent movement of the Framing Control 11 may cause loss of film loop. This control should be moved slowly when framing is necessary. Slacken this knob by turning in an anti-clockwise direction until it releases the foot. Lift the front of the projector until the desired angle is reached and re-tighten the knob. If by chance the film has stopped in a position where you do not get a picture projected or your picture is partially blocked, turn the Single Frame Knob 17 slowly; this is located immediately above the Tilt Control Knob. Framing If the picture is cut off at top or bottom, turn the Framing Control 11 in either direction until the complete picture is correctly framed on the screen. Focusing Your projector is equipped with Filmovara lens. The Filmovara lens is variable in focal length between 17 mm. To

operate the Filmovara lens, rotate the knurled section of the lens mount to get approximate picture size, then focus by rotating the front section until the picture is sharply defined. It is possible to manipulate both sections simultaneously with a little practice.

**Automatic Loop Setter** If your film has a torn perforation or a poor splice, it may cause your projector to lose its loop. When this happens you will hear a noticeable clicking sound and your picture will flutter on the screen. Simply press down the Upper Loop Former and immediately release, this will automatically reset the loop without stopping the projector or interrupting your show.

**Speed Control** When first setting your projector it may be necessary to adjust the speed to eliminate flutter on the screen. To increase speed turn the Variable Speed Control in the direction of the arrow. To decrease speed turn the Control in the opposite direction. Note - if the picture flickers on the screen, adjustment of the Variable Speed Control may be necessary. When projecting still pictures a safety shutter automatically drops into place to protect your film from the heat of the projection lamp. Then to rewind, leave both reels in position and connect the film from the take-up reel straight across to the feed reel. Secure the film end in the slot of the feed reel hub and turn in an anti-clockwise direction to take up slack film.

**Maintenance** Your projector is lubricated at the factory and requires no further oiling. We recommend that it be cleaned and adjusted periodically by one of our approved service stations as far as I know, no longer available.

**Cleaning the Aperture and Film Channel** Swing the lens gate out before each showing. With a small brush or piece of cloth gently wipe the aperture and film channel. A rubber ear syringe will be found useful to remove dust or dirt which may accumulate in the upper or lower film guides.

**Cleaning the Lens** To remove the lens simply grasp the lens mount and pull it out with a twisting motion. Clean the front and rear elements with lens tissue or clean chamois, being careful not to exert too much pressure. Replace lens by inserting the mount in the lens carrier and pushing it home with a twisting motion.

**Lamp Replacement** Firmly grasp the Lamphouse Cover and pull away from the projector to expose the used lamp. If necessary, run the projector motor until the lamp is cool enough for comfortable handling. To remove the lamp, grasp the top with your fingers and pull out. To insert a new lamp, align the centre guide pin at the lamp base with the socket within the lamphouse, rotating the lamp as necessary to ensure correct location, before pressing fully into the socket. After insertion of the new lamp, immediately replace the Lamphouse Cover by sliding it over the guides and firmly pressing towards the projector body until it clips into position. Take particular care when inserting a new lamp in the projector to avoid damaging the lamp pins.

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