

# INSTALLATION - OPERATING - INSTRUCTIONS

## CENTURY 70/35 MM PROJECTOR

### MODEL JJ

#### GENERAL

The CENTURY Model JJ 70/35 mm Projector is designed to project either 70 mm or 35 mm width films at 24 frames per second (Standard) or 70 mm films at 30 frames per second (special speed now obsolete).

The changeover from one width of film (70 mm or 35 mm) to another can be made in the CENTURY Projector easily and quickly. Thus a continuous show combining both 70 mm and 35 mm films can be arranged. The actual changeover should be easily accomplished in a minute or less.

The CENTURY Model JJ 70/35 mm Projector basically consists of - A 70/35 mm Projector Mechanism equipped with double rear shutters, water-cooled aperture, a picture changeover and the required conversion parts to run 35 mm films - A Magnetic Penthouse Reproducer with separate magnetic heads for 70 mm film and for 35 mm films - A Standard Optical Reproducer with motor, photoelectric cell, twin exciter lamps and provisions for bypassing when running 70 mm magnetic track films - A pair of upper and lower 70/35 mm magazines - A pair of fire trap assemblies for 35 mm films and extra reel shaft attachments for standard 35 mm reels.

#### INSTALLATION

The equipment should be promptly and carefully removed from the shipping containers on arrival and examined thoroughly for possible shipping damages. The equipment left our plant in good condition and in approved containers and our signed bill of lading from the carrier attests to this fact. Therefore claims for loss or damages to the shipment must originate with you and must be filed immediately with the carrier. Century Projector Corporation can not assume responsibility for shipping damages or loss. If replacements are required for damaged equipment they will be supplied on order and invoiced as new equipment.

The usual Century Projector Corporation warranty applies to all products manufactured directly by us. This warranty covers defects in materials and/or workmanship.

#### MOUNTING THE PROJECTOR

Review these instructions carefully before starting the installation of the CENTURY Projector. Assembling and mounting will be faster and easier when done in proper sequence. NOTE: 35 mm assemblies, flywheels, drive parts, mounting screws and washers included in the shipment and unmounted are packed in individual envelopes and wrappings and clearly coded. On installation check the code numbers with the description of each item as indicated on the PACKING TICKET to be sure all mounting hardware, flywheels, etc., are installed in their proper locations.

The following Allen type wrenches should be available to complete the installation. 5/64" - 1/8" - 5/32" - 3/16" - 7/32" - 5/16" (Width - Across Flats). (The Pad Roller Knob (70/35) employs (2) 6-32 Allen Screws - (1/6" Allen Wrench).

The Optical Sound Reproducer should be attached to the Pedestal first. The CENTURY 70/35 mm Optical Sound Reproducer is exactly interchangeable with the Standard CENTURY Sound Reproducer and mounts on a CENTURY Model C Pedestal using the regular S-6255 soundhead adapter. (Refer to the Installation Chart of a CENTURY C Pedestal with a Model JJ Projector for full particulars).

The Optical Sound Reproducer (Continued) This soundhead adapter is also used with other manufacturers Sound Reproducers; such as Simplex 4 Star Sound, RCA 1000 Series etc. Therefore this 70/35 mm Optical Reproducer will mount in place of a Standard Reproducer and fit most all of the modern makes of Pedestals without changing soundhead supports or requiring special adapters. Make sure the soundhead adapter is securely tightened on the Pedestal before mounting the Sound Reproducer.

Mounting the Optical Reproducer Place a washer (WA-105) on each of the two sound reproducer mounting screws (SC-599) and start the screws in the upper holes in the rear of the sound reproducer. Place the Sound Reproducer in position on the pedestal soundhead support, the screws (SC-599) fitting into the slots at the top of the soundhead support. The two mounting screws (SC-600) and washers (WA-105) are inserted into the lower mounting holes of the soundhead support. Tighten all four screws securely.

The Projector Mechanism is now mounted on the Optical Reproducer with the four mounting bolts (SC-564) (Two on the operating side and two on the drive-side). The Projector Mechanism is equipped for water connectors (C1-T-154) and for 1/4" Hose (Reference Drawing E-1402). It is suggested that the hose be connected and the couplings tightened before mounting the Mechanism on the Sound Reproducer. Century water recirculators (C3-T-360) units available (Extra).

