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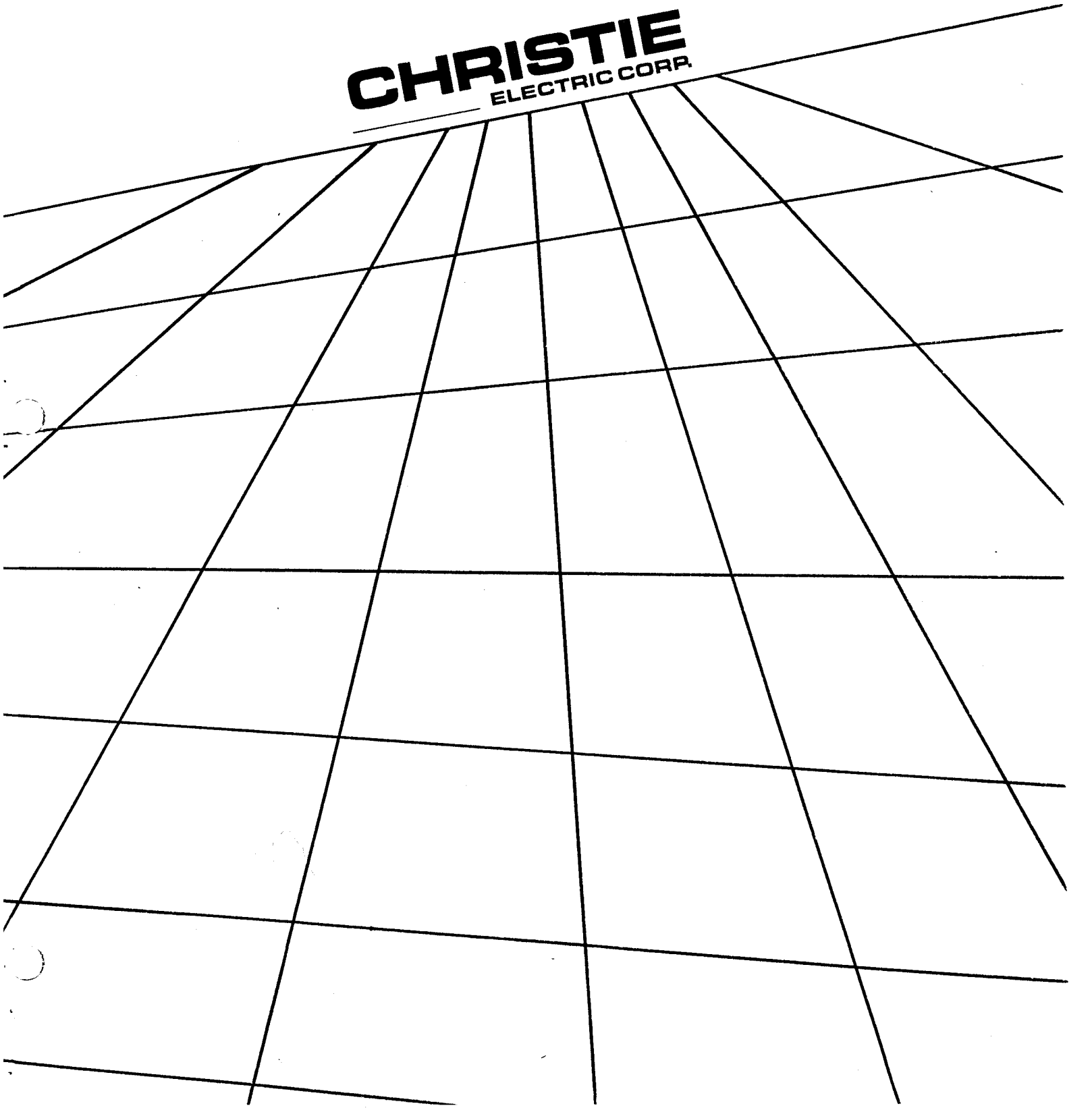
OPERATOR'S MANUAL
AUTOWIND 2
FILM HANDLING SYSTEM
TD-194



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I. AUTOWIND II FILM HANDLING SYSTEM, DESCRIPTION

The Autowind 2 Film Handling System is a highly reliable, easy-to-operate film handling system which automatically rewinds film as it is being projected, thus eliminating the need for manual rewinding. The system can accommodate up to approximately 25,000 feet of continuous 35mm film, on each of two platters, which provides approximately 4-1/2 hours of uninterrupted operation from each platter. Once it is installed and operating, it can be left completely unattended and will operate automatically until the projector must be rethreaded for another show.

The system consists of 3 (or 4) individually controlled horizontal platters. Film is fed from one platter through the projector, back onto another platter where it automatically rewinds as the show is in progress. Each platter is driven by its own highly reliable electric motor which is controlled by a solid state, plug-in speed control module. The simple plug-in module provides easy replacement for service or maintenance.

Each system is supplied with a "make-up" table from which film is fed from conventional 2000-6000 foot reels onto the Autowind, and spliced together to make up one continuous program. Similarly, the same table is used for "unloading" the film from the Autowind back onto its conventional reels for shipping. The controls for loading or unloading the Autowind are on the "make-up" table.

The Autowind system requires only 115 v., single phase, 60 Hz power (also available for 230 v., single phase, 50 Hz power).

II. UNPACKING

1. The Autowind is normally shipped uncrated by van lines within the U.S.A. This provides expert handling during transit and delivery directly to the projection booth. For shipment by truck or airline, or for export, the system is crated. First, verify that the correct number of pieces are received by checking the bill of lading or the shipping documents.

2. Thoroughly inspect each item for possible damage that might have occurred during shipment. Any damage discovered should be immediately reported to the transportation company for inspection and filing of claim. Do not accept any shipment until a complete inspection of all the equipment has been made.

III. AUTOWIND ASSEMBLY

NOTE: Before beginning the assembly or installation of the Autowind System, it is important that this instruction manual be thoroughly read and understood.

1. The Autowind should be assembled and leveled in the area where it is to be operated, usually in the projection booth near the projector. (See Figure 1.) If there is limited space in the projection booth, the Autowind can be installed in an adjoining room. In such a case, additional film transport roller assemblies should be installed in order to transport the film from the Autowind to the projector and back. The distance between such roller assemblies should not exceed ten (10) feet. (Film transport roller assemblies (DM192299-1) must be ordered separately when required.) The Autowind can be installed on either side of the projector (see Figure 5) or the rear of the projector with two (2) extra rollers.

2. Assemble the vertical column (#4, Figure 1) to the foot (#5, Figure 1) and fasten loosely with four 5/16" x 3/4" Allen screws with washers. With a carpenter's level or a plumb-bob, check that the vertical column is in the true vertical position and then tighten the Allen screws securely. Adjust leveling feet (#10, Figure 1) to obtain proper level position.

3. Each rotating platter is shipped assembled to its support arm. These are assembled to the vertical column as follows:

   A. Locate the lower platter assembly. It is marked by a label underneath the platter. Place the platter support arm assembly close to the vertical column. Pull the male plug out of the center of the platter support arm and plug it firmly into the female receptacle mounted on the vertical column. These plugs are keyed and will mate in only one position. Do not force them together. When the plug is securely in place, place the platter support arm in its proper position and attach with four hex head 5/16" x 3/4" bolts with star washers. Then check that the platter is level and tighten the bolts securely.

   B. Locate the center platter assembly. This assembly has a brake motor (#2, Figure 9) mounted on it and is easily distinguished from the top and bottom platters. (Motor Assemblies (#1 & 2, Figure 9) are sometimes shipped separately and must be installed at the site. This is done to prevent shipping damage. Assemblies are marked with a label for proper installation.) Install the center platter assembly in its proper position (#2, Figure 1), following the same procedure as in Step 3A above.
   NOTE: On the "T" model, the center and top platters are identical; on the "TT", all three platters are identical.

   C. Locate and install the top platter assembly in its proper position (#1, Figure 1) as described in Step 3A above.

4. Install the platter drive motors as follows (see Figure 8):

   A. Locate the platter drive motor assembly marked Bottom Platter, Ser. #. Place it on the bottom platter support arm toward the vertical column (#7, Figure 8). Push the motor assembly toward the support arm, depressing the motor tension spring (#2, Figure 8). Align the holes in the motor mounting bracket with the holes in the platter support arm (use a pair of long-nose pliers, or any other tapered instrument, to align the holes). Insert the motor assembly mounting bolt (#6, Figure 8) upward through the holes in the motor mounting bracket and platter support arm until it protrudes through the top of the assembly. Insert the locking pin (#5, Figure 8).
   NOTE: The spring tension on the platter motor assembly has been factory adjusted but, if, for any reason, the spring tension is too weak (motor drive wheel rubber is depressed less than 1/8"), see instructions in TROUBLESHOOTING SECTION.

   B. The center platter contains two (2) motors on the platter drive motor assembly bracket (#1 and #2, Figure 9). (Note on the "T" model the top and center platters are the same.) When installing this motor assembly, the drive wheel of the drive motor (#7, Figure 9) must be on the outside of the platter drive hub (#8, Figure 9) and the drive wheel of the brake motor (#6, Figure 9) must be on the inside of the drive hub as depicted in Figure 9.

   C. Install top platter drive motor as in Step 4A. (Model "T" as in Step 4B above.)

5. A. Assemble the table legs (#11, Figure 2) to the "make-up" table top (#17, Figure 2), using the eight hex head bolts, nuts, and washers.

   B. Assemble the horizontal bar (#16, Figure 2) between the legs and tighten all bolts.

   C. Install the "Roller Post" (#15, Figure 2) onto the "make-up" table, using the standoffs, bolts, nuts, and washers. Tighten the nuts securely. Install the "snap-on" swivel rollers onto the post, as shown in Figure 2. The top roller is adjusted to correspond with the height of the platter to be loaded.

   D. Plug the male plug of the rewind motor (#1, Figure 2) into the receptacle on the "make-up" table control housing (#9, Figure 2) underneath the table top.

6. Run the cable assembly (#13, Figure 2) from the "make-up" table to the vertical column of the Autowind and insert the 6-pin plug (#6, Figure 1) into the bottom receptacle of the vertical column. The Make-up table need only be connected to AW during loading and unloading of film on the platters.

7. Next, the "return" arms (#15, Figure 1) are installed on each of the three platters of the Autowind.

   A. Rotate the spindle assembly (#4, Figure 3) so the red alignment marking faces the direction of the return arm (#3, Figure 3). Insert the return arm through the shaft of the spindle assembly. Install the hydraulic arm mounting bracket (#1, Figure 4) and fasten the mounting screws securely (#4, Figure 4). NOTE: It is important that the bracket is mounted close to the spindle as shown in Figure 4. Line up the hydraulic arm with the mounting bracket (#1 and #5, Figure 4) and insert the locking pin (#9, Figure 4). Install the return arm roller assembly (#5, Figure 3) onto the free end of the return arm. Pull the return arm (#2, Figure 4) outward until the hydraulic arm mounting bracket rests against the spindle assembly (#3, Figure 4), and the markings (#3, Figure 3) become aligned. When proper alignment is obtained, tighten the set screw (#6, Figure 3) in the bottom end of the spindle shaft. When tightening the set screw, check to be sure the roller assembly on the take-up arm is perpendicular to the surface of the platter.

   B. Install the return arm stop assembly (#18, Figure 3), so that the return arm stops just before the hydraulic arm reaches the end of its travel.

   C. Adjust the height of the return rollers so that the bottom edge of roller is approximately even with top edge of the platter and tighten the set screw (#11, Figure 3). Adjust return rollers for optimum height or position while film is running onto the platters.
   NOTE: Adjust the height of the return rollers so that the film drags slightly on the edge of the platters.

8. Install the rollers on the vertical column. (See Figure 5A.) There is a feed roller and a take-up roller for each platter. In addition, there is a dual-roller assembly at the top of the vertical column for feed and a single roller at the bottom for take-up. Note the variation in the bottom roller position depending on the relative positions of the Autowind and the projector. (See Figure 5.) Mount 4" roller as shown if the projector is installed to the left of the Autowind as depicted in Figure 5. If the projector is installed to the right, as depicted in Figure 5, install the 4" roller in the right side hole on the column. (See Figure 5.) See Figure 5A for complete roller installation.

9. The Autowind is now ready to be plugged in, turned on, and operated. Before doing so, familiarize yourself thoroughly with the principles of operation and check-out procedures in Sections IV and V.

IV. PRINCIPLE OF OPERATION

1. Each platter of the Autowind is driven by a separate universal-type electric motor with a gear reduction drive. (Since the motor is d-c operated, frequency changes are no problem.) A feed arm and a return arm control the speed of the drive motor, insuring rotational speed of the platter to smoothly feed film to and return film from the projector.

2. The speed control is accomplished by a light "valve" operating from the spindle of both feed arm and return arm. Each light valve operates between a solid state light source and a light detector and, as the return or feed arm moves, more or less light is allowed to pass from the light source to the light detector. As the amount of light striking the detector varies, an electrical signal from the detector also varies and, after being amplified, varies the speed of the drive motor.

3. Although the film speed through the projector is always constant, the speed of each platter will change as the diameter of the film on each platter changes. In addition, other conditions---such as temperature, humidity, film dirt, static electricity, etc.---may cause the platter speed to vary slightly. As the platter speed varies, the corresponding feed or return arm will move back and forth in a gradual oscillation compensating for varying platter speed. This condition is quite normal and should be no reason for concern unless either arm oscillates violently and continues to do so, in which case please refer to the TROUBLESHOOTING SECTION. (See Page 20.)

V. ALIGNMENT AND CHECK OUT PROCEDURE WITHOUT FILM

1. Plug the 115 v., 15 amp., a-c plug from the connector box at the base of the column (#9, Figure 1) into a corresponding grounded wall outlet (can be furnished for other voltages when specified). Insert the "Jones" plug from the "make-up" table into the receptacle on the connector box. On the connector box will be found the following controls:

   A. AC Power On-Off Switch and Pilot Light: With the switch set to ON and the pilot light ON, the system is ready for operation. (This switch and the pilot light must be ON before the Autowind can be operated.)

2. The Program Control Panel instruments (Figure 2A) of the "make-up" table consist of the following:

   A. Load-Unload Switch (3 position, center OFF) (#2, Figure 2A): This switch selects the speed control adjustments of the platter LOAD or UNLOAD sequence controls.
   NOTE: Always set the speed control knobs to STOP when finished with a sequence (see notes in text).

   B. Spindle ON-OFF-Brake Switch (#3, Figure 2A): This switch energizes the reel spindle and also controls the platter brake. In order to stop both the platter and reel spindle when unloading film, switch quickly from SPINDLE ON to BRAKE ON, hold it in that position until the platter stops, then immediately release the switch toggle. (It will return to the OFF position automatically, when released.) See comments about backtracking a splice later in the text.
   CAUTION: Do not switch this switch to OFF during unload platter operation.

   C. Load Platter Speed Control (#4, Figure 2A): Controls Center Platter Speed when loading film onto platter. (On "T" models, it also controls top platter.)

   D. Unload Platter (Reel Spindle) Control (#5, Figure 2A): Controls reel spindle when unloading film from platter to spindle.
   NOTE: Set speed control knobs to STOP position when finished with a sequence.

3. With the Load-Unload Switch in the OFF (center) position:

   A. Set the Power Switch to ON (#16, Figure 1) located at bottom of vertical column. Observe that the pilot light comes ON. If the light does not come ON, check that the a-c cord is plugged in, circuit breaker is ON, and for possible loose connections.

   B. Turn the Program Control Switch to LOAD PLATTER, Figure 2A (left position).

   C. Disengage the center platter drive motor (#2, Figure 9) from its drive hub by moving the handle on the mechanical clutch all the way to the right into its locked position. This disengages the platter drive motor and engages the load/brake motor.
   NOTE: On "T" models, this procedure is also followed for top platter operation. Set the platter selector switch, located at the top of the main column, to the desired position (top, center, or bottom).

   D. Turn the Load Platter Speed Control Knob gradually clockwise to MAX. and observe that the center platter starts rotating in a counter-clockwise rotation. (On "T" models, this procedure should also be checked for the top platter operation at this point.) The maximum speed of the platter is between 85-100 RPM, depending on the a-c line voltage.

(If proper result is not obtained, see TROUBLESHOOTING SECTION, Pages 20 through 24.) Turn the LOAD PLATTER speed control knob to STOP.

E. Set the Load-Unload Switch to UNLOAD PLATTER (right position). Set the Spindle Switch (#3, Figure 2A) to SPINDLE ON position (UP position). Turn the "Unload Platter" speed control knob clockwise. Observe that the Reel Spindle starts turning in a clockwise rotation (facing the side of the table). The speed should increase as the control knob is rotated to its MAX. position.

F. Push the Spindle On Switch quickly downward to BRAKE ON position and hold it there. Observe that the reel spindle disc continues turning at a reduced speed and that the center platter starts turning in a counterclockwise rotation at approximately 85 RPM. Release the pressure on BRAKE ON Switch letting it return to OFF position. (On "T" models, the top platter should also be similarly checked at this point.)

G. The "make-up" table can now be disconnected from the connector box, if desired.

If any of the above procedures do not check out properly, refer to the TROUBLESHOOTING SECTION (Pages 20 through 24) and schematics (Figures 11, 11A, and 12).

4. A. With the Power Switch on the connector box set to ON, proceed to the top platter. To test the feed control arm (#1, Figure 6), gently with one finger rotate it slowly to the left from its rest position. At about 1/3 - 1/2 of its travel (#1, Figure 6), the platter will start to run at slow speed. As the feed arm is moved further, the speed of the platter will increase until maximum speed is obtained when the feed arm is in its extreme left position (#7, Figure 6).

B. Feed Control Arm Spring Tension Adjustment
If the spring tension is too tight, it will cause erratic operation and oscillation of the feed arm. Erratic operation can also be caused if the Autowind or its platters are not installed in a level position. To increase spring tension, loosen the set screw on the spring adjustment collar (#5, Figure 6) and turn the collar clockwise. To decrease the tension, turn the collar counterclockwise. When the proper tension has been obtained, tighten the set screw on the collar.

5. A. With the feed control arm in its extreme left position, the speed of the platter should be 28 RPM. (An easy way to check the speed is to put a piece of tape on the outside edge of the platter. Then with one hand, rotate the feed arm to its maximum speed position and for 15 seconds count the number of times the masking tape passes, then multiply this number by 4 to obtain RPM.) The preferred speed in FEED mode is 28 RPM (27-29 RPM is acceptable).

   B. Platter Speed Adjustment. The platter feed and return speeds can be adjusted by means of the two speed control adjustments located on the individual control modules. (See #10 & 11, Fig. 9.) Insert a thin screwdriver through one of the holes in the front plate of the module, locate the slot on the adjustment screw and turn clockwise to increase speed, and counterclockwise to decrease the speed of the platter.
   NOTE: Set the platter speed at 28 RPM for FEED, 30 RPM for RETURN, with projectors and lamphouse operating.

6. Repeat the above steps on all three platters. If any irregularities are observed, check the TROUBLESHOOTING SECTION before proceeding to step 7. Otherwise, all the feed mechanisms are operating properly.

7. Return Arm Adjustment: Start with the top platter. Move the return arm quickly from its rest position (Fig. 7) all the way to the vertical column. The platter will start running, but it will stop again with the return arm held against the vertical column.

8. Slowly move the return arm away from the column. When the arm is about 12 to 16 inches away from the column, (see Fig. 7) the platter will start to run at a slow speed and the speed will increase as the arm is moved further away from the column. Maximum speed should be obtained with the arm about 6 to 8 inches away from the REST position and the platter will stop when the arm is about 4 inches away from its REST or STOP position. The optimum speed for the return mode is 31 RPM. (30-32 RPM acceptable.) For speed adjustment see step 5B above.

9. To test the tension setting of the hydraulic arm assembly, move the return arm to the vertical column, then slowly move it back until the motor starts to run (motor start position). Then release the return arm and it should return to rest position within 4 to 6 seconds. If the hydraulic arm return speed needs adjustment, rotate the tube of the hydraulic arm assembly as indicated on cylinder name plate on the hydraulic arm.

10. Check the operation of the return arm and hydraulic arm assemblies of the other two platters.
    NOTE: Check Step 7, Paragraph A, Page 4, for proper installation of hydraulic arm assembly.

VI. OPERATION WITH FILM

1. To load film onto the Autowind:
   NOTE: For initial check-out of the Autowind System, it is strongly recommended that a short film (5 to 10 minutes) should be used to test operation of all platters before a full show is loaded onto the system.

   A. Locate the "make-up" table about 4 to 5 feet away from the Autowind, preferably to the left of the unit. In this position, the return arm will not interfere with the film as it is being fed onto the center platter. If space restrictions dictate that the "make-up" table be placed to the right of the Autowind, the return arm of the center platter should be temporarily tied to the vertical column while the Autowind is being loaded with film.

   B. Place the take-up ring (#2, Figure 7) onto the center platter. Place the first reel of film on the spindle on the "make-up" table.

   C. Pull the film leader from the reel. Thread the film under the bottom and over the top swivel rollers on the "make-up" table post and place it into the slot in the take-up ring (#3, Figure 7). Make sure the soundtrack is facing up. (Add enough leader to the film in order to reach back to the Autowind from the projector. Adjust the height of the top swivel roller (#14, Figure 2) so the film drags only slightly on the center platter. If the roller is adjusted too low in relation to the platter, it might scratch the film, and, if it is set too high, the film will climb up onto the take-up ring. For best performance, adjust the roller height so the film climbs about 1/8" - 1/4" from the top swivel roller onto the center platter. (For "T" model, see later instructions.)

   D. Turn the AC Power Switch (#16, Figure 1) to ON. Set the three-position switch (Program Control Switch) to LOAD PLATTER. Use the clutch clamp (#3, Figure 9). Move handle firmly to the right to disengage the drive motor and to engage the load/brake motor.

   E. Gradually rotate the Platter Control Knob (#4, Figure 2A) in a clockwise direction, causing the center platter to begin to rotate and wind the film from the "make-up" table to the center platter of the Autowind. When the reel is empty, turn the control knob fully counterclockwise to stop the center table. Cut the tail off the end of the first reel and remove from the reel spindle. Place the tail and the empty reel into the film container.

F. Place the Number 2 reel on the Reel Spindle, cut off the leader, and splice the film to the end of the film reel.
NOTE: After the splice is made, use a white or yellow marking crayon to mark the splice. Hold the crayon on the film edge as it rotates, thus clearly marking the splice.
Again, turn the Load Platter Control Knob clockwise to start the center platter of the Autowind and let it run until the second reel is empty.

G. Repeat the above steps until as much film as is required is loaded onto the center platter. The Autowind System with 52 inch platters can handle up to approximately 25,000 feet of film and the systems with 40 inch platters can accommodate up to approximately 14,000 feet of film.

RECOMMENDATION: The recommended procedure for loading a new show (or shows) onto the Autowind System is as follows:

a) Transfer the film from the standard 2000 foot shipping reels onto a 6000 foot reel on the rewind bench (booth equipment). During this sequence, the film can be inspected for bad splices and other defects. Splices can easily be made and a thorough inspection of the film can be performed on the rewind bench in a regular manner.

b) Place the full 6000 foot reel onto the "make-up" table reel spindle. Transfer the film onto the Autowind center platter.

c) During the transfer period, another 6000 foot reel can be made ready on the rewind bench.

It is also recommended that, if two films are to be loaded onto the Autowind at the same time, they should be loaded onto the same platter (center platter). This saves time due to the fact that the greater the diameter of film on the platter, the faster the film is wound from the "make-up" table onto the Autowind. After one feature has been shown (during intermission), the splice may be broken and the second feature fed onto a separate platter (see Recommendation a), Page 12).

2. Film Threading:

A. Disengage the Clutch-Clamp by moving the handle to the left (#3, Figure 9). This will engage the platter drive motor. Make sure the Power On-Off Switch on the connector box is set to ON.

NOTE: Threading of the film described in Step C might be easier performed with the Power On-Off Switch set to OFF. Then, after threading the feed arm and guide rollers, turn the switch to ON. The platter will turn a few turns and then stop. (After the projectionist has become used to the Autowind, he will soon realize that the threading of the film is very simple and that the Power On-Off Switch can be left ON during the threading procedure.)

B. Lift the Take-up Ring straight up from the center platter (or whichever platter the film is on) by pinching the ends of the Take-up Ring together. Then place the ring on an empty platter. (With the Autowind System, film can be fed from any platter and rewound back onto any other empty platter of the system.)

C. Take the end of the film from the inside of the loop (just removed from the slot in the Take-up Ring) and thread it around the feed arm (#1, Figure 6). As the film is pulled, the platter will turn and feed film as required (Power ON Switch set to ON).

D. Continue by carrying the film to the vertical column and threading onto the rollers on the vertical column, as shown in Figure 5. After the film has been threaded through the top roller assembly (#1 & #2, Figure 5), pull enough film through to go to the projector and back again to the Autowind.

E. Thread the film through the projector in the normal manner. If the projectionist at this point wants to check for proper projector threading or "framing", start the projector or run it manually for a few frames.

F. Return the start of the film to the Autowind through the bottom roller assembly (#4, Figure 5) and pivot roller (#3, Figure 5) to the platter of the Autowind where the Take-up Ring was previously placed. Move the return arm to the vertical column and hold it there. Place the film around the return roller and insert the end of the film into the slot of the Take-up Ring (#3, Figure 7).

G. If there is any excess slack in the film at this point, it should be taken out as follows:

While guiding the film on the return arm roller, move the return arm slowly away from the vertical column.

When the arm is about 14 to 16 inches away from the vertical column, the platter will begin to turn slowly. Allow the platter to rotate at a slow speed until all the slack is taken out of the film from the projector. When the slack is gone, release the arm.

3. The Autowind System is now ready for operation with the projector. Before starting the projector, check that ALL of the previous steps in this manual have been fully carried out.

RECOMMENDATION: The recommended procedure for optimum Autowind operation is as follows:

A. For the best performance of the Autowind System, after it is loaded, Christie recommends that, if there are two separate films, the program be split onto two platters, one film on each. This assures a smoother feed of the film from the platter and reduces the possibility of oscillation due to dirt, static electricity, and old brittle film.

B. It is recommended that the projection booth temperature is kept at around 70°F. At lower temperatures the film tends to become brittle and stiff, which can cause oscillation and erratic operation of the feed arm.

4. Check that the Power Switch on the connector box is set to the ON position and that the pilot light is on.

5. Start the projector and watch both the feed and return platters on the Autowind. During the initial start-up, there may be some oscillation of the return and feed arms, but this condition should settle down to a reasonable equilibrium condition within a minute or two.
   NOTE: There might be some lag of the film feed during the first 6-8 revolutions of the feed sequence. This is quite normal. The platter will soon obtain proper speed and the feed control arm will settle to its proper operating position (approximately midway between start and max. speed). If the film starts wrapping around the center feed control assembly more than 3-4 times during the first 10-20 revolutions, a malfunction has occurred. Stop the projector and check the platter speed. (See TROUBLESHOOTING SECTION.)

CAUTION: Unless a serious malfunction occurs, do not turn off the projector until the take-up arm and platter have had time to settle down to a steady operating condition. If the projector is turned off quickly after being started, film breakage may result due to momentum of the platter. Similarly, do not "inch" the projector by turning the motor on and off rapidly.

6. Now the Autowind System is operating and can be left unattended. A special feature of the Autowind System is that the operator can, if he desires, make up a new show onto the center platter, while running a regular performance between the top and bottom platters. (On the "T" model, this can be done on the top platter while running a performance between bottom and center platters; on "TT" models, from any of the three. Unloading of film can also be done from the top platter "T" model; any of the three platters on "TT" model.)

VII. UNLOADING THE FILM FROM THE AUTOWIND

1. Before unloading any show, the operator should plan ahead so that, during the last screening of the show, he rewinds the film onto the center platter. The film should be removed from the Autowind only from the center platter.
   NOTE: "T" or "TT" models allow for unloading from the top or bottom platter as well as the center platter.

2. Place an empty reel (2000-6000 feet) on the reel spindle of the "make-up" table.

3. Set the three position switch on the "make-up" table to UNLOAD PLATTER. Set the clutch clamp handle to the right and check that the center platter turns freely.
   NOTE: On "T" or "TT" models, this would also be the case if unloading film from the top or bottom platter.

4. Take the outside end of the film on the unloading platter of the Autowind, thread it through the swivel rollers on the post of the "make-up" table and attach it to the inside of the empty reel on the reel spindle. Adjust the top swivel roller for proper height. (See Page 9.)

5. Turn the reel spindle control knob slowly clockwise (reference: Paragraph V, Step 2C). This will start the reel spindle rotating, causing the film to be pulled from the Autowind onto the shipping reel. As the reel fills up, watch for the splice (use white splicing tape for between reel splices) on the film. When the splice appears to be 6-8 turns from coming off the platter, quickly switch from ON to BRAKE and hold it there until the platter and the shipping reel stop. If the splice has gone past and is already on the shipping reel, continue to hold the brake switch down. This will reverse the rotation of the platter and the shipping reel and pull the film back onto the platter until the splice appears. Then release the brake switch to OFF. (Spring release.) Turn reel spindle control knob to STOP.

6. Open the splice in the film and splice a leader to the film on the reel and a tail to the end of the film coming from the Autowind. Remove the full reel from the reel spindle, place it in its film can and place another empty reel onto the reel spindle. (This is accomplished, with 6000 foot reels, on the rewind bench.)

7. Fasten the film tail to the empty shipping reel and proceed as in steps 5 and 6 above.

8. Repeat steps 4-7 above until all of the film has been transferred from the Autowind to the original reels.
   NOTE: If the last show is not rewound to the center platter, the Autowind does allow the film to be transferred from one platter to another without going through the projector. Thread the film as shown in Figure 5A. The Autowind speed is controlled by the position of the return arm which should be held (or tied) in position.

VIII. PREVENTIVE MAINTENANCE

The Autowind System is basically a simple and therefore, highly reliable system when properly installed and aligned. In addition, the reliability is increased by the redundance of a third platter, whereby if one platter malfunctions, the operation can continue on the other two platters. Furthermore, the speed control modules are fully interchangeable and can be plugged into any of the three platter support arm channels, and the drive motors are also interchangeable, and are mounted for extremely easy removal and replacement. However, as with any electro-mechanical system, some basic preventive maintenance should be done routinely to maintain peak performance of the system.

1. The bearings of the drive motor should be oiled every six months or two thousand hours of operation, whichever comes first. A few drops of fine oil (#20 SAE) in the oil cup (#8, Fig. 8) is all that is required. Do not use excessive oil. Also check the grease in the gear head approximately every 6 months.

2. Check the brushes (#4, Fig. 8) of the drive motors every six months or two thousand hours of operation. The brushes should last many thousands of hours, but if they appear excessively worn, (so that only 1/4" or less of the brush remains) they should be replaced.

3. Periodically check the rubber rings on the drive motor wheels. If any of them become excessively worn they should be replaced. If they are allowed to continue in operation when worn too thin the motor will not apply proper pressure to the drive hub of the platter causing the drive wheel to slip. (See TROUBLESHOOTING SECTION for adjusting drive wheel tension.)

4. Clean the platter surfaces, rollers, and "make-up" table at regular intervals. It is recommended this cleaning be done with "Ajax", "Fantastic" or equivalent, or a strong soap for best results. (Do not wax the platters, and do not use paint thinner or solvent to clean platters.)

5. It is recommended that a spare control module and drive motor be kept in the projection booth. If a module malfunctions and is replaced, the faulty module should be returned to Christie Electric for evaluation and repair.

6. The roller bearings are made of a teflon composition which normally require no lubrication. A coating of light machine oil is applied to the roller shaft at the factory to prevent corrosion and ensure smooth and quiet operation. Roller bearings are used on the make up table swivel rollers because of the heavy loads and high speeds. These roller bearings are lubricated at the factory with LUBRIPLATE 130-AA grease.

   Platter axle bearings are teflon composition and require no lubrication. A light machine oil is also applied at the factory to the axle surface for prevention of corrosion also. The platter thrust bearing is lubricated with LUBRIPLATE 130-AA.

7. Static Electricity. In a sound-proof and carpeted projection booth with air conditioning, particularly in a wooden building, enough static electricity may build up on the film to cause oscillation and erratic operation of the feed arm. To prevent the static electricity as much as possible, spray the carpet and the area around the Autowind with a "Static Remover" spray (available in aerosol cans.) Also wipe the edge of the film on the platter with a moist (not wet) cloth. This will remove most of the static electricity and insure smoother operation.

8. PLEASE NOTE: If for any reason during the installation, operation or maintenance of the Autowind System any problems occur that are not covered in the manual, write or call Christie Electric Corp. for information.

   When ordering parts or requesting information, please include the Autowind model and serial number. Also list parts by part number, or, as described in this manual, by page and figure number. The more information we get, the better we can serve you.

   When ordering replacement parts, please include a Purchase Order Number. This includes replacement parts requested under warranty. Credit will be issued when defective parts are received by Christie Electric Corp.

Write or Call: CHRISTIE ELECTRIC CORP.

18120 S. Broadway
Gardena, CA 90248 U.S.A.
Phone (213) 715-1402

AUTOWIND FILM BREAK AND CUE SENSOR (OPRION SUFFIX "F")

1. Description:

The Film Break is a device which protects against film breakage. If the film should break or split, the Film Break shuts off the projector and lamphouse and prevents film from running onto the floor.

"CHRISTIE" REEL ARM ASSEMBLY SUFFIX "A"

The suffix "A" option to the Autowind is the Reel Arm Assembly which is provided to replace the "spider" on a standard projector and to provide the projector with the capability to operate with 6000 foot standard reels as well as with the Autowind. With the reel arms, the feed and return rollers can be swung out of the way of a 6000 foot reel while it is on the arm, and then the rollers can be returned to a preset position to match the alignment to the Autowind for Autowind operation.

This eliminates guess work in order to change from Autowind to Reel operation or when the reverse is required. Most projector "spiders" allow for 2000 foot reels.

NOTE: Specify when ordering what model and type of projector is to be used. (Norelco and Cinemecanica cannot accommodate the Christie reel arms, but a film guidance system may be ordered.)

TROUBLE SHOOTING SECTION

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
1. Platter runs too slow (less than 28 RPM for feed, 30 RPM for return).	A. AC line voltage too low (less than 105 volts).	Check AC voltage. If AC voltage to the Autowind is less than 105 volts, install a variac or step-up transformer to provide 110-120 volts AC.
	B. Module speed control set too low.	If voltage is normal (105-120 volts AC) turn the feed control adjust or return control adjust (#10 & 11, Fig. 9) clockwise. This will increase the motor speed. (Turning the controls counterclockwise will decrease the speed.)
	C. Spring tension on platter motor drive too loose. Drive wheel is slipping on platter drive hub.	Loosen (4) four motor mounting screws (#1, Fig. 8) and push drive motor toward platter drive hub. Retighten set screws. If tension is still too weak, replace tension spring or worn drive wheel. NOTE: Make sure speed control module is securely fastened into the support arm with the locating thumbscrew.
	D. Motor brushes worn or making bad contact.	Check the drive motor brushes. If they are less than 1/4" long they should be replaced. NOTE: Lubricate drive motor gear assembly (#8, Fig. 8) every 6 months, or 2000 hours of operation. A few drops of regular projector oil is sufficient.
	E. Defective speed control module.	Loosen the locating thumbscrew, pull out the suspected defective speed control module and plug it into a properly operating platter support arm. If speed is still not properly adjustable, replace the module with spare, and return defective module to Christie factory for service. If a spare module is not available use the module from the platter not in use.
	F. Light shutter misaligned.	Check and adjust, if necessary, the feed and return light shutter in the platter support arm as described below. When adjusting the light shutter for feed or return settings it is helpful to cover the opposite photocell in the speed control module with a piece of black opaque tape. This insures against any interference from the other function (feed or return). (See step #1 and #2, page 23 for shutter alignment procedures.)

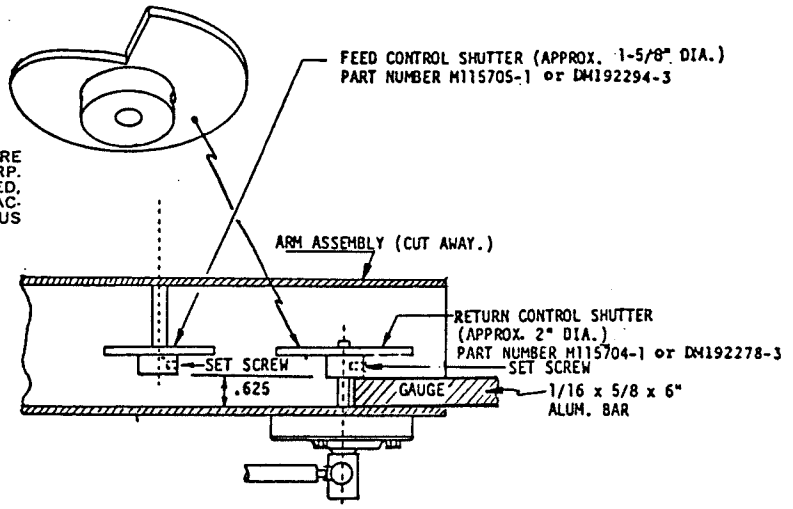
TROUBLE SHOOTING SECTION

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
2. Platter runs too fast (over 29 RPM for feed, 32 RPM for return).	A. AC line voltage too high (130 volts +).	Check AC line voltage. If AC line voltage is higher than 130 volts provide a variac or step down transformer to provide a voltage of 110-120 volts AC.
	B. Module speed control set too high.	Same as 2A above. If the speed cannot be changed by turning the adjustment, the control module is defective and should be replaced.
	C. Defective speed control module.	See 1E above.
	D. Light shutter misaligned.	Check to make sure that the assembly instructions in the Autowind manual have been followed (see step 7A, page 4). It is possible that the return shutter might be 180° out of phase. Then see 1F above.
3. Platter runs all the time.	A. Defective module.	Replace module as in 1E.
	B. Light shutter misaligned.	Adjust feed or return light shutters whichever is applicable, as in 1F above.
	C. Defective wiring or connections.	Check wiring and connections (see Autowind wiring diagram, Fig. 11& 11A)
4. Platter or platters do not run at all.	A. No AC voltage.	Check AC line voltage to Autowind "make-up" table (110-120 volts AC).
	B. Insufficient spring tension on drive motor bracket.	Check and see if drive wheel is slipping on platter drive hub. If so, adjust as in 1C.
	C. Worn motor brushes.	Check motor brushes. If brushes are less than 1/4" long, replace them.
	D. Defective module.	Exchange module from an operating platter or with a spare as in 1E.