The slight clearance as observed in these bolt holes should be utilized to properly align the Mechanism with the Sound Reproducer making certain the Projector Mechanism is mounted square with the Sound Reproducer. After the proper alignment is made tighten the four bolts securely. The Mechanism as shipped from the factory is equipped with the required Film Gate, Film Trap, Intermittent Sprocket Pad Assembly etc., (marked red) to run 70 mm films. The 35 mm parts are packed separately with the accessories and mounting hardware. The Intermittent Movement should be filled with oil to oil level of window thru the oil cup on the intermittent arm (operating-side). Use genuine CENTURY Projector Oil.

The Magnetic Sound Reproducer is now mounted on the Projector Mechanism - Remove the magnetic reproducer drive-side cover. NOTE AND CAUTION: There is a flexible connecting coupling between the top of the vertical shaft of the mechanism and the bottom of the vertical shaft in the magnetic reproducer. This flexible coupling (CG-629) is made of soft neoprene. Be sure this coupling is in place on top of the vertical shaft in the Mechanism (it protrudes about 3/8" out of the top of Mechanism). Carefully fit the bottom of the vertical shaft of the Magnetic Reproducer into this coupling allowing the reproducer to center itself so that the vertical shafts of both units are in line. Start the four mounting bolts (SC-1520) in the reproducer base and through to the mechanism (Do not tighten). (Two of these bolts mounts from the operating side and two from the drive-side). For the drive-side mounting use washers (WA-83) with two bolts. The Magnetic Reproducer should be aligned square with the Mechanism, the outer surface-edge of the bottom of the magnetic reproducer frame on the drive-side should be exactly in line with the outer surface-edge of the projector mechanism frame, drive-side. Now tighten the two set screws in the flexible coupling securely to the bottom of the vertical shaft of the magnetic reproducer (There are two flats on this shaft to take and hold these screws properly). Tighten the four mounting bolts securely.

Install the picture changeover (J1-A-100) on the rear of the Magnetic Reproducer, drive side, inserting the changeover flexible shaft through the hole on top of the Mechanism (operating side). The changeover shutter is placed in the tracks of the Baffle Plate on the Mechanism and assembled to the flexible shaft and connector. The changeover spacer shim (SM-1556) is placed between the changeover and the Reproducer Frame and the complete assembly is installed on the Reproducer with the two mounting screws (SC-575) and washers (WA-70).



The Magnetic Sound Reproducer (Continued) Install the upper (large) impedance flywheel (WH-205) and the lower (small) flywheel (WH-206) in the Magnetic Reproducer tightening the flywheels securely on their shafts with the screws provided. Be sure the impedance drum shafts and ball bearings are turning freely. Add damping fluid (FD-12) to the Pot from the drive side of the reproducer. Replace the drive side cover on the Magnetic Reproducer.

The Upper Magazine is now Mounted on Top of the Magnetic Reproducer. Before installing the magazine, assemble the shaft unit in the upper magazine as follows - First - disassemble the upper magazine spindle by loosening the screw in the outer lock nut and removing the nut. Take off the small friction collar and spring.

Remove the retaining screw holding the flange and leather washer. Remove the small cone pointed set screw in the magazine arm shaft bearing. Now insert the shaft, bushing and ball bearing unit (from inside the magazine) into magazine arm bearing. NOTE: The counter sunk hole in the bushing. This hole should line up with the hole in the magazine arm. Replace the cone pointed screw in the arm and tighten it securely. Install the flange and leather washer. Replace the retaining screw. Install spring, friction collar and outer lock nut. From inside the magazine install the front reel shaft attachment (large) and secure same on the bushing with its four retaining screws (The small reel shaft attachment is used with regular 35 mm reels). Now screw in the outer lock nut until the desired tension is obtained and tighten its retaining screw. The magazine shafts operate in grease-sealed ball bearings requiring no lubrication for the life of the bearings.

The upper magazine is now mounted on the Magnetic Reproducer with the four mounting bolts (SC-886). Before tightening the magazine mounting bolts be sure the magazine is properly aligned with the Magnetic Reproducer. This alignment can be tested by using a length of 70 mm film threading it from a reel to the first sprocket. It is very important with 70 mm film (increased width) that this alignment be as good as possible.