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
	E. Defective wiring or connections.	Check for loose wire connections and insure that control module is properly plugged in and securely fastened with thumb screw, (#17, Fig. 3). Also check that the "make-up" table is plugged in, the drive motors are plugged in, and that the "make-up" table is plugged into the receptacle on the main column. (See Fig. 1.)
	F. Plug in platter support arm not properly plugged into mating plug on main column.	With an ohmmeter and the Autowind wiring diagram (Fig.11,11A) check for continuity between the 8-pin plug and the 6-pin module plug in the platter support arm. If there is no continuity reading, remove the platter support arm and check that the platter support arm plug is properly inserted into the main column receptacle. Also check for loose or broken wiring. If continuity is read in accordance with the schematic, change control module.
5. Return arm not taking up film slack.	A. Return platter speed not fast enough.	Set return platter speed to 30-32 RPM (#11, Fig. 9).
	B. Hydraulic arm incorrectly adjusted. (Set too slow.)	Rotate outer cylinder on hydraulic arm in proper direction (see label on arm) to adjust for proper tension (faster-slower). When adjusted properly, the return arm should take 4-6 seconds to return from motor START to REST position, (see Fig. 7). If hydraulic arm cannot be adjusted in this manner, replace it. (See Fig. 4.)
6. Excessive return arm oscillation.	A. Platter motor drive wheel slipping on platter drive hub.	If platter motor drive wheel is slipping on platter drive hub, adjust and increase drive wheel tension onto platter drive hub as described in step 1.
	B. Loose wiring or defective diode bridge.	Check for loose wire connections and also for loose or incorrectly plugged in plugs. The diode bridge is located behind motor receptacle inside platter support arm. (See #13, Fig. 8.) Remove mounting screws and pull receptacle out of support arm to gain access to the diode bridge.

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
	C. Defective speed control module.	Replace speed control module.
7. Film breakage during respooling or "tear down" mode.	A. Tension on make-up brake motor drive wheel set too loose against platter drive hub.	To check for correct or adequate tension of the brake motor drive wheel first engage the clamp clutch (#3, Fig. 9) on center platter support arm (on "T" model check top platter also), by pushing handle on clutch to the right. This will release the drive motor and engage the brake motor. Set the LOAD PLATTER control knob on "make-up" table to MAX. Turn Program Control Switch to LOAD. Watch the brake motor drive wheel and turn the Power On Switch on the connector box to ON. Observe the brake motor drive wheel. If the brake motor drive wheel spins against the platter hub before the platter starts to turn, the drive wheel tension against the hub is too weak, or the drive wheel is worn (less than 1 inch diameter). Adjust tension by moving brake motor against the hub, or by changing the drive wheel.
	B. Speed adjustment on spindle drive motor, or on brake motor incorrectly adjusted for braking mode.	Remove Program Control Assy from "make-up" table mounting. Push Spindle Switch (#3, Fig. 2A) to BRAKE and hold. Adjust reel spindle speed to approximately 15 RPM (#5, Fig. 2A) and platter speed to approximately 75-80 RPM. Turn pots clockwise to increase speed and counterclockwise to decrease speed.
	C. Brake motor drive wheel loose on brake motor shaft.	Tighten brake motor drive wheel set screw securely against the brake motor drive shaft.
	D. Operators not pushing the Reel Spindle On Switch to BRAKE position quickly enough and not holding it there until the platter stops.	When spooling film back to the shipping reel, DO NOT turn the reel spindle control knob to STOP when a splice appears or for any other reason to stop the re-spooling sequence. Instead push the Reel Brake Switch (#3, Fig. 2A) in a quick motion from ON to BRAKE. Hold the toggle in this downward position until the film stops, then release the toggle switch to OFF (spring release).

MALFUNCTION	PROBABLE CAUSE	CORRECTIVE ACTION
	E. Worn Brushes in brake motor.	Check brake motor brushes. If they are less than 1/4" long replace. (Check every 2-4 month.)
	F. Defective brake motor or brake motor control (on "make-up" table).	If the brake motor does not run in BRAKE or LOAD PLATTER sequence, (see Fig. 9) disassemble the motor from the mounting bracket and unplug a platter drive motor. Plug the brake motor into the platter drive motor receptacle and activate either the feed or return arm to start position. If the brake motor still does not run, replace the motor. If the brake motor operates in step 7F, check for faulty wiring connections or defective components in the "make-up" table control box (see wiring diagram Fig. 12 or 12A). Also check for faulty wiring or plug connections between the "make-up" table and brake motor. NOTE: A special extension cord can be provided to reach from the platter drive motor plug to the brake motor, or it can be assembled by the projectionist from local available components.



CAUTION: IF LIGHT SHUTTERS ARE NOT PROPERLY SPACED WITH A GAUGE, DAMAGE MAY OCCUR TO THE CONTROL MODULES.

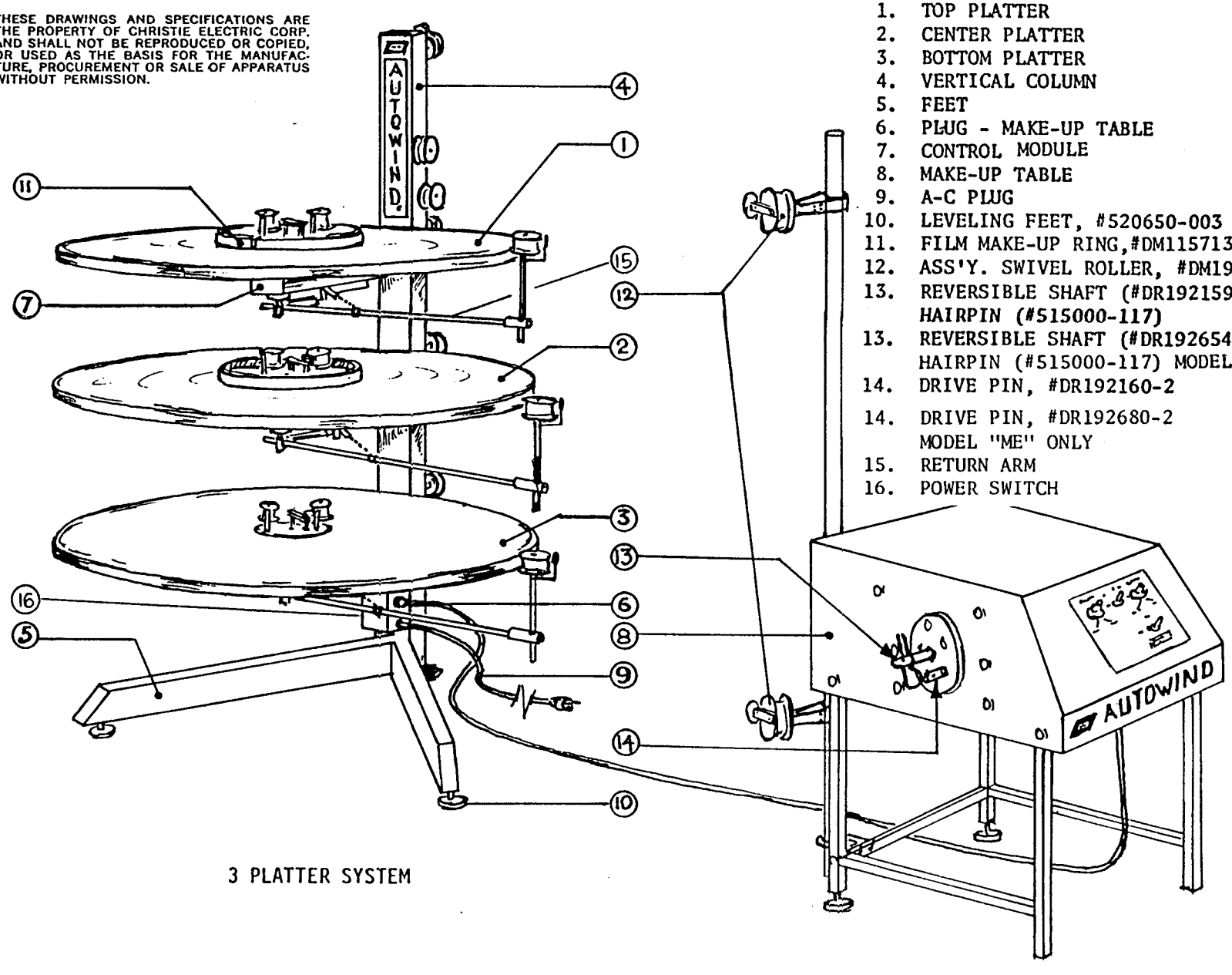
PROCEDURE FOR ADJUSTING LIGHT SHUTTERS

#1. Return Shutter

Remove the module locating thumb screw (see Fig. 3). Pull the control module from the channel. Loosen the set screw on the return control shutter. Replace the control module. Slowly pull the return arm toward the center post until the platter starts to turn. Let the arm return back to the point where the platter stops. Let the arm come back an additional 4 inches and hold it there. While holding the arm with one hand, reach under the platter and pull the module out of the channel. Set the module aside, reach inside the channel and firmly grasp the shutter. While holding the shutter so it does not turn, let the return arm return to its stop position. Make sure the shutter shaft is vertical and in the center of the channel and the shutter itself is straight and in a horizontal plane. Tighten the set screw. Install the control module into the channel. Test out return control per steps 7 and 8 of ALIGNMENT AND CHECKOUT PROCEDURE. Install and tighten the module locating thumbscrews.

#2. Feed Shutter

Remove the module locating thumb screw. Pull the control module from the channel under the platter. Check and make sure that the feed arm control shutter (#8, Fig. 3) is straight and in a horizontal plane and the shutter shaft is vertical in the center of the channel. Install the control module back into the channel. With one finger, gently move the feed control arm (#1, Fig. 6) to the left until the platter starts to turn. This should occur approximately 1/2" - 3/4" from rest position. If it starts turning at a different point, the arm must be realigned as follows: Move the feed control arm to the left until the platter starts to turn. Loosen set screw, hold the nylon shaft (#4, Fig. 6) firmly in this position with one hand while moving the arm itself back to the normal position (1/2" - 3/4" from rest position) with the other hand. Repeat if necessary. Tighten Set Screw. Test out feed control per steps 9 and 10 of ALIGNMENT CHECKOUT PROCEDURE. Install and tighten the module locating thumbscrew (Fig. 3).



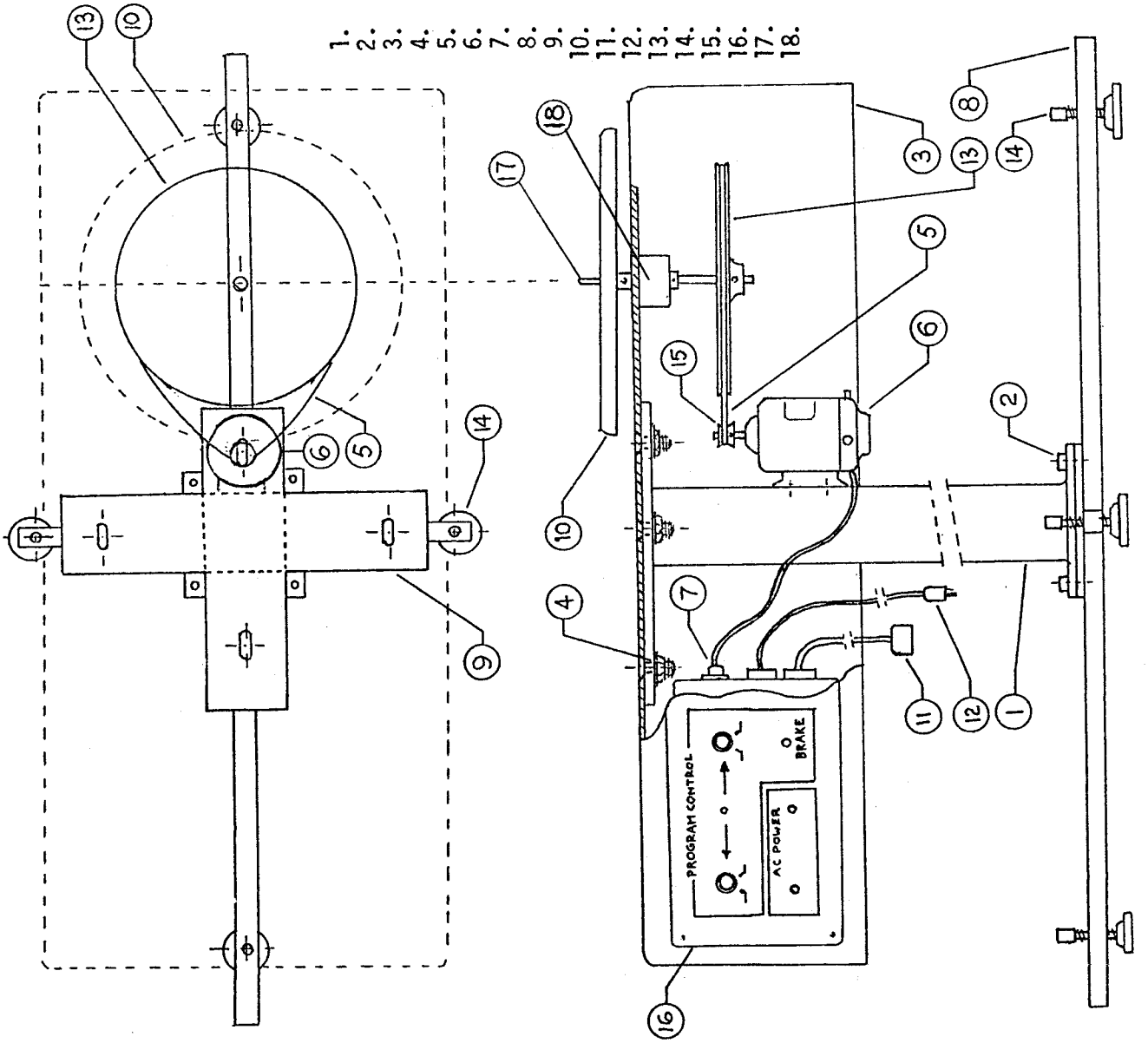
1. TOP PLATTER
2. CENTER PLATTER
3. BOTTOM PLATTER
4. VERTICAL COLUMN
5. FEET
6. PLUG - MAKE-UP TABLE
7. CONTROL MODULE
8. MAKE-UP TABLE
9. A-C PLUG
10. LEVELING FEET, #520650-003
11. FILM MAKE-UP RING,#DM115713-1
12. ASS'Y. SWIVEL ROLLER, #DM192161-1
13. REVERSIBLE SHAFT (#DR192159-2), INCL HAIRPIN (#515000-117)
13. REVERSIBLE SHAFT (#DR192654-2), INCL HAIRPIN (#515000-117) MODEL "ME" ONLY
14. DRIVE PIN, #DR192160-2
14. DRIVE PIN, #DR192680-2 MODEL "ME" ONLY
15. RETURN ARM
16. POWER SWITCH

3 PLATTER SYSTEM

AUTOWIND ASSEMBLY

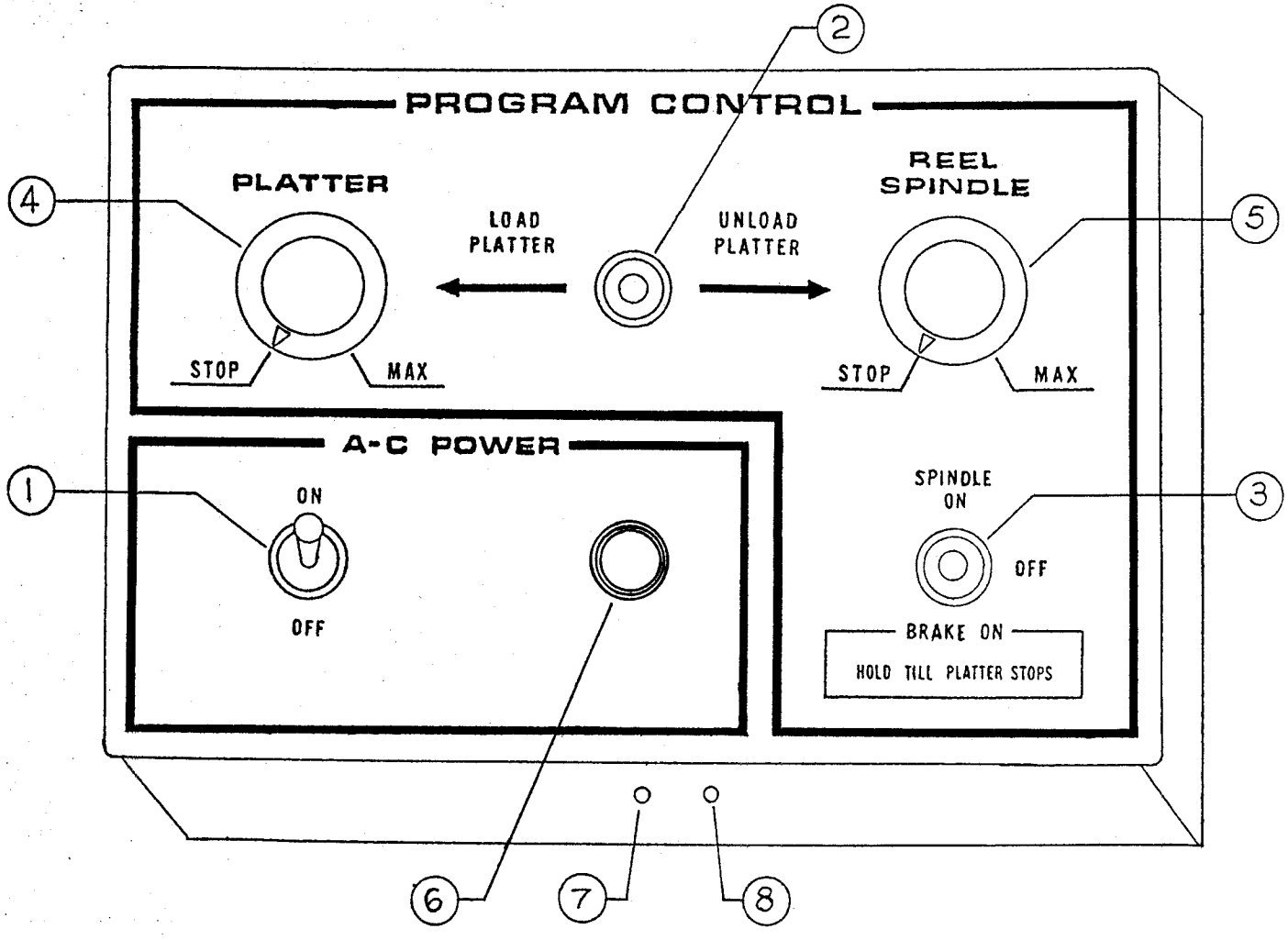
FIG. 1
REV.C 1/24/75
REV.D. 1/28/76

TD -194



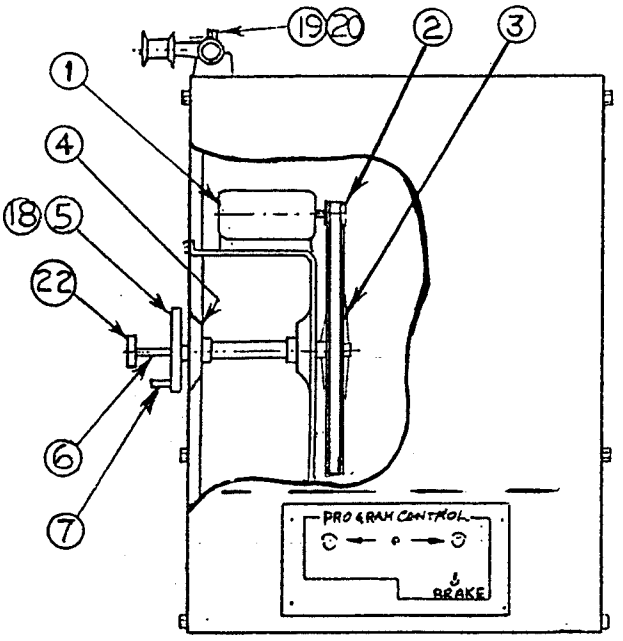
EARLY VERSION

MAKE-UP TABLE ASSEMBLY
FIG. 2

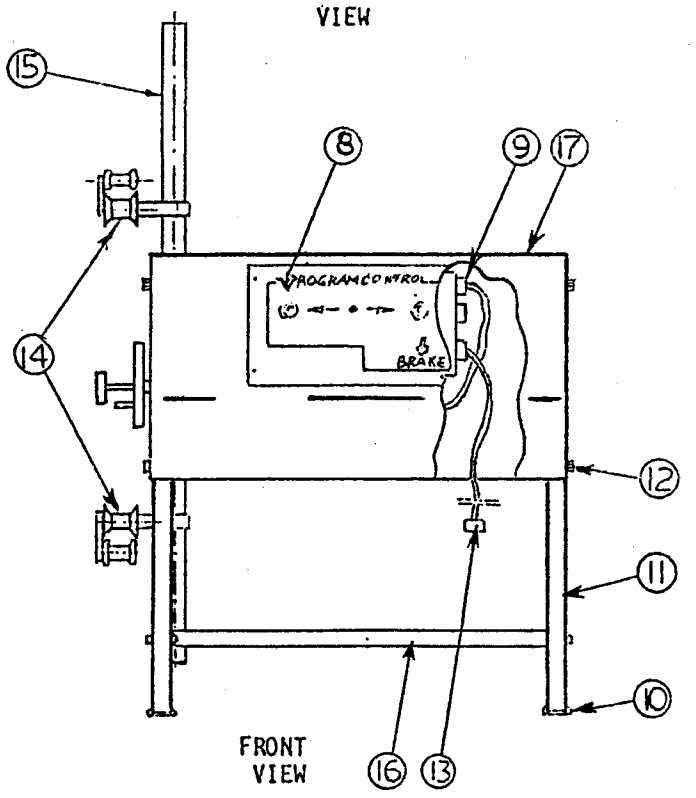


MAKE-UP TABLE CONTROL PANEL
FIG. 2A

1. AW SYSTEM ON-OFF SWITCH P/N 578722-011
2. PLATTER LOAD/UNLOAD SW P/N 578733-066
3. SPINDLE ON-BRAKE SW P/N 578722-013
4. PLATTER SPEED CONTROL POT P/N 565254-201
5. REEL SPEED CONTROL POT P/N 565254-201
6. PILOT LIGHT P/N 546700-027
7. REEL SPINDLE BRAKE SPEED ADJ. POT (INSIDE CABINET) #565254-202
8. UNLOAD PLATTER BRAKE SPEED ADJ. POT (INSIDE CABINET) #565254-202



TOP VIEW



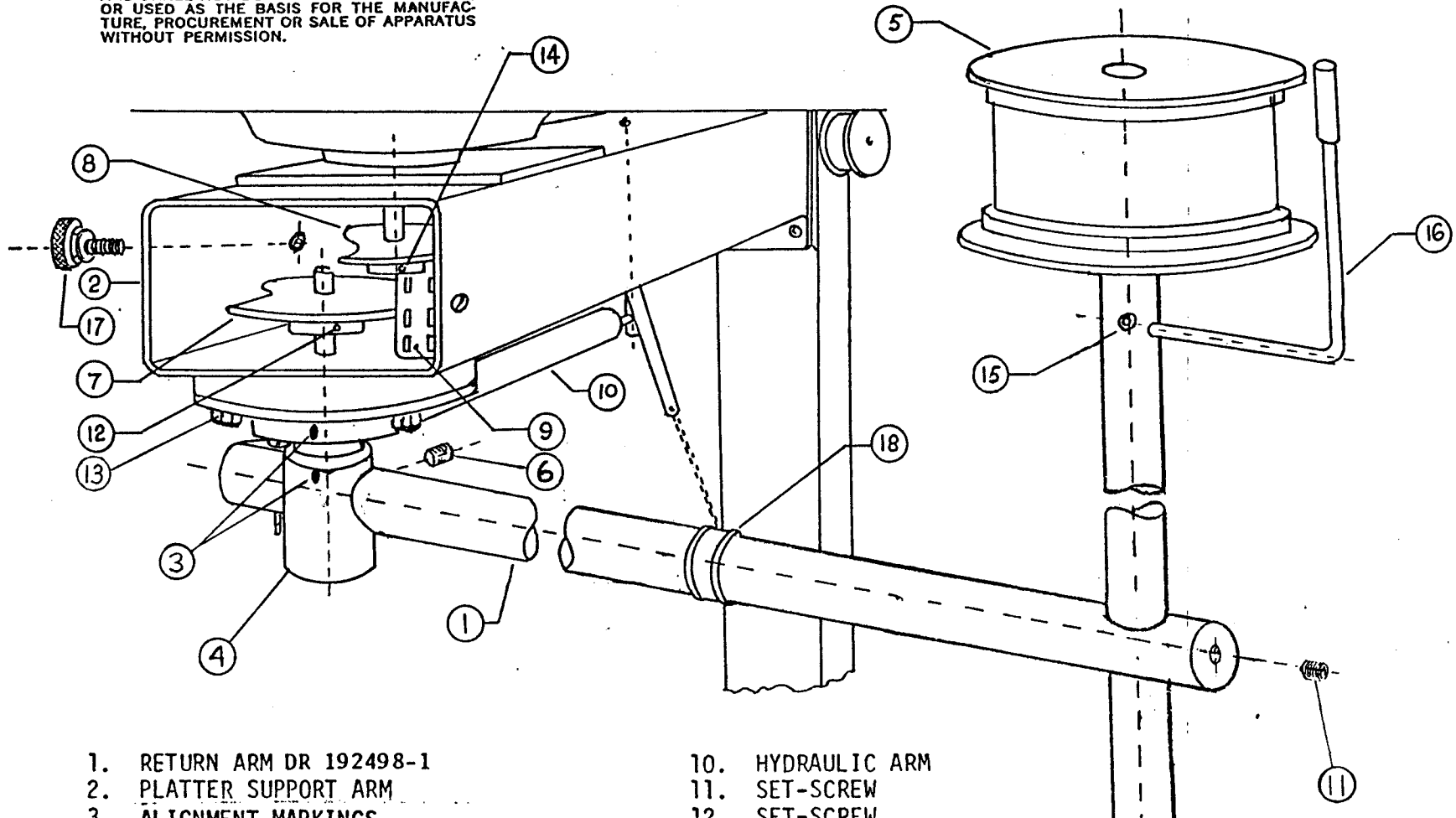
FRONT VIEW

1. MOTOR, #528100-005
2. ASS'Y, PULLEY #M115303-1
3. DRIVE PULLEY, #515000-115
4. BEARINGS, #515000-142
5. SHAFT, #DR192254-2
5. SHAFT ASS'Y, #DR192656-1 MODEL "ME" ONLY
6. REVERSIBLE SHAFT, #DR192159-2
6. REVERSIBLE SHAFT, #DR192654-2 MODEL "ME" ONLY
7. DRIVE PIN, #DR192160-2
7. DRIVE PIN, #DR192680-2 MODEL "ME" ONLY
8. ASS'Y., SPEED CONTROL MODULE, #S115528-1
9. MOTOR PLUG, #524202-010
10. LEVELER, #515000-072
11. ASS'Y., LEGS, #DM192154-4
12. SCREW, ROUND HD., 3/8-16x1-5/8 LG
13. CABLE ASS'Y., #DM192400-1
14. ASS'Y., SWIVEL ROLLER, #DM192161
15. ROLLER POST, #DR192158-2
16. HORIZONTAL BAR, #DR192155-3
17. ASS'Y., TABLE TOP, #DM192153-1
18. SET SCREW, #DR192167-2
19. BOLT, 1/4 x 4-3/4 LG.
20. NUT, 1/4
21. BELT P/N, #515000-104
22. KNOB #DC192655-2 MODEL "ME" ONLY

MAKE-UP TABLE ASSEMBLY
FIG. 2

TD-194

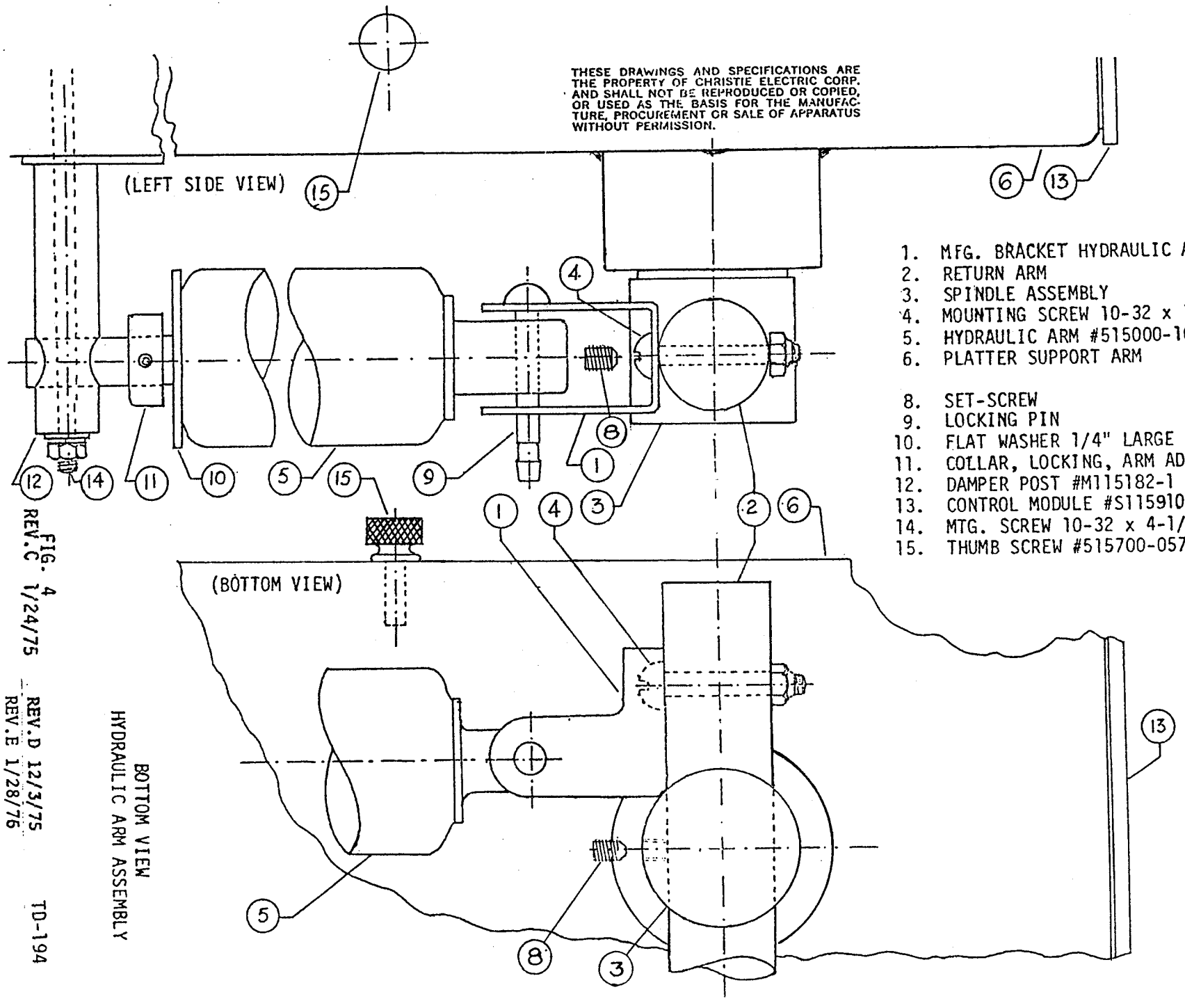
REV B 1/24/75
REV C 12/3/75
REV D 1/28/76



1. RETURN ARM DR 192498-1
2. PLATTER SUPPORT ARM
3. ALIGNMENT MARKINGS
4. SPINDLE SHAFT AND BEARING PIN DM192322-1
5. RETURN ROLLER ASSY DM192207-1
6. SET-SCREW
7. RETURN CONTROL SHUTTER DR192278-3
8. FEED CONTROL SHUTTER DR192294-1
9. CONTROL MODULE RECEPTACLE #524106-002
10. HYDRAULIC ARM
11. SET-SCREW
12. SET-SCREW
13. PRESSURE PLATE HDWE.
14. SET-SCREW
15. SET-SCREW
16. FILM KEEPER #M115463-1
17. THUMB SCREW #515700-057
18. RETURN STOP ADJU CLAMP

RETURN ARM ASSEMBLY
FIG. 3
REV.A 10/19/73 REV.B 12/3/75
REV.C 1/28/76

TD-194



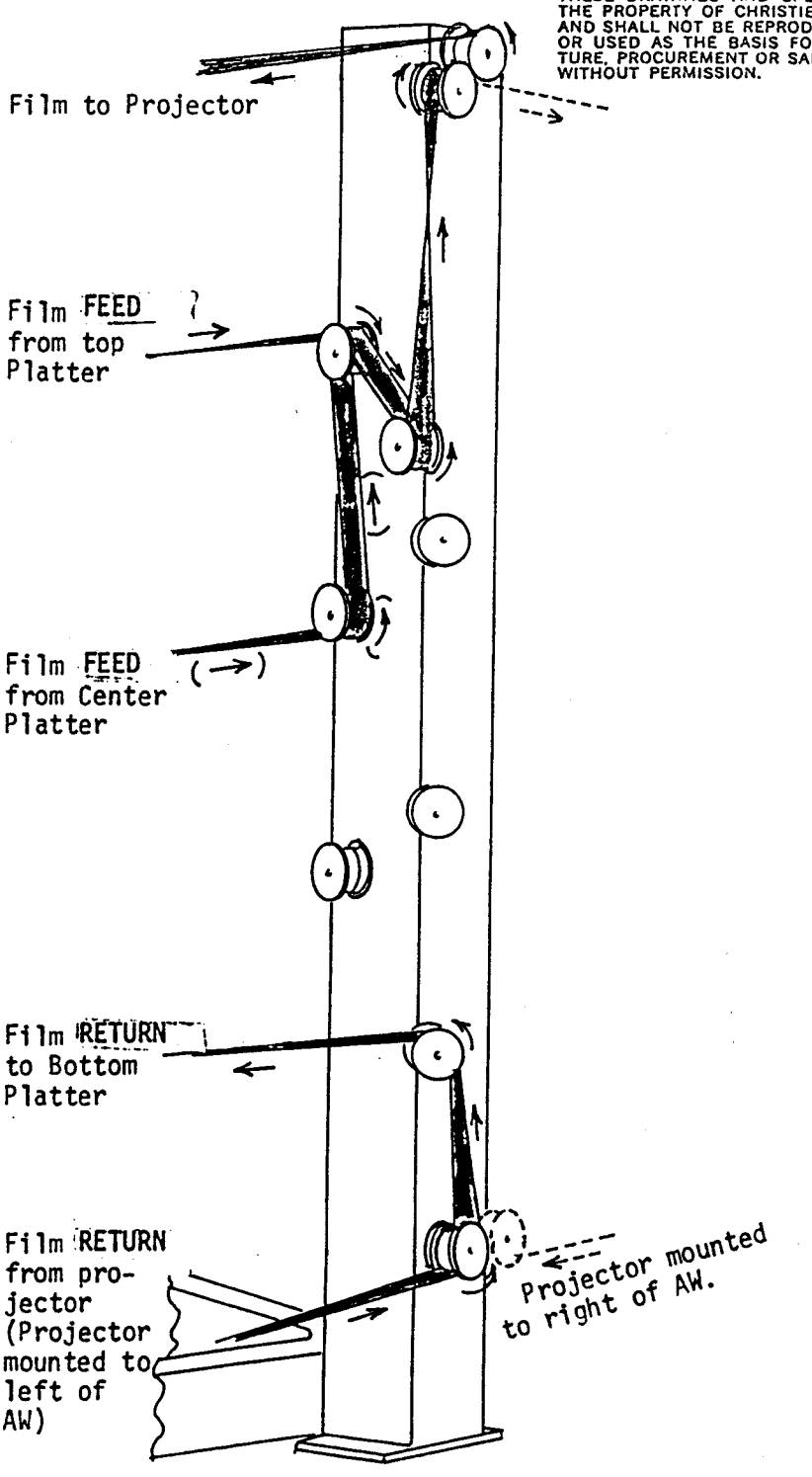
1. M.F.G. BRACKET HYDRAULIC ARM
2. RETURN ARM
3. SPINDLE ASSEMBLY
4. MOUNTING SCREW 10-32 x 1/2
5. HYDRAULIC ARM #515000-105
6. PLATTER SUPPORT ARM

8. SET-SCREW
9. LOCKING PIN
10. FLAT WASHER 1/4" LARGE PATTERN
11. COLLAR, LOCKING, ARM ADJ. #515000-116
12. DAMPER POST #M115182-1
13. CONTROL MODULE #S115910-1
14. MTG. SCREW 10-32 x 4-1/2"
15. THUMB SCREW #515700-057

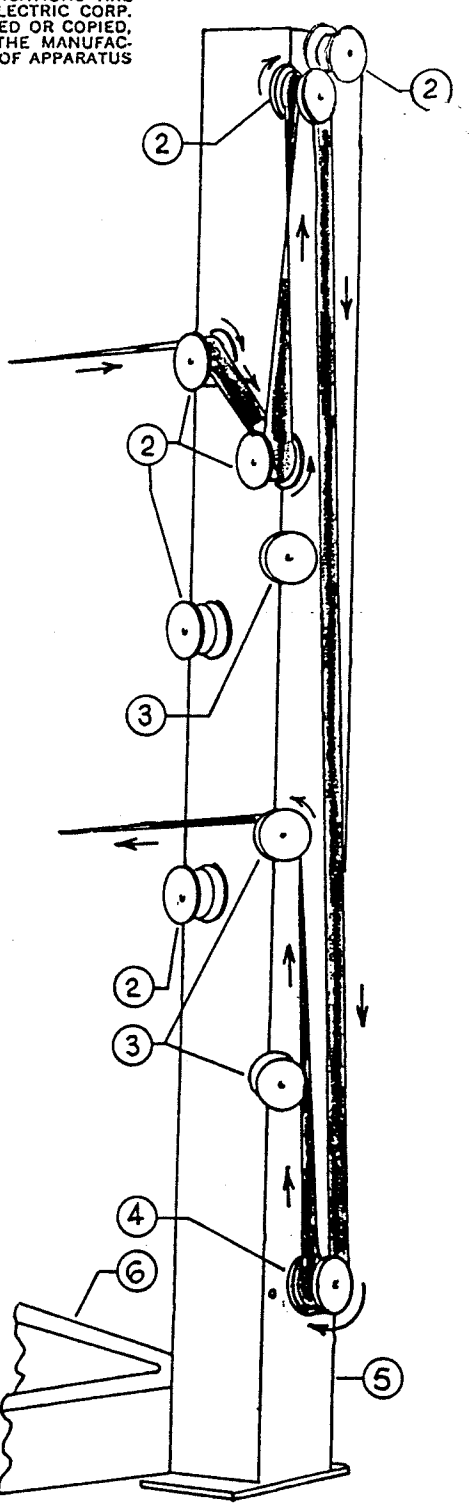
FIG. 4
BOTTOM VIEW
HYDRAULIC ARM ASSEMBLY