#### THE DRIVE SIDE AND LOWER MAGAZINE

Mounting the Drive Motor and Motor Bracket to the Optical Reproducer - Remove the drive-side cover of the optical reproducer. The drive motor and motor bracket (R40-260) have been assembled at the factory and the complete unit is mounted to the optical reproducer with the four mounting screws (SC-1553) and washers (WA-218). Tighten these screws securely. Now loosen the four motor retaining screws and shift the motor away from the Reproducer to allow placing the motor belt over the small motor drive pulley (To operate at 24 frames per second). After the proper belt adjustments have been made tighten the four motor retaining screws securely. CAUTION: The belt should engage the pulleys snugly but should not be taut (a too tight belt will "whine"). Excessive slackness of course should be avoided. Pulley alignment should be checked for parallelism so that equalized tension will be maintained in the belt. Reasonable attention to pulley alignment and belt tension will pay off in longer belt life and improved operation. Do not pry or force a timing belt over a pulley flange. DO NOT OIL TIMING BELTS.

The Projector Mechanism Drive Pulley and Flanges (R30-270) may be now installed on to the hub of the main drive shaft in the Mechanism with the three screws provided, making sure that both flanges are installed; (One on each side of the pulley). Place the projector drive belt (BE-707) over pulley (R30-270) and around the lower drive pulley of the Optical Reproducer and adjust the Idler roller until desired belt tension is achieved. For further information on the operating and care of timing belts, refer to the previous paragraph.

The Lower Magazine is now mounted to the Optical Reproducer -- FIRST - Remove pointed set screw in the Magazine arm bearing, drive-side. Insert the take-up assembly through the arm bearing (from the drive-side) making sure that the counter-sunk hole in the shaft bushing lines up with the hole in the magazine arm. Replace the cone pointed screw in the arm, tightening it down so that it seats properly in the counter-sunk hole of the shaft bushing. From the inside of the magazine. Attach the reel shaft attachment (large) with the four retaining screws provided.

Now Mount the Lower Magazine with its offset Spacerblock to the Optical Sound Reproducer with the three mounting bolts provided and at the same time engage the take-up V Belt with the magazine pulley. The two mounting bolts (Allen socket head type) (SC-1549) with the two washers (WA-68) are used to fasten magazine to Reproducer from the operating side and one mounting bolt (SC-598) from the under-side of the magazine on the Drive-side. Before tightening the mounting bolts, align the Magazine and Reproducer as outlined under, "Upper Magazine". The Magazine Shafts operate in grease-sealed ball bearings requiring no lubrication for the life of the bearings. To Adjust the Lower Magazine Take-Up V-Belt - The drive pulley for the take-up belt is mounted on an adjusting arm which also holds the outer ball bearing of the sound sprocket shaft - To adjust the belt tightness loosen the two retaining screws in the adjusting arm and rotate arm in clockwise or counter-clockwise direction until proper tension is obtained. Tighten the two retaining screws securely.

Install the Impedance Flywheel (WH-72) on the drum shaft of the Optical Reproducer, hub of flywheel facing in. Tighten its fastening screw securely. Replace the Drive-side cover on the Optical Reproducer. Add damping fluid (FD-12) to the damper pot of the Optical Reproducer (Operating-Side).

After the power connections are made to the motor, the electrical connections for the picture changeover and pilot lamps and the sound amplification wiring has been completed the Projector is ready to operate.

#### NOTES - (Operation and adjustments)

Unlike any other Projector, attention should be called to the tensions as adjusted by the factory. It is equal and opposite to the average pull of the film through the Sound Reproducers. Therefore the sprocket pulling the film out of the upper magazine and holding the film back at the lower magazine are for all practical purposes only Idler sprockets and therefore contribute no excessive pulling on the sprocket holes of the film. Accordingly greater tensions (not recommended) could be used in the Century Projector without film damage.

Observation of the projector will disclose that the film traps, film gates, intermittent sprocket pad assemblies, fire trap rollers have all been color-coded; "RED" to refer to 70mm films and "GREEN" for 35mm films. All sprocket pad roller assemblies have both a 70mm and 35mm roller and the knobs are marked "70-35" for fast and accurate changeover.