REV.C 1/24/75
REV.D 12/3/75
REV.E 1/28/76

TD-194



FILM THREADING VERTICAL COLUMN



FILM THREADING PLATTER TO PLATTER

1.
2. ROLLER, 3" STD DM192206-1
3. ROLLER SWIVEL DM192182-1
4. ROLLER, 3" LONG SHAFT DM192204-1
5. VERTICAL COLUMN
6. FOOT

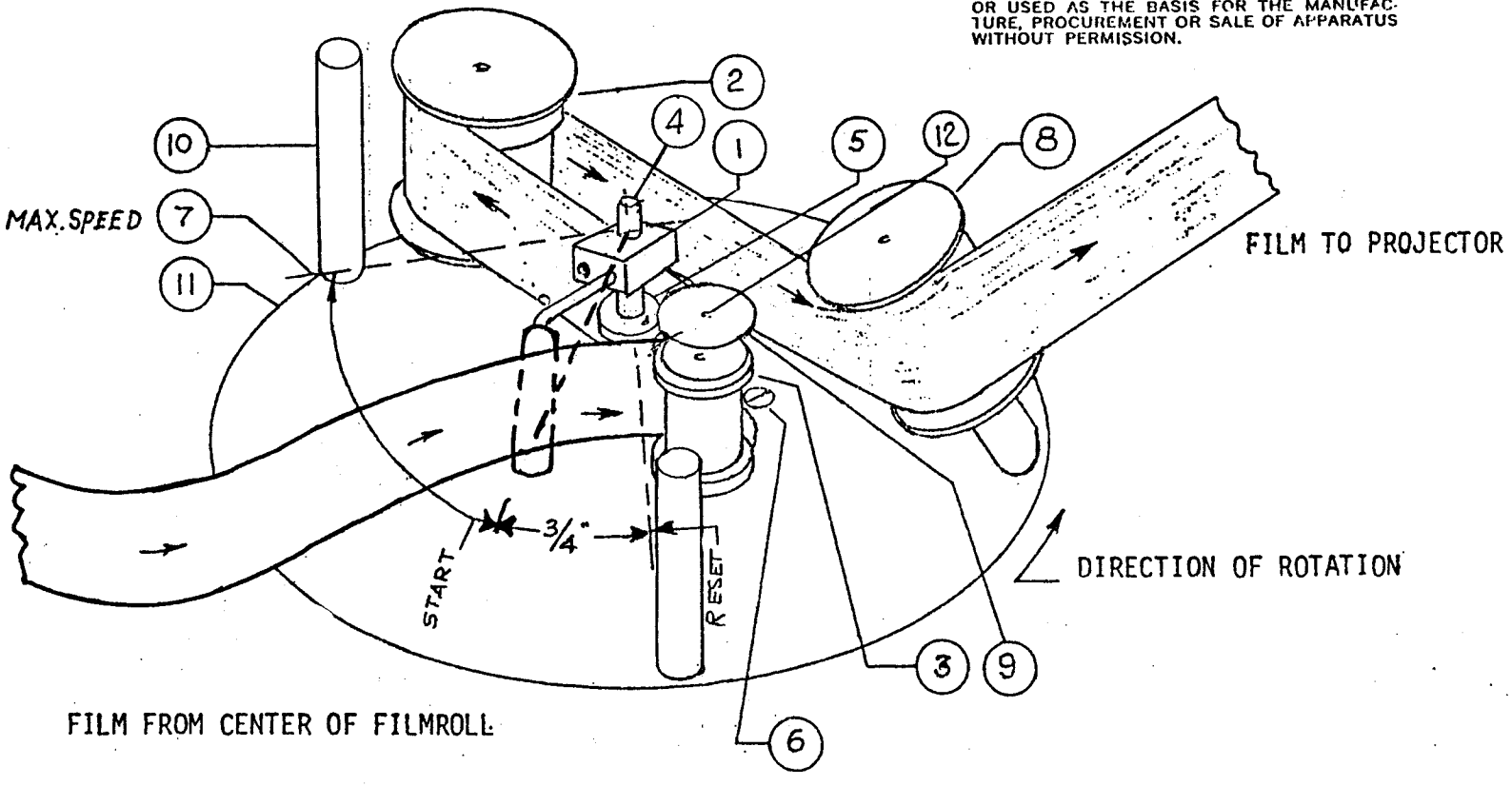
FIG. 5

FIG. 5A

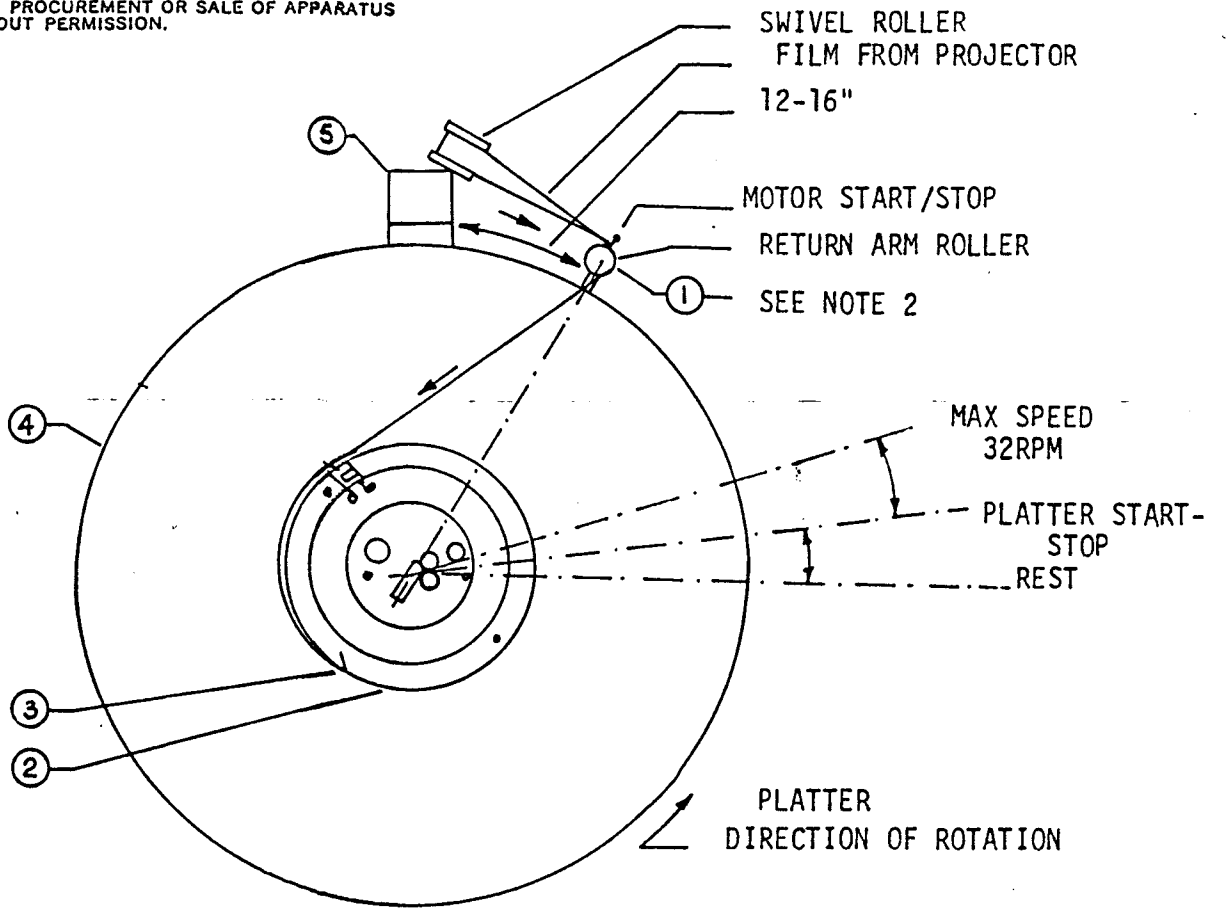
REV.A 1/24/75
REV.B 12/3/75 TD-194
REV.C 1/28/76

CENTER FEED CONTROL ARM FILM THREADING

FIG. 6
REV.C 4/2/75
REV.D. 12/3/75
REV.E. 1/28/76



1. ASS'Y FILM POSITION SENSOR DM192514-1
2. ROLLER, 5°, DM192210-1
3. ROLLER INVERSE, DM192213-1
4. NYLON SHAFT, #M115210-1
5. COLLAR, SPRING ADJ., DR192289-1
6. MTG., SCREWS
7. MAX. SPEED POSITION
8. ROLLER, 10°, DM192211-1
9. ROLLER, 1-1/4", DM 192212-1
10. GUIDE PIN, #M115221-1
11. PLATE MTG., #M115218-1
12. SPRING FEED CONTROL, DR192445-1



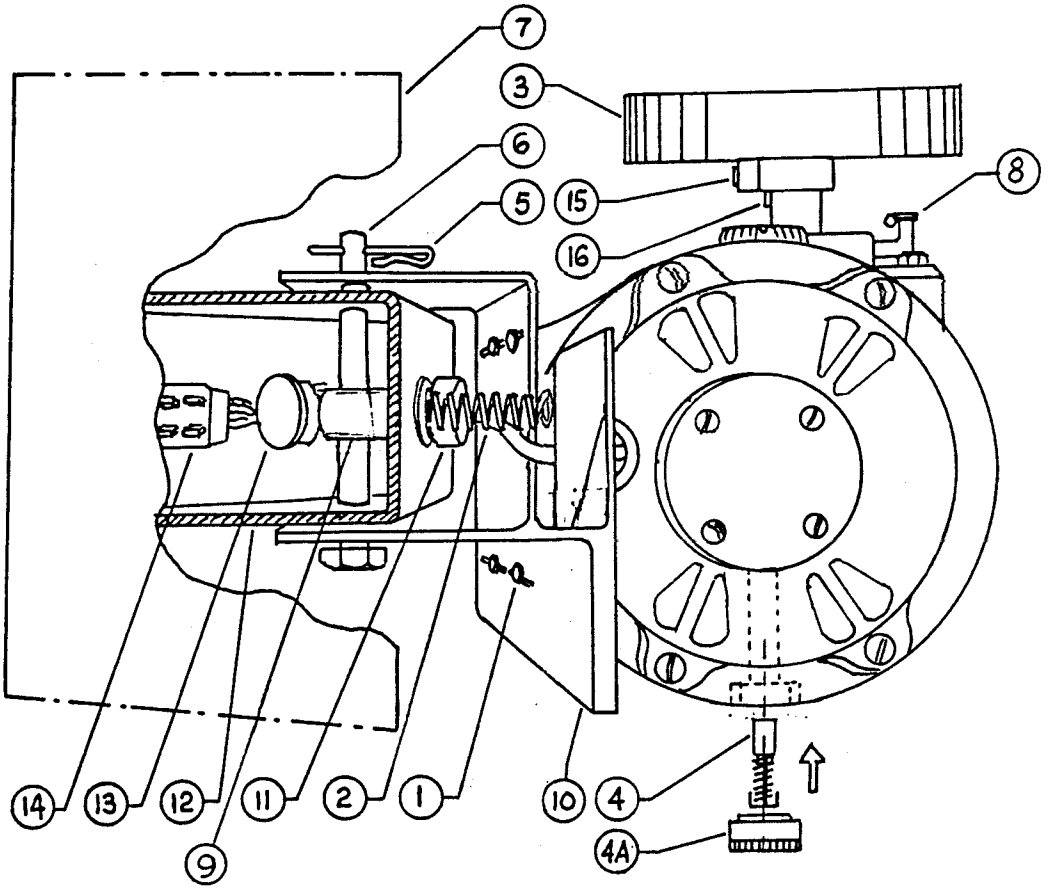
1. RETURN ARM
2. TAKE-UP RING, #C115713-1
3. FILM SLOT (IN TAKE-UP RING)
4. PLATTER ASS'Y 52", #M115540-1
5. VERTICAL (MAIN) COLUMN

NOTE:

1. RETURN ARM SHOULD TAKE APPROX. 4-6 SEC. TO TRAVEL FROM MOTOR START/STOP TO REST POSITION

2. WHEN THREADING FILM FOR TAKE-UP, RETURN ARM MUST BE HELD CLOSE TO THE VERTICAL (MAIN) COLUMN. (PAST MOTOR START/STOP POSITION)

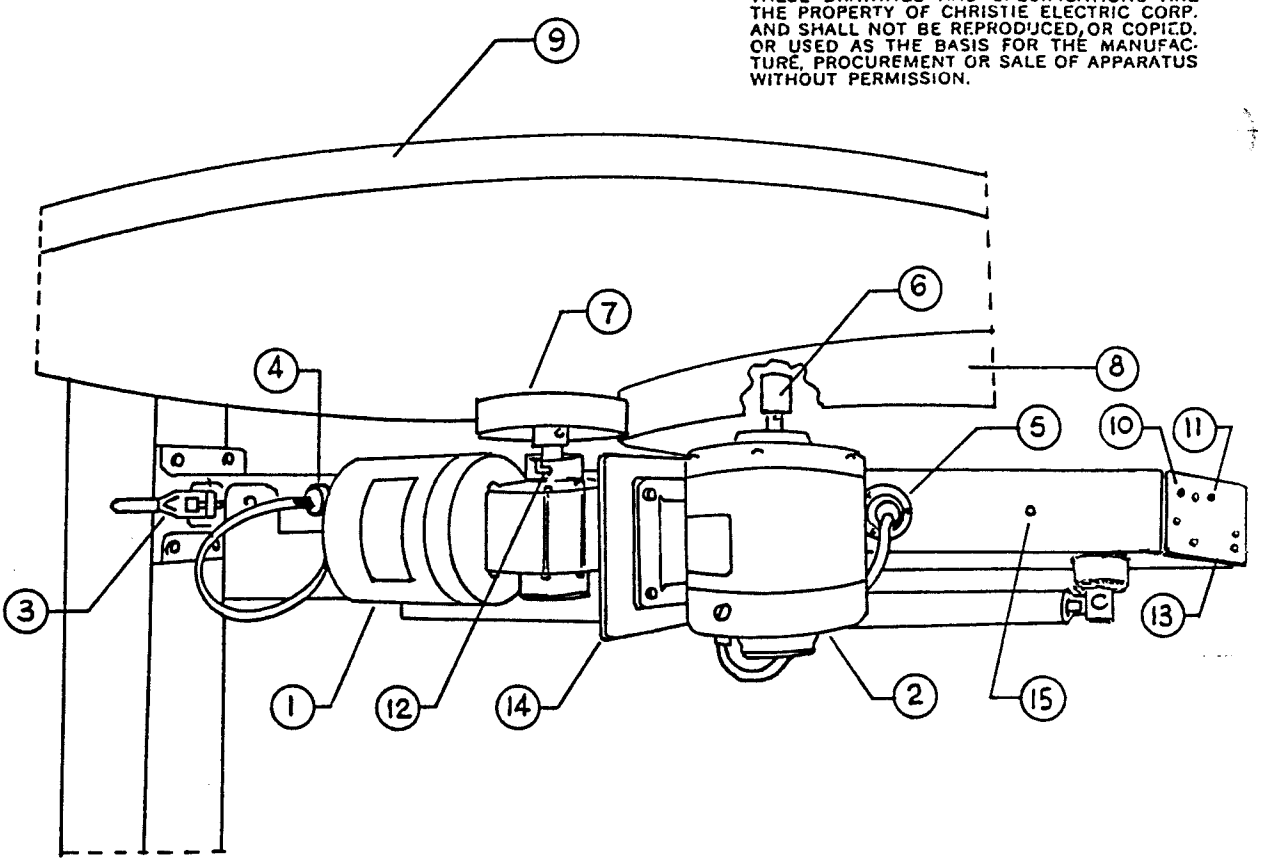
RETURN ARM CONTROL AND THREADING
FIG. 7
REV.A 8/20/74
REV.B 12/3/75



1. PLATTER DRIVE MOTOR MOUNTING SCREWS
2. SPRING, DRIVE MOTOR TENSION #515610-025
3. 4" DRIVE WHEEL #DM192279-1
4. BRUSH DRIVE MOTOR #515000-107
4A. BRUSH CAP DRIVE MOTOR #515000-112
5. CLIP, BOLT RETAINER #515000-117
6. BOLT, MOTOR ASSEMBLY MOUNTING #M115419-1
7. VERTICAL COLUMN WELDMENT ASSEMBLY #C115161-1
8. OIL CUP
9. HOUSING SPRING #DR192477-1
10. BRACKET DRIVE MOTOR MOUNTING #C115718-1
11. PLUG, 3 PRONG, TWIST LOCK NEW P/N 524203-022
12. ARM WELDMENT ASSEMBLY, PLATTER SUPPORT #C115459-2
13. DIODE BRIDGE #541146-011 (MOUNTED ON MOTOR RECEPTACLE)
14. PLUG MALE #524206-004
15. SET-SCREW (4" DRIVE WHEEL)
16. WOODRUFF KEY 3/16x3/16x1 1/8" LG.

PLATTER DRIVE MOTOR ASSEMBLY
FIG. 8

REV.A 10/19/73
REV.B 12/3/75
REV.C 1/28/76



1. PLATTER DRIVE MOTOR #528120-003
2. MAKE-UP/BRAKE MOTOR #528050-003
3. CLUTCH CLAMP #515700-098
4. PLATTER DRIVE MOTOR PLUG 3 PRONG MALE 524203-022
5. MAKE-UP/BRAKE MOTOR PLUG-3 PRONG MALE 524203-022
6. 1-1/8" DRIVE WHEEL DR192276-2
7. 4" DRIVE WHEEL (SEE FIG. 8)
8. MOTOR DRIVE HUB
9. PLATTER #M115540-1
10. FEED SPEED CONTROL ADJ. (TURN CLOCKWISE TO INCREASE SPEED)
11. RETURN SPEED CONTROL ADJ. (TURN COUNTERCLOCKWISE TO DECREASE SPEED.)
12. OIL CUP
13. SPEED CONTROL MODULE ASSEMBLY #S115910-1 (50 Hz=#S115911-1)
14. BRACKET MOUNTING MAKE-UP/BRAKE MOTOR #C115719-1
15. THUMB SCREW

CENTER PLATTER DRIVE/BRAKE MOTOR ASSEMBLY

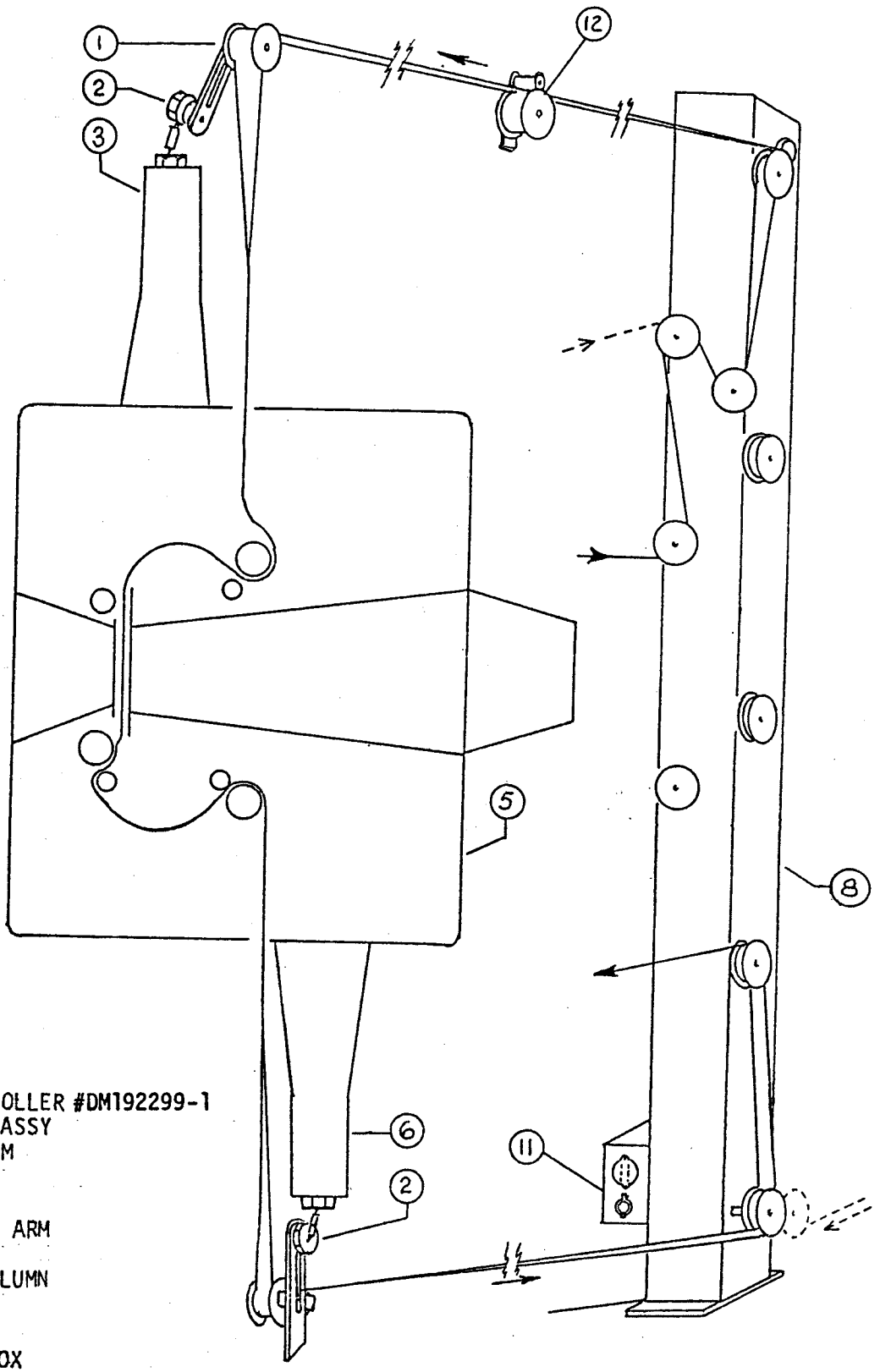
FIG. 9

REV.B 1/17/74

REV.C 12/3/75

REV.D. 1/28/76

REEL ARM ASSEMBLY



1. PROJECTOR ROLLER #DM192299-1
2. SWIVEL ARM ASSY
3. TOP REEL ARM
4.
5. PROJECTOR
6. BOTTOM REEL ARM
7.
8. VERTICAL COLUMN
9.
10.
11. CONNECTOR BOX
12. FILM TRANSPORT ROLLER

FIG. 10

REV.B 12/16/74
REV.C. 12/3/75
REV.D 1/28/76

CHECK OUT VOLTAGES FOR TROUBLE SHOOTING.

PIN 1-2, 115 V. AC
PIN 1-4, 12 V. AC
PIN 1-3, 12 V. AC
PIN 3-4, 24 V. AC

502174	REV. C

SYM	REVISION	DATE	DR.	APP'D

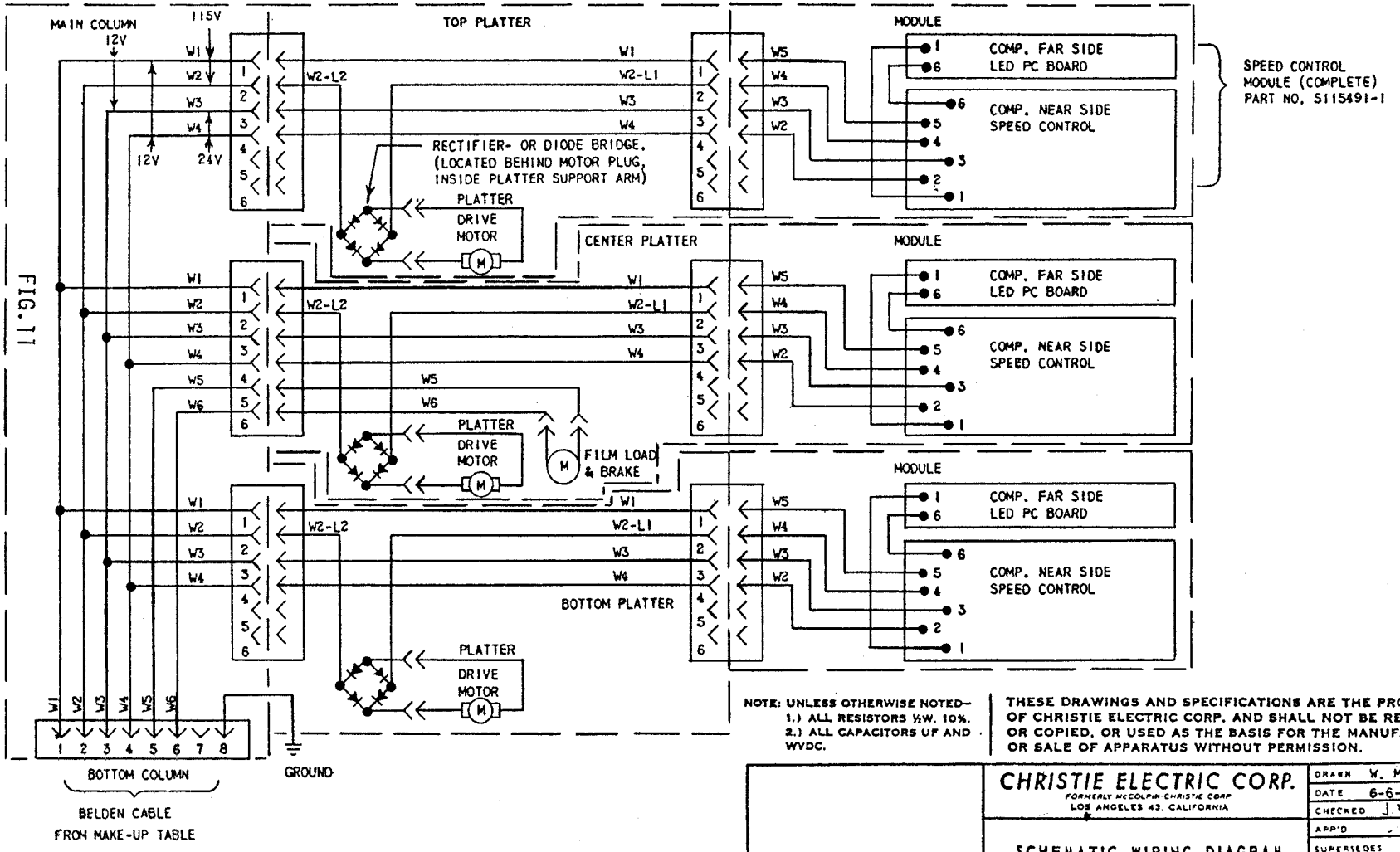


FIG. 11

REV. A 10/19/73

TD-194

NOTE: UNLESS OTHERWISE NOTED—
1.) ALL RESISTORS ½W. 10%.
2.) ALL CAPACITORS UF AND WVDC.

AW. 5, WIRING DIAGRAM STANDARD MODEL

SERIAL NUMBERS 1094 & BELOW.
AW5
MODEL

CHRISTIE ELECTRIC CORP.
FORMERLY McCOLPIN CHRISTIE CORP
LOS ANGELES 43, CALIFORNIA

SCHEMATIC WIRING DIAGRAM

DRAWN	W. MANAHAN
DATE	6-6-73
CHECKED	J. [illegible]
APP'D	
SUPERSEDES	
DWG. NO.	502174
REV.	C

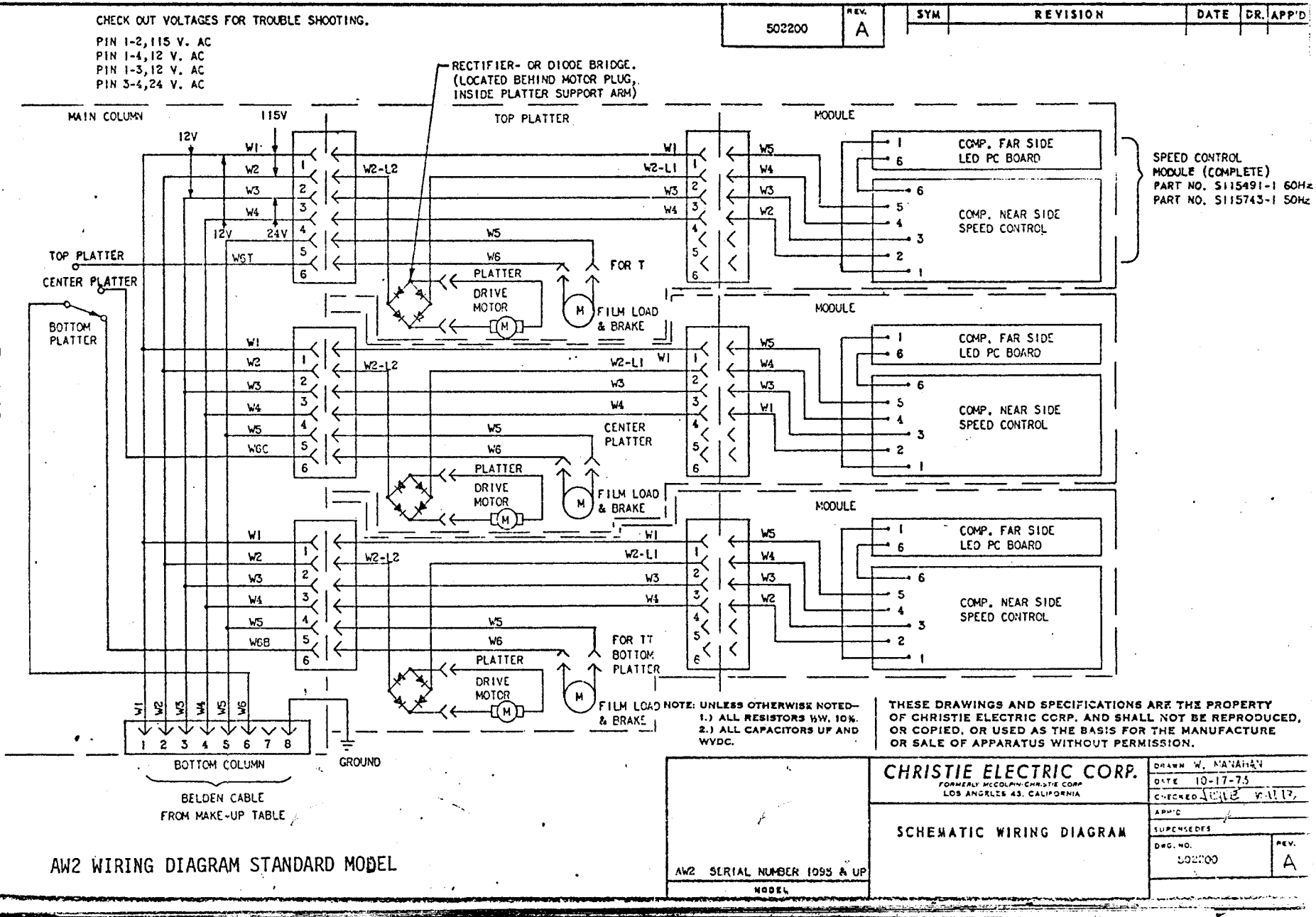
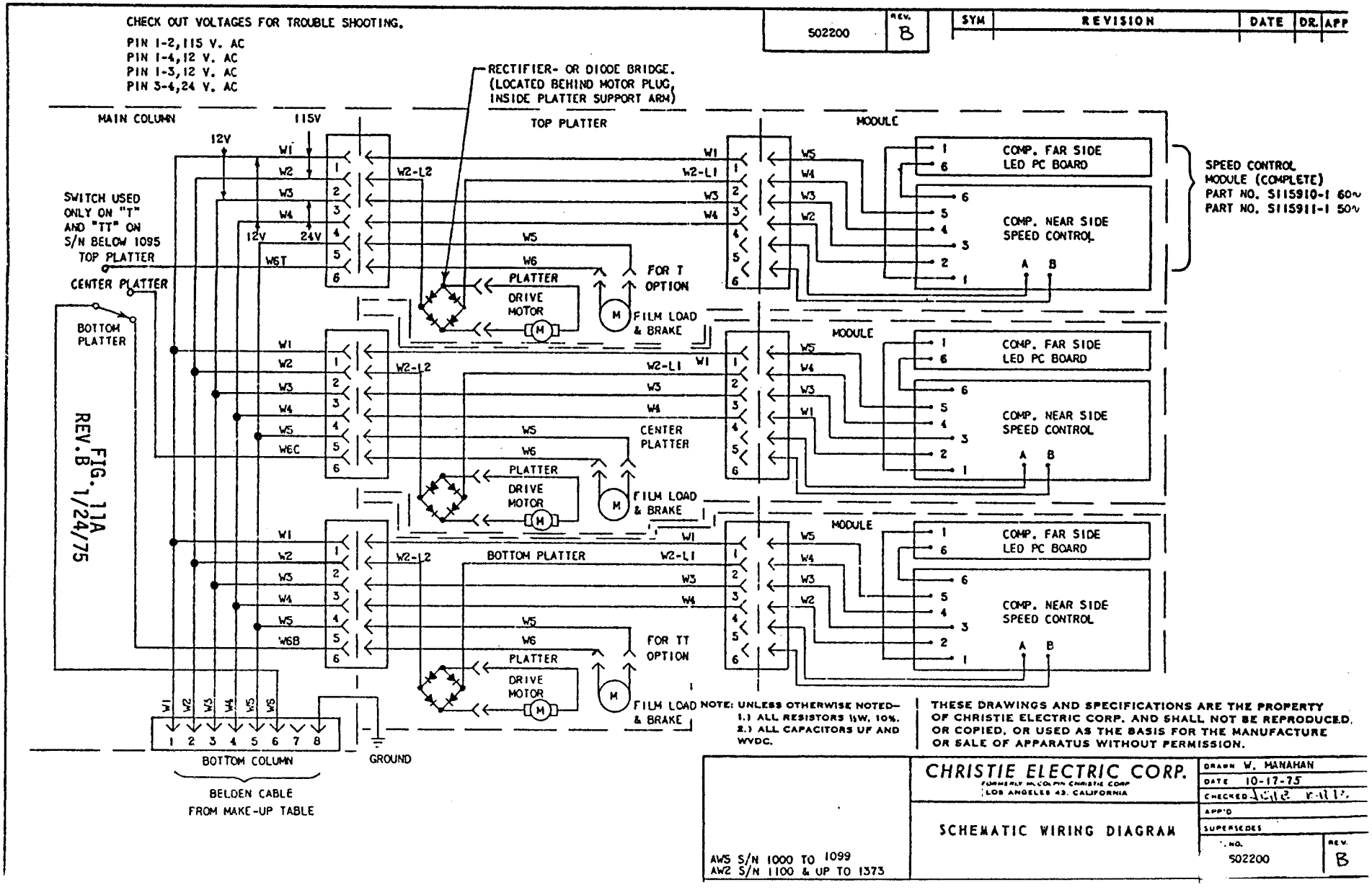
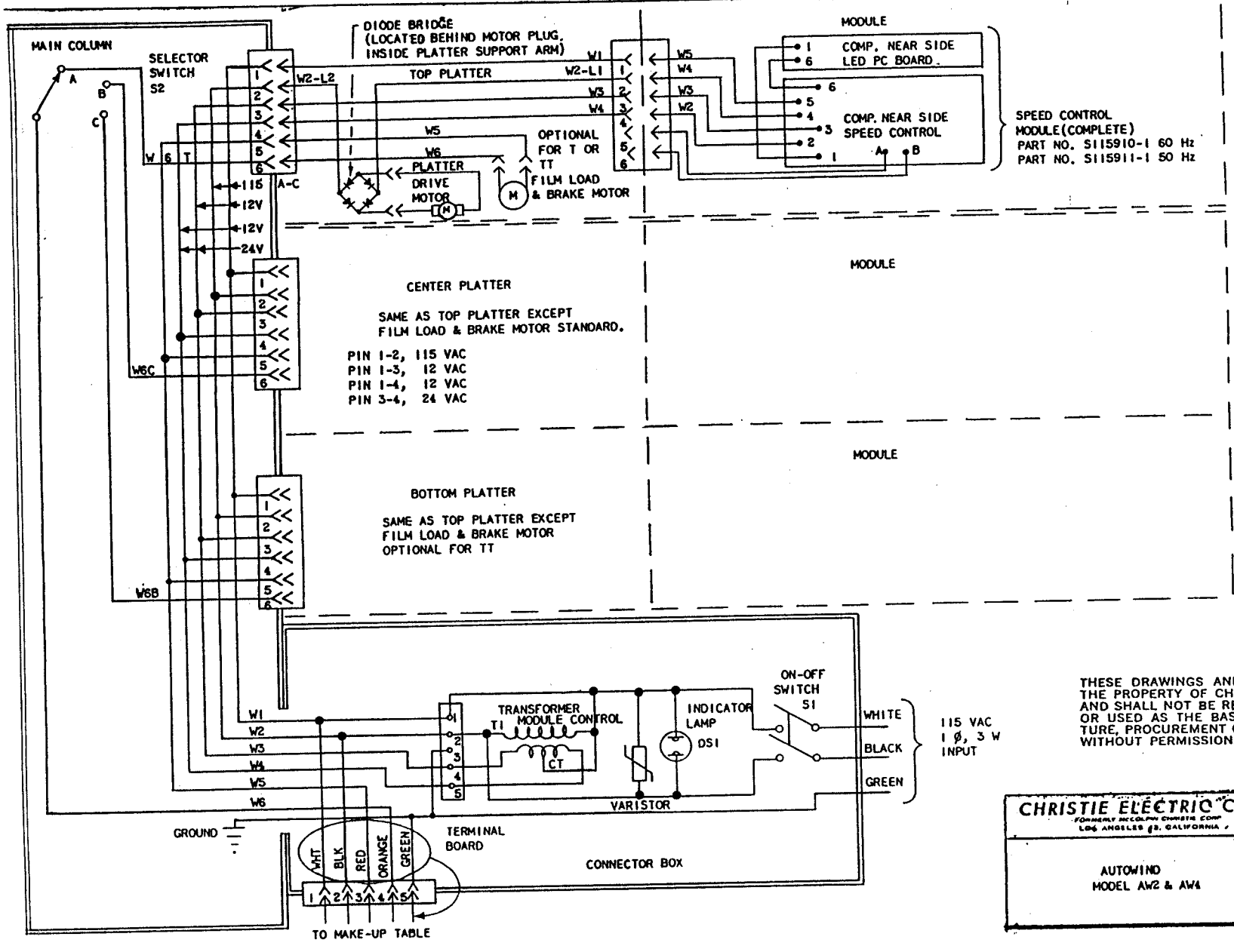