The magnetic reproducer is equipped with two separate pick-up heads - one for 70mm, 6 channel reproduction - one for 35mm, 4 channel reproduction.

The film gate pad pressure has been properly set at the factory and should be entirely satisfactory for most all conditions of film. It is therefore suggested that no change be made in these adjustments unless absolutely necessary. It is desirable to operate with as little pressure as possible on the gate pad and still maintain a steady picture. The lighter the pressure the less wear on the pads, sprockets etc.



NOTES: (Operation and Adjustments) (Continued) The tension adjustments of the shafts for both the upper and the lower magazines are changed in the usual manner by loosening the screw in the outer lock nut and tightening (increased tension) or loosening (less tension) the lock nut on the shaft. Lock these nuts by tightening the retaining screws after the correct tension is obtained.

Lubrication and Maintenance - Use Century certified Projector Oil in the Intermittent Movement - oiling through oil cup in arm (operating side). Once a month a few drops of oil in oil cup of Double Shutter Bracket (Drive-Side). A recent production revision eliminated this oil cup - To lubricate the reverse double shutter gears add a little white petroleum jelly with the finger tips from the bottom open side of the double shutter intermediate shutter bracket where one of these gears is exposed. Add a little white Petroleum Jelly to all gear contacts (all units).

Rollers, Sprocket and Driving Shafts (all units) operate in oil-less Bushings and Grease-Sealed Ball Bearings requiring no lubrication.

Use Century damping fluid in the Damper Assemblies of the Magnetic and Optical Reproducers. Check damping fluid in assemblies about once a month and add fluid when necessary. The Film Trap and Film Gate should be removed regularly and cleaned thoroughly. The Film Trap shoes and Film Gate pad should be kept cleaned making sure all deposits of dirt and film emulsion are removed. Lateral guide roller should turn freely and studio guides positioned properly to take all conditions of films. It is suggested that the gate pad and trap shoes be lightly lubricated after cleaning for a smoother and quieter running of the film. It is good mechanical practice to periodically check your equipment to be sure all retaining and fastening screws, in nuts, collars, pulleys, gears, couplings etc., are tight and have not worked themselves loose.

Threading charts for all films and other general instructions on Century Projectors are included with these instructions.

#### OPERATING - INSTALLATIONS

##### The Film Traps - (70 MM - 35 MM)

To Remove the Film Trap from the Mechanism - Loosen the Knurled screw (Red or Green) and slide the film trap straight out of the Mechanism. To re-install the Film Trap reverse the procedure sliding the Film trap all the way in on its water cell and tightening the retaining knurled screw.

To File the Aperture Plates - The plates for cooling purposes have been designed with increased thickness. Therefore after the plates have been filed to the proper requirements it is suggested that a 30 degree bevel be filed around the aperture opening with the sharp edge toward the film. This will eliminate any "Fringe" which may occur around the picture. After filing it may also be desirable to paint the bright surfaces with a dull black enamel to stop all reflections.

##### The Film Gates - (70 MM - 35 MM)

To Remove the Film Gate from the Mechanism - CAUTION AND NOTE The Knurled screw (Red or Green) on the film gate is for adjusting the pressure of the gate pad and is not to be touched when removing or replacing the gate assembly in the Mechanism. The Film Gate should be in its open position - Now remove the film trap from the Mechanism - Swing the film gate outward and upward releasing the lower and upper gate plate studs from their supports on the Lens Mount Tube. To re-install the film gate in the Mechanism - Hold the Film Gate in a straight vertical position carefully slide-in the gate, first re-engaging the upper stud in its support, allowing the stud to seat all the way down in the support and swinging the gate downward re-engaging the lower stud in its support (all the way in).

The Film Gates - (70 MM - 35 MM) (Continued)

Replace the film trap assembly in the Mechanism and tighten its retaining screw. Close the film gate making sure the gate pad is properly operating in its "IN" and "OUT" position between the studio guides and that the Lateral Guide Rollers are turning freely.

THE INTERMITTENT SPROCKET PAD ARM ASSEMBLY (70 MM - 35 MM)

To Remove the Intermittent Sprocket Pad Assembly from the Intermittent Movement. Frame the Intermittent Movement to its Mid-position - The lower sprocket pad roller arm should be in its open position - The Intermittent Sprocket Pad Arm Assembly should be in its open position - Pull the Pad Assembly straight out, being careful not to hit or damage the Intermittent Sprocket teeth. To re-install the Intermittent Sprocket Pad Arm Assembly - Hold the assembly with the slot in the stud on top and the Pad in its open position - Insert the Assembly all the way in its bearing. It may be necessary to turn the assembly back and forth a little until the spring and plunger unit locks the assembly properly. (Caution and Note: Do not loosen or tighten the retaining screw for this spring when re-installing pad assembly) Close the assembly to make sure it is in proper alignment with the Intermittent Sprocket.

THE LENS MOUNT (70 MM - 35 MM)

To set the Lens Mount for the proper Film (70 mm - 35 mm) - Loosen the clamping nut of the 70-35 setting (selection) Knob at the top of the Lens Mount. The Knob is set in position for running the required film by turning knob either clockwise or counter clockwise until the proper designation (70 or 35) is shown. (The Knob has detent stops when in position). The Knob locking nut is then tightened securely. For long anamorphic lens attachments, special front supports are available; Reference: Century drawing E 1582-1.

UPPER SPROCKET PAD ROLLER ARM

After threading the film with the proper upper loop (2 fingers) rotate the Pad Roller arm until the proper roller is against the sprocket for running the selected film. The knob (70-35) should be in its Horizontal position with the proper designation right side up and closest to the sprocket.

LOWER PAD ROLLER ARM

Lower Pad Roller is opened by pushing the bar-knob (70-35) upward. The proper pad roller is set in position for the selected film by turning knob until correct designation is right side up. Bring knob downward placing pad roller against sprocket. The bar knob will be in a Horizontal plane with the proper designation closest to the film sprocket.

PILOT LAMPS

The Projector Mechanism is equipped with two pilot lamps. The framing lamp (at the film trap) and the Mechanism threading lamp (above the lens mount) are individually controlled by two separate switches mounted on the front of the Mechanism.



ADJUSTMENT OF PAD ROLLER ARM (ROTATING TYPE) (J1-C-10)

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TO CORRECT FOR LOOSENESS OF PAD ROLLER ARM (ROTATING TYPE) - NOTE: The special design of this arm protects the pad roller and studs from loosening or becoming detached from the assembly as to cause any film damage or adverse operating condition. This pad roller arm may be removed from the mechanism or Magnetic Reproducer\* by taking out the three holding screws (SC-1492) from the retainer (RT-211). This allows the assembly to be removed. NOTE: The small center pin (stud) (SU-1490) acts as a pilot to hold the pad roller studs and plates (J1-C-11) in position on the assembly. Loosen the two Allen set screws (SC-873) in outer bushing (collar) (BU-714). The SC-873 is 8:32 screw requiring a 5/64" Allen wrench. Hold the SU-1490 stud and pad roller stud retainer against the bushing (collar) pushing them together rather strongly because of the necessity of pressing against the spring tension of the 2 balls and springs in the outer bushing which seats in the detents of the pad roller stud retainer.

TO REPLACE THE PAD ROLLERS - The pad rollers are removed by loosening the two Allen set screws (SC-882) in the 70-35 Bar Knob and pulling the knob off. This will allow the pad rollers to be taken off their studs. Always remove and replace the 70mm and 35mm rollers together. The knob employs two 6:32 Allen screws (1/16" Allen wrench).

TO RE-INSTALL PAD ROLLER ARM IN THE PROJECTOR - Place the assembly into position on the mechanism or Reproducer frame inserting the three holding screws in its retainer fastening it to the frame - DO NOT TIGHTEN. The pad roller arm should be installed on the main frame with the flats of the retainer and the bushing facing toward the sprocket. Turn the knob to its 70mm position against the sprocket. Place two thicknesses of 70mm film over the sprocket. Push pad roller assembly gently against the sprocket and now tighten the three holding screws securely. The pad rollers (70mm & 35mm) are now properly in contact with sprocket for running 70mm or 35mm films.

\* J1-C-10 now used in R31 Magnetic Reproducer (Recent Production Change).

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