FIG. 11A

AW2 WIRING DIAGRAM STANDARD MODEL


CHECK OUT VOLTAGES FOR TROUBLE SHOOTING.
PIN 1-2, 115 V. AC
PIN 1-4, 12 V. AC
PIN 1-3, 12 V. AC
PIN 3-4, 24 V. AC
502200
REV. B
SYM | REVISION | DATE | DR. | APP
RECTIFIER- OR DIODE BRIDGE. (LOCATED BEHIND MOTOR PLUG, INSIDE PLATTER SUPPORT ARM)
MAIN COLUMN
115V
12V
TOP PLATTER
MODULE
SWITCH USED ONLY ON "T" AND "TT" ON S/N BELOW 1095
TOP PLATTER
CENTER PLATTER
BOTTOM PLATTER
W1
W2
W3
W4
W5
W6T
W6C
W6B
W2-L2
W2-L1
12V
24V
PLATTER DRIVE MOTOR
FOR T OPTION
FILM LOAD & BRAKE
CENTER PLATTER
FOR TT OPTION
COMP. FAR SIDE LED PC BOARD
COMP. NEAR SIDE SPEED CONTROL
A
B
SPEED CONTROL MODULE (COMPLETE)
PART NO. S115910-1 60~
PART NO. S115911-1 50~
BOTTOM COLUMN
GROUND
BELDEN CABLE FROM MAKE-UP TABLE
FIG. 11A
REV. B 1/24/75
NOTE: UNLESS OTHERWISE NOTED—
1.) ALL RESISTORS ½W, 10%.
2.) ALL CAPACITORS UF AND WVDC.
THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF CHRISTIE ELECTRIC CORP. AND SHALL NOT BE REPRODUCED, OR COPIED, OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS WITHOUT PERMISSION.
AWS S/N 1000 TO 1099
AW2 S/N 1100 & UP TO 1373
CHRISTIE ELECTRIC CORP.
FORMERLY McCOLPIN CHRISTIE CORP
LOS ANGELES 43, CALIFORNIA
SCHEMATIC WIRING DIAGRAM
DRAWN W. MANAHAN
DATE 10-17-75
CHECKED
APP'D
SUPERSEDES
NO. 502200
REV. B



B REV PER ECO 16104 7-22-75 WH
C REV PER ECO 16221 12-2-75 WH
D REV PER ECO 16272 2-24-76 WH

CHRISTIE ELECTRIC CORP.
FORMERLY MCCOLPIN CHRISTIE CORP.
LOS ANGELES 23, CALIFORNIA

AUTOWIND
MODEL AW2 & AW4

DRAWN N. Williams
DATE 4-9-74
CHECKED
APP'D
SUPERSEDES 502200
DWG. NO. 502268
REV. D
SHEET OF

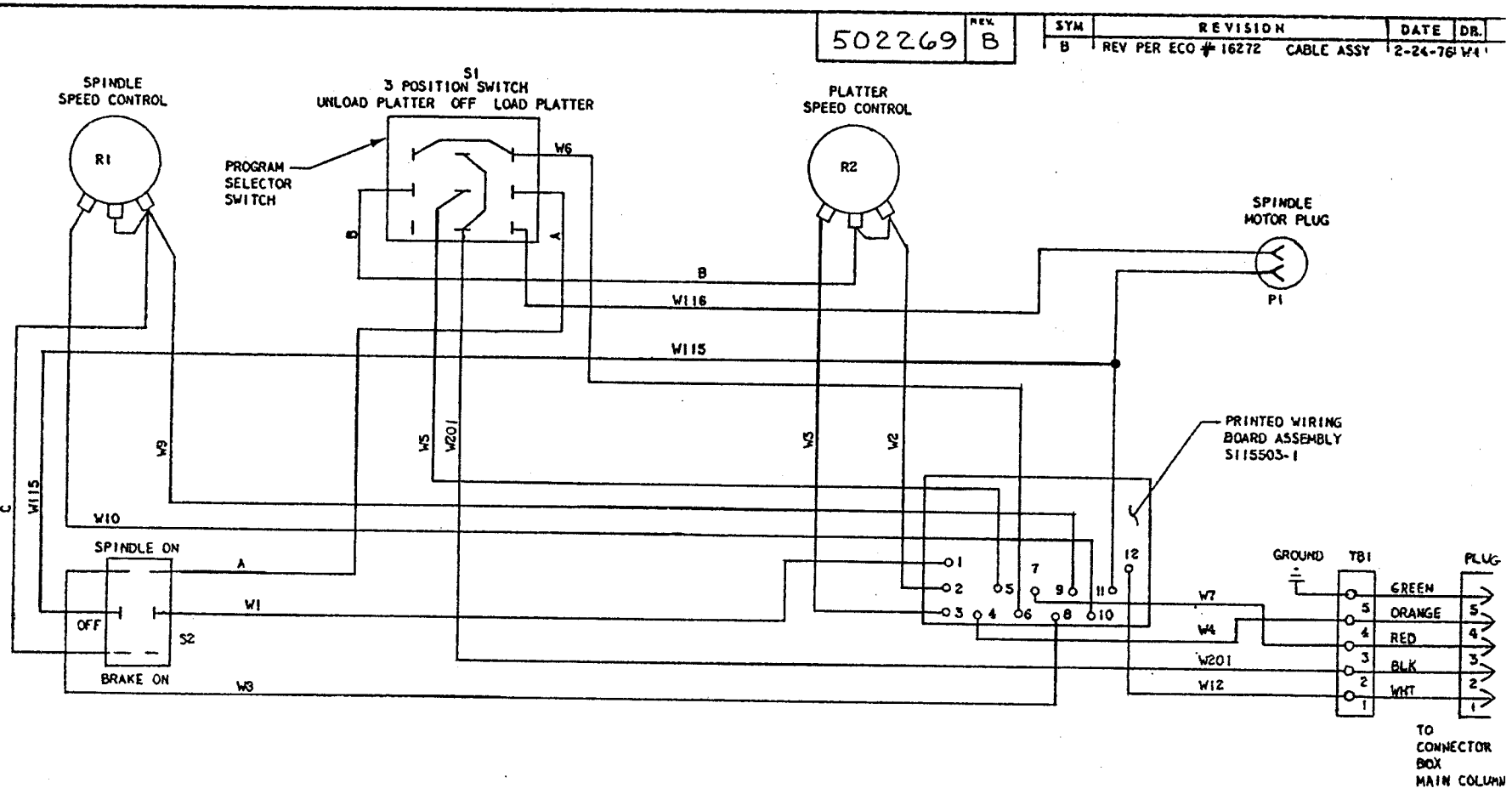


FIG. 12
REV A 2/24/76

NOTE: UNLESS OTHERWISE NOTED—
1.) ALL RESISTORS ½W, 10%.
2.) ALL CAPACITORS UP AND WVDC.

USED ON UNITS S/N 1374-77, 1402, 1416,21, 1426-28, 1432-1441, 1444 1979, S/N 1980 & ABOVE HAVE NEW CABLE COLORS

AW

CHRISTIE ELECTRIC CORP.
FORMERLY MCCOLPIN CHRISTIE CORP.
LOS ANGELES 43 CALIFORNIA

DRAWN W. MANEHAN
DATE 2-6-76
CHECKED
APPR.
SUPERSEDES
DRAWING 502269 B

SCHEMATIC WIRING DIAGRAM
CONTROL BOX SUFFIX M
(MAKE UP TABLE)

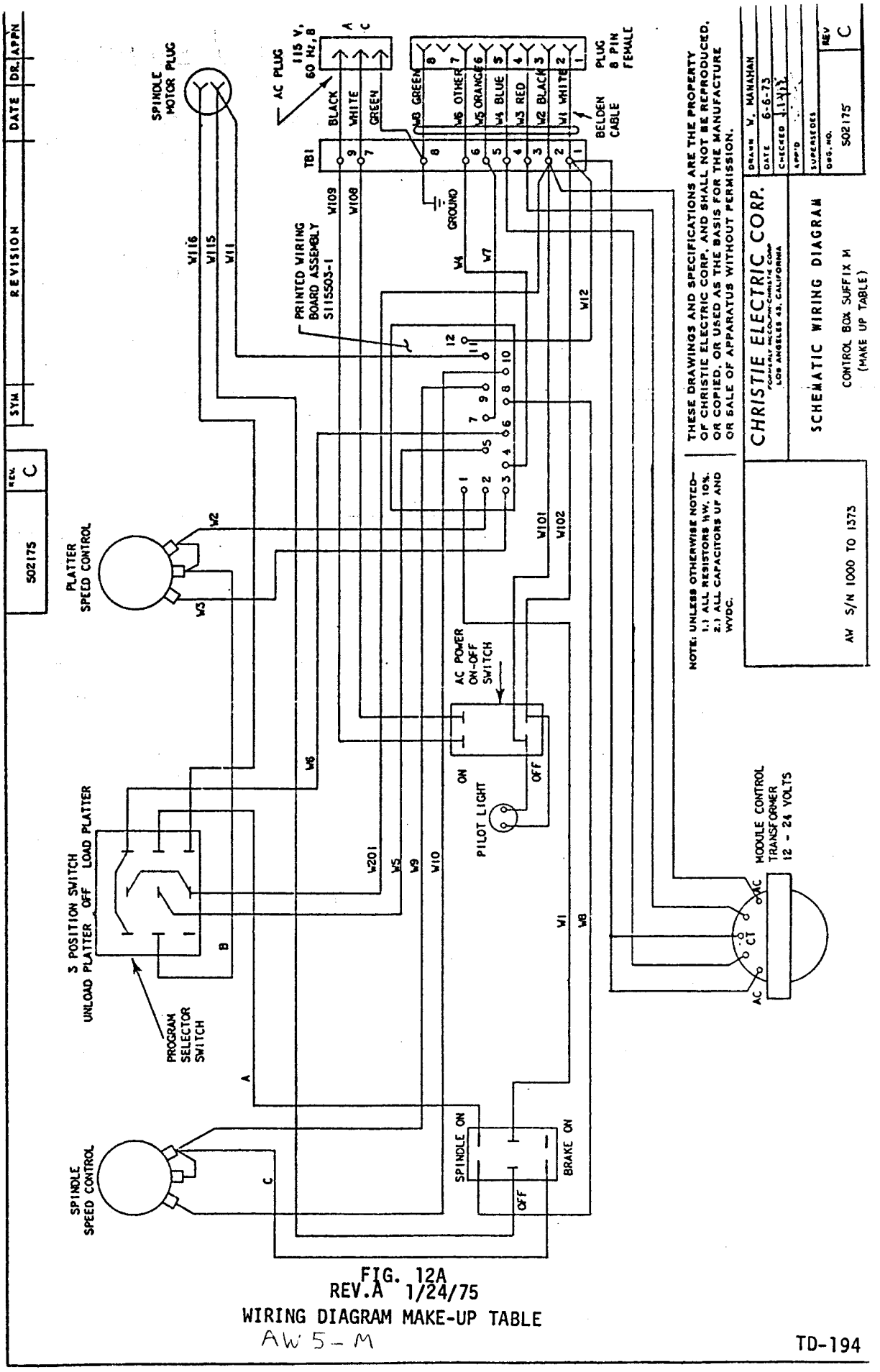


FIG. 12A
REV.A 1/24/75
WIRING DIAGRAM MAKE-UP TABLE
AW 5-M

INSTRUCTIONS FOR FIELD WIRING OF SPLIT-FILM FAIL-SAFE:

1. Mount switch S1 in a convenient place for easy operation. Drill or punch a 1/2" hole for mounting. Connect a wire from TB1-2 to a terminal on circuit #1 on S1. Connect a wire from TB1-3 to the other terminal on circuit #1 on S1. Connect a wire from TB1-4 to a terminal on circuit #2 on S1. Connect a wire from TB1-6 to the other terminal on circuit #2 on S1. Use #12 or #14 wire.

2. Mount the split-Film Fail-Safe switch S2-S3, on the lower Christie Reel Support Arm. Connect one wire from S2-S3 to TB1-5. Connect the other wire from S2-3 to TB1-6.

3. For a Christie console, connect a wire from terminal TB1-7 and 8 to TB2-4 and 5 respectively, located in the power supply compartment of the console.

   For a Christie lamphouse, connect a wire from TB1-7 and 8 to TB2-5 and 6 respectively, located in the lamphouse. Use #12 or #14 wire.

4. Connect TB1-9 and 10 in parallel with the projector motor ON-OFF switch. Use #12 wire.

5. Connect the hot side of the 115 volt AC line to TB1-2. Connect the neutral side of the AC line to TB1-1.

6. The film must be threaded through the projector, and S2-S3 must be closed before the Fail-Safe system can be operated.

7. To Operate: Start by momentarily closing S-1. Stop by opening S-1 to locked position.

SPLIT FILM FAIL SAFE
FIELD WIRING DIAGRAM

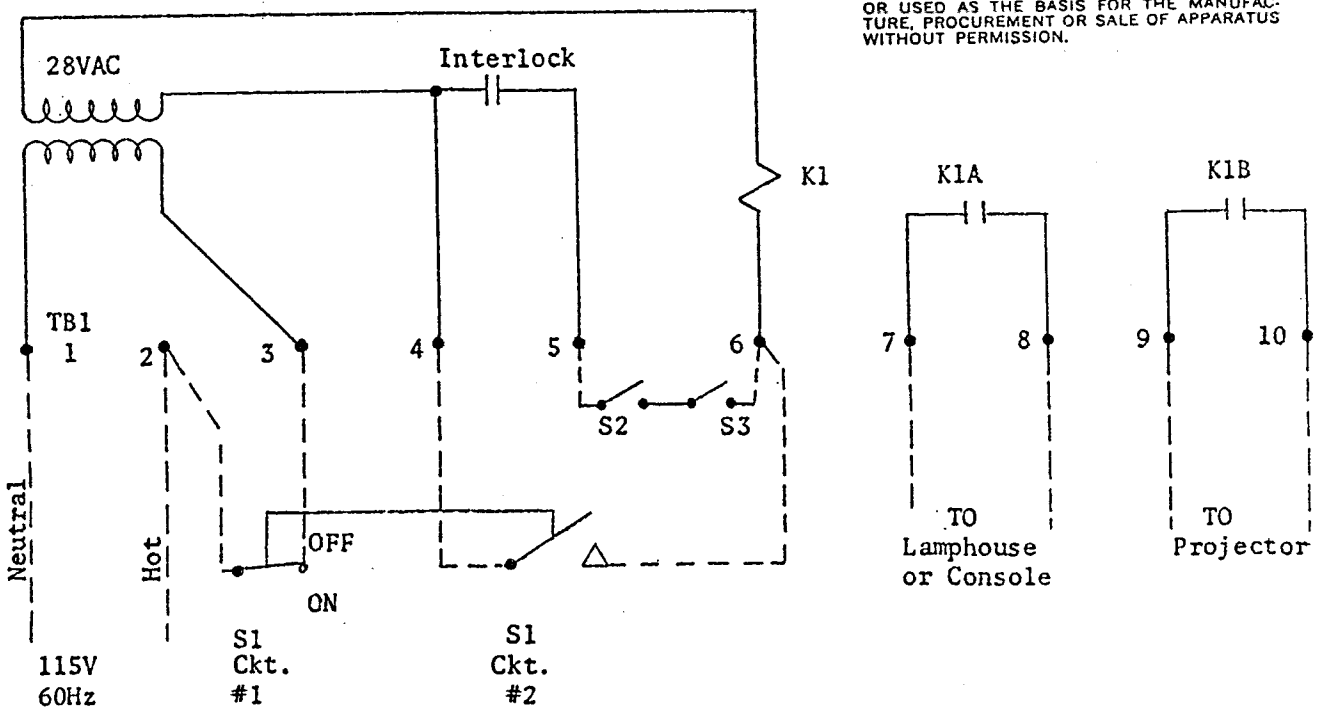
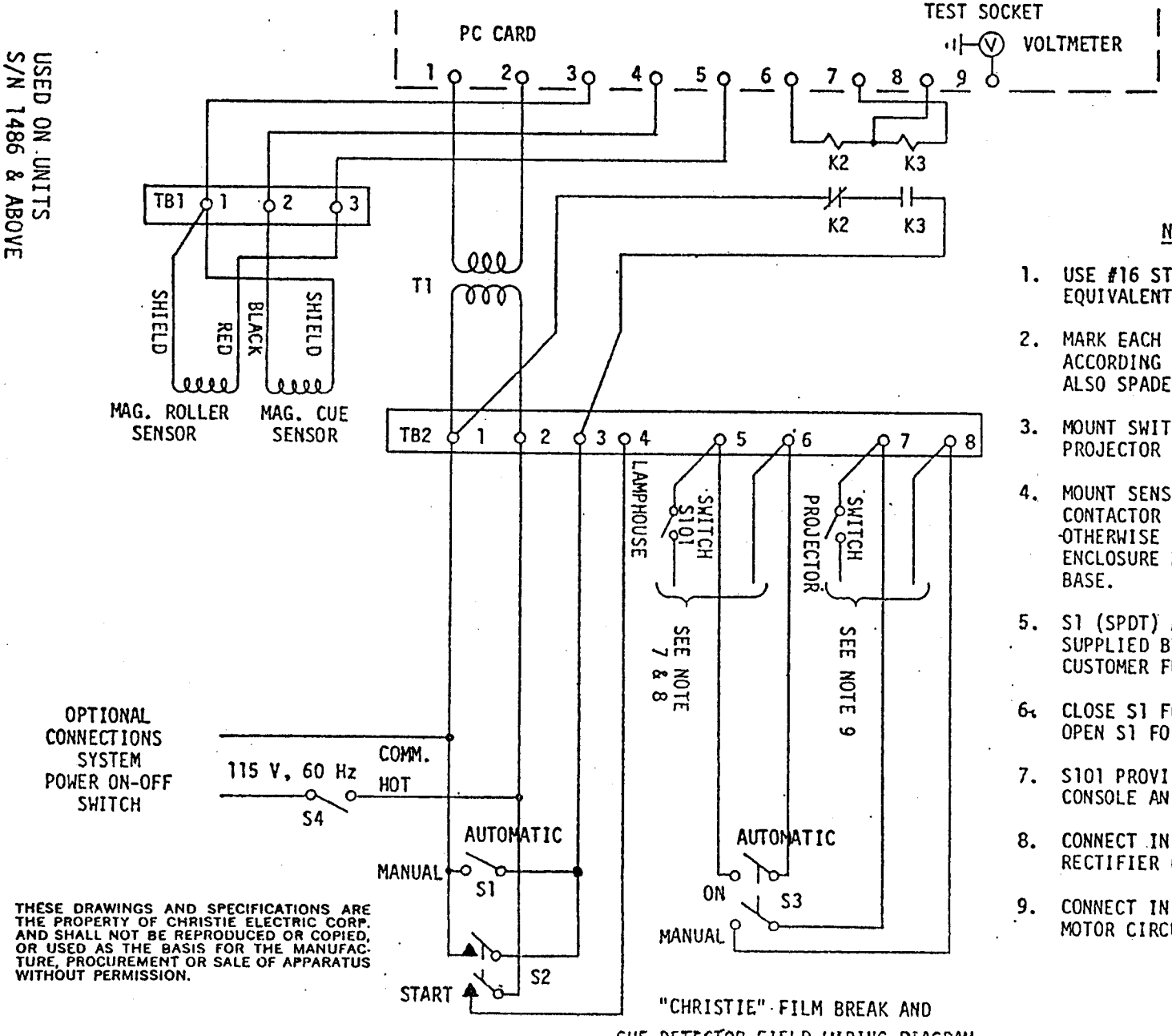


FIG. 13

TD-194

USED ON UNITS
S/N 1486 & ABOVE



"CHRISTIE" FILM BREAK AND CUE DETECTOR FIELD WIRING DIAGRAM

NOTES

1. USE #16 STRANDED TW WIRE OR EQUIVALENT.
2. MARK EACH WIRE WITH WIRE MARKERS ACCORDING TO TERMINAL CONNECTIONS. ALSO SPADE LUGS SHOULD BE USED.
3. MOUNT SWITCHES S1,S2,S3 ON PROJECTOR BASE.
4. MOUNT SENSOR AMPLIFIER AND CONTACTOR IN PROJECTOR BASE, OTHERWISE IN A SUITABLE ENCLOSURE NIPPLED ON PROJECTOR BASE.
5. S1 (SPDT) AND S2 (DPDT MOM) SUPPLIED BY C.E.C. S3 AND S4 CUSTOMER FURNISHED.
6. CLOSE S1 FOR MANUAL OPERATION. OPEN S1 FOR AUTOMATIC OPERATION.
7. S101 PROVIDED ON CHRISTIE CONSOLE AND LAMPHOUSE.
8. CONNECT IN SERIES WITH RECTIFIER CONTACTOR COIL.
9. CONNECT IN SERIES WITH "HOT" MOTOR CIRCUIT.

FIG. 13A
REV.A 1/24/75
REV.B 12/3/75

SYM	REVISION	DATE	DR.	APPD
A	RELEASED	2.19.76	[illegible]	RPE

DM 192755 REV. A

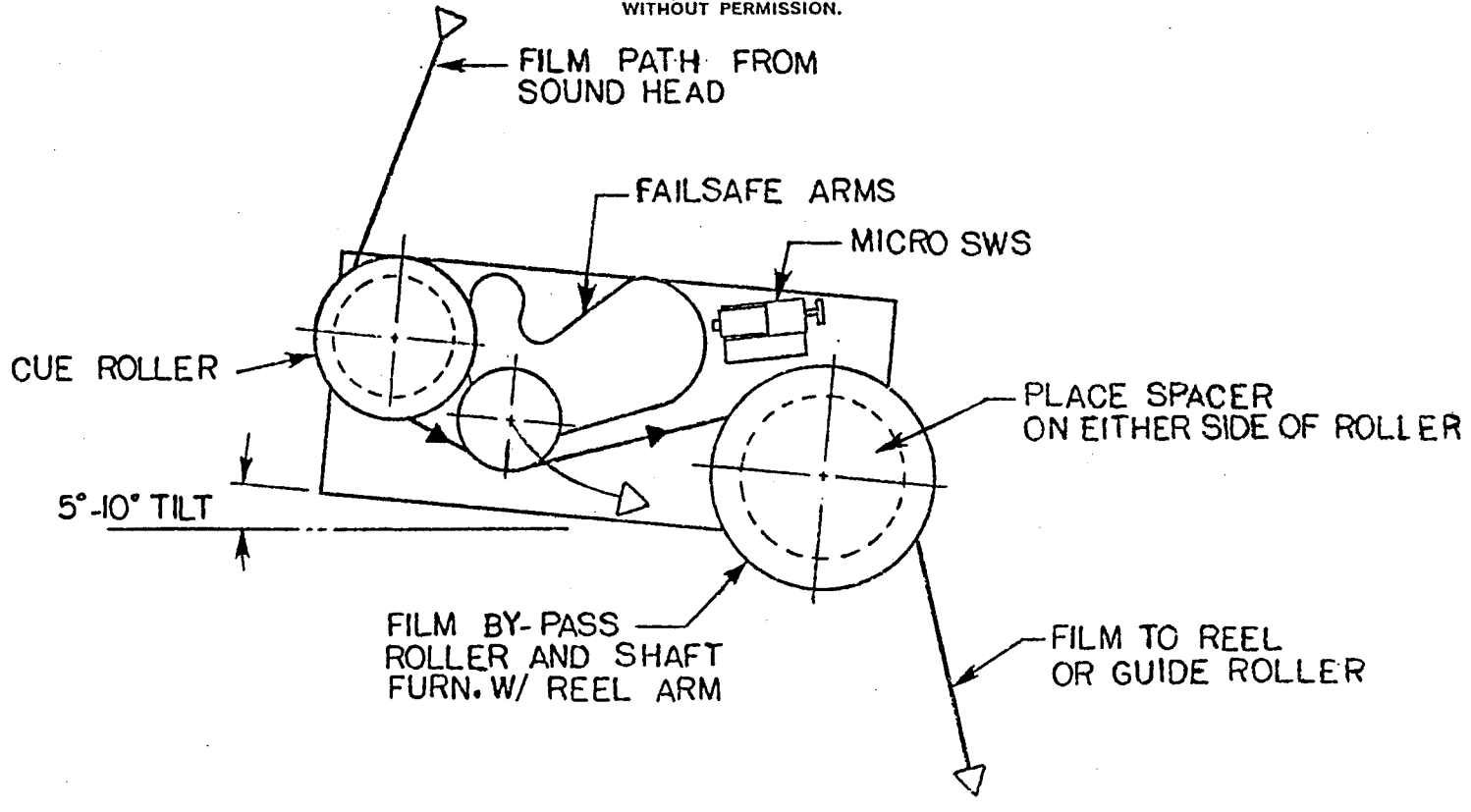


FIG 14

NEXT ASSEMBLY	MODEL
USED ON	

TOLERANCES
DECIMALS & ANGLES - AS SPECIFIED
FRACTIONS [illegible] ± .030
DECIMALS [illegible] ± .030
HOLE SIZES [illegible]
MAT'L SPEC.
SCALE
FED. IDENT. NO. 02294

CHRISTIE ELECTRIC CORP.
LOS ANGELES, CALIFORNIA 90043
ADDITIVE FINISH

SPLIT FILM-CUE DETECTOR/FAILSAFE

DRAWN [signature]
DATE 2.19.76
CHECKED [signature]
APP'D. [signature]
SUPERSEDES C

DWG. NO. DM192755 REV. A
SHEET 1 OF 1

TD 194

SHEET 1 OF 3 CHRISTIE ELECTRIC CORP. BILL OF MATERIAL ASSEMBLY # PL-

REG.#	ASSEMBLY NAME	MODEL # AW2, AW4	
W.O.#	AUTOWIND REPLACEMENT PARTS LIST	QTY	DATE REQ'D

ITEM NO.	PART NO.	PART NAME	QTY PER ASS'Y	QTY REQ'D	QTY ISSUED	QTY SHT.	PER EACH PART NO. LABOR HRS.	LABOR $	MAT. $	PER ASS'Y TOTAL HRS.	TOTAL $
1	528100-005	MOTOR (MAKE-UP TABLE) (C.C.W. ROT)									
2	DM115303-2	ASSEMBLY - drive wheel (1-3/8" dia., make-up table)									
3	515000-115	PULLEY									
4	DM192864-1	ASSEMBLY - swivel roller (make-up table)									
5	DR192159-2	REVERSIBLE SHAFT									
6	515000-117	HAIRPIN - cotter									
7	S115528-1	ASSEMBLY - speed control (make-up table)									
8	S115503-1	PRINTED WIRING BOARD (MAKE-UP TABLE)									
9	515000-104	BELT DRIVE									
10	DR192654-2	REVERSIBLE SHAFT (MODEL "ME" ONLY)									
11	546700-027	PILOT LIGHT (CONNECTOR BOX)									
12	DM192493-1	ASSEMBLY TRANSFORMER (CONNECTOR BOX)									
13	578722-011	SWITCH - on-off (connector box)									
14											
15	528120-003	MOTOR (PLATTER DRIVE)									
16	528050-003	MOTOR (MAKE-UP/BRAKE)									
17	DM192279-1	ASSEMBLY - drive wheel (platter), 4" dia.									
18	DM192276-1	ASSEMBLY - bonded drive wheel (platter), 1-1/8" dia.									
19	515610-025	SPRING (DRIVE MOTOR TENSION)									

A	7/18/73	B	8/8/73	C	9/10/73	D	10/25/73	E	11/1/73	PREPARED	POSTED	MAT. ISSUED	CORRECTED
REV	ECO	REV	ECO	REV	ECO	REV	ECO	REV	ECO	BY L1/28/76	BY	BY	BY
F	11/6/	G	6/10/74	H	2/6/75	J	15856	K	12/19/	DATE	DATE	DATE	DAT

SHEET 2 OF 3 CHRISTIE ELECTRIC CORP. BILL OF MATERIAL ASSEMBLY # PL-

REG.# | ASSEMBLY NAME | MODEL #AW2, AW4

W.O.# | AUTOWIND REPLACEMENT PARTS LIST | QTY | DATE REQ'D

ITEM NO.	PART NO.	PART NAME	QTY PER ASS Y	QTY REQ D	QTY ISSUED	QTY SHT.	PER EACH PART NO. LABOR HRS.	LABOR $	MAT. $	PER ASS Y TOTAL HRS.	TOTAL $
20	515700-098	CLAMP (DRIVE MOTOR CLUTCH)									
21	M115243-1	ASSEMBLY - stop, return arm									
22	M116018-1	HYDRAULIC ARM									
23	M115540-1	ASSEMBLY - platter, 52"									
24	M115176-1	ASSEMBLY - feed control plate									
25	515000-106	BEARING - feed control									
26	515000-119	AXLE - feed control									
27	515610-023	SPRING - feed control									
28	DR192289-1	COLLAR - spring tension adj.									
29	DM192514 - 1	ASSEMBLY - . film position sensor									
30	M115713-1	ASSEMBLY - take-up ring									
31	M114863-1	ASSEMBLY - film anti-skid bracket									
32											
33											
34	S115910-1	MODULE - motor speed control (60 hz.)									
35	S115911-1	MODULE - motor speed control (50 hz.)							!		
36	587700-039	TRANSFORMER (230 v., 50 hz.)									
37	541148-002	DIODE BRIDGE (platter drive motor)									
38	515000-107	BRUSH - w/spring (platter drive motor)									

A	7/18/73	B	8/8/73	C	9/10/73	D	10/25/73	E	11/1/73	PREPARED	POSTED	MAT. ISSUED	CORRECTED
REV	ECO	REV	ECO	REV	ECO	REV	ECO	REV	ECO	BY	BY	BY	BY
F	11/6/73	G	6/10/74	H	2/6/75	J	15856	K	12/19/75	DATE	DATE	DATE	DATE

SHEET 3 OF 3 — CHRISTIE ELECTRIC CORP. BILL OF MATERIAL — ASSEMBLY # PL-

REG.# | ASSEMBLY NAME | MODEL # AW2, AW4

W.O.# | AUTOWIND REPLACEMENT PARTS LIST | QTY | DATE REQ'D

ITEM NO.	PART NO.	PART NAME	QTY PER ASS'Y	QTY REQ'D	QTY ISSUED	QTY SHT.	PER EACH PART NO. LABOR HRS.	LABOR $	MAT. $	PER ASS'Y TOTAL HRS.	TOTAL $
39	515000-113	CAP - brush (platter drive motor)									
40	598700-053	BRUSH (BRAKE MOTOR)									
41	598700-054	SPRING - brush (brake motor)									
42	598700-055	CAP - brush (brake motor)									
43	578210-310	SWITCH - rotary, 1 ckt., 3 pos., 6 a., 120 v.									
44											
45	DM192182-1	ASSEMBLY - swivel roller, 2-1/2" (column)									
46	DM192206-1	ASSEMBLY - roller, 2-1/2" (short shaft)									
47	DM192204-1	ASSEMBLY - roller, 2-1/2" (long shaft)									
48	DM192299-1	ASSEMBLY - roller (projector & transport)									
49	DM192205-1	ASSEMBLY - roller (1-1/4" dia. inverse)									
50	DM192303-1	ASSEMBLY - failsafe sensor									
51	DM192207-1	ASSEMBLY - return arm roller									
52		LUBRIPLATE 130-AA									
53											
54	DM192298-1	ASSEMBLY - roller, swivel (T & TT)									
55											
56											
57											

A	7/18/73	B	8/8/73	C	9/10/73	D	10/25/73	E	11/1/73	PREPARED	POSTED	MAT. ISSUED	CORRECTED
REV	ECO	REV	ECO	REV	ECO	REV	ECO	REV	ECO	BY	BY	BY	BY
F	11/6/73	G	6/10/74	H	2/6/75	J	15856	K	12/19/75	DATE	DATE	DATE	DATE

FILM THREADING PROCEDURE

1. Lift the Take-up Ring straight up from the center platter (or whichever platter the film is on) by pinching the ends of the Take-up Ring together. Then place the ring on an empty platter. (With the Autowind System, film can be fed from any platter and rewound back onto any other empty platter of the system.)

2. Take the end of the film from the inside of the loop (just removed from the slot in the Take-up Ring) and thread it around the feed arm (#1, Figure 8). As the film is pulled, the platter will turn and feed film as required (Power ON Switch set to ON).

3. Continue by carrying the film to the vertical column and threading onto the rollers on the vertical column, as shown in Figure 1 & 4. After the film has been threaded through the top roller assembly (#2, Figure 4), pull enough film through to go to the projector and back again to the Autowind.

4. Thread the film through the projector in the normal manner. If the projectionist at this point wants to check for proper projector threading or "framing," start the projector or run it manually for a few frames.

5. Return the start of the film to the Autowind through the bottom roller assembly (#6, Figure 1) and cluster roller (#4, Figure 1) to the platter of the Autowind where the Take-up Ring was previously placed. Move the return arm to the vertical column and hold it there. Place the film around the return roller and insert the end of the film into the slot of the Take-up Ring.

6. If there is any excess slack in the film at this point, it should be taken out as follows:

   While guiding the film on the return arm roller, move the return arm slowly away from the vertical column.

   When the arm is about 14 to 16 inches away from the vertical column, the platter will begin to turn slowly. Allow the platter to rotate at a slow speed until all the slack is taken out of the film from the projector. When the slack is gone, release the arm.

NOTE: MAKE SURE THE TAKE-UP ARM IS SET IN SUCH A POSITION THAT THE PLATTER MOTOR STARTS AS SOON AS THE PROJECTOR STARTS. THIS IS VERY IMPORTANT, ESPECIALLY FOR 70MM FILM. (THIS POSITION IS EASILY OBTAINED BY TURNING PLATTER CLOCKWISE UNTIL PLATTER MOTOR STARTS PULLING THE FILM.)

7. The Autowind System is now ready for operation with the projector. Before starting the projector, check that ALL of the previous steps in this manual have been fully carried out.

RECOMMENDATION: The recommended procedure for optimum Autowind operation is as follows:

A. For the best performance of the Autowind System, after it is loaded, Christie recommends that, if there are two separate films, the program be split onto two platters, one film on each. This assures a smoother feed of the film from the platter and reduces the possibility of oscillation due to dirt, static electricity, and old brittle film.

B. It is recommended that the projection booth temperature is kept at around 70°F. At lower temperatures, the film tends to become brittle and stiff, which can cause oscillation and erractic operation of the feed arm.

8. Check that the Power Switch is pushed in to the ON position and that the pilot light is on.

9. Start the projector and watch both the feed and return platters on the Autowind. During the initial start-up, there may be some oscillation of the return and feed arms, but this condition should settle down to a reasonable equilibrium condition within a minute or two.

NOTE: There might be some lag of the film feed during the first 6-8 revolutions of the feed sequence. This is quite normal. The platter will soon obtain proper speed and the feed control arm will settle to its proper operating position (approximately midway between start and max. speed). If the film starts wrapping around the center feed control assembly more than 3-4 times during the first 10-20 revolutions, a malfunction has occurred. Stop the projector and check the platter speed. (See TROUBLESHOOTING SECTION.)

CAUTION: UNLESS A SERIOUS MALFUNCTION OCCURS, DO NOT TURN OFF THE PROJECTOR UNTIL THE TAKE-UP ARM AND PLATTER HAVE HAD TIME TO SETTLE DOWN TO A STEADY OPERATING CONDITION. IF THE PROJECTOR IS TURNED OFF QUICKLY AFTER BEING STARTED, FILM BREAKAGE MAY RESULT DUE TO MOMENTUM OF THE PLATTER. SIMILARLY, DO NOT "INCH" THE PROJECTOR BY TURNING THE MOTOR ON AND OFF RAPIDLY.

Warranty

Covering Xenolite Theatre Products

Manufactured by CHRISTIE ELECTRIC CORP.
(Hereinafter referred to as CHRISTIE)

Christie warrants the apparatus sold to the extent of the parts necessary to correct any defect in workmanship or materials which may develop under proper or normal use for a period of one (1) full year (90 days on electric motors) from date of installation (except as noted below) but not to exceed eighteen (18) months from date of shipment from Christie Electric Corp.. Christie reserves the right to have the apparatus returned, freight prepaid, to the Christie factory to effect the warranty repairs.

Replacement parts for warranty repairs will be shipped promtly by Christie F.O.B. factory, and invoiced to the customer. Credit will be issued upon return of the defective part or parts, prepaid, to the Christie factory.

The above shall constitute a fulfillment of all Christie liabilities in respect to said apparatus.

This warranty does not cover the following items: Special customer specified purchased parts of materials; also xenon, mercury and other types of lamps (bulbs).

Christie shall not be liable for any consequential damages except, Christie will replace standard Christie glass reflectors under warranty in XENOLITE lamphouse damaged by failure of a Christie xenon bulb during its warranted life and if properly operated, under the following terms and conditions:

1) If the original reflector installed is less than one year old, full credit will be issued.
2) If the original reflector is more than one year, but less than two years old, one half credit will be issued.
3) If the original reflector is more than two years, but less than three years old, one quarter credit will be issued.
4) After three years from the date of original installation, no credit will be issued.

(Mirror castings must be returned to Christie to receive credit.)

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