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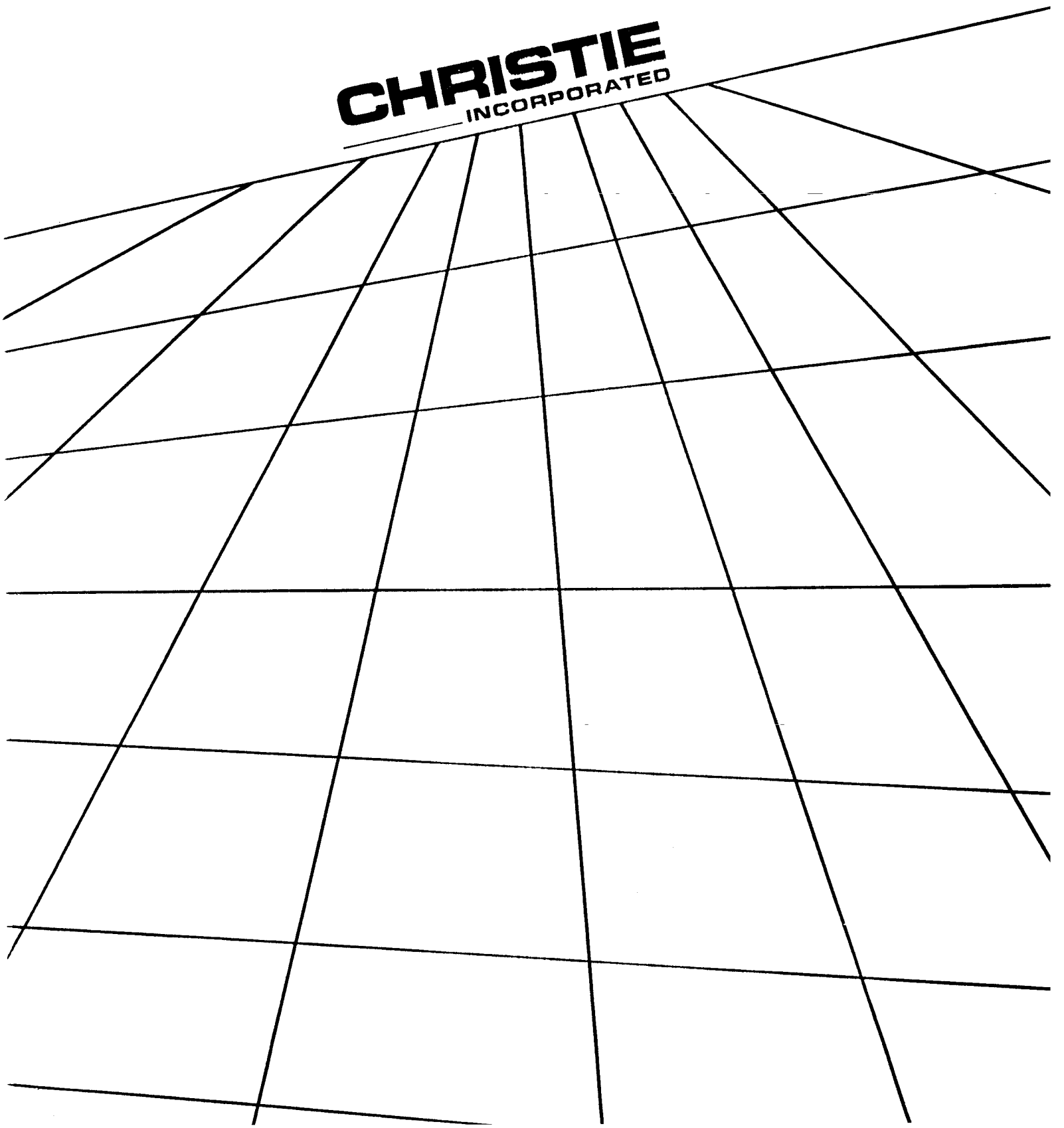
OPERATOR'S MANUAL
AW SERIES
AUTOWIND
TD-184

AW-1



OPERATOR'S MANUAL
AW SERIES
AUTOWIND
TD-184

OPERATING INSTRUCTIONS

FOR

AW SERIES

" AUTOWIND "

FILM HANDLING SYSTEM

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I. AW SERIES AUTOWIND FILM HANDLING SYSTEM

The Autowind "AW" Series of Film Handling Systems is a series of highly reliable, easy-to-operate film handling systems which automatically rewind film as it is being projected, thus eliminating the need for manual rewinding. The systems can accomodate up to approximately 25,000 feet of continuous 35mm film, which is approximately 4-1/2 hours of continuous showing on one projector.

The system consists of either two or three individually controlled horizontal platters. Film is fed from one platter through the projector back on to 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 can be fed from conventional (2000 ft.) reels on to the Autowind, and spliced together to make up one continuous show. Similarly, the same table can be used for "tearing down" the show and feeding film back onto its conventional reels for shipping.

The Autowind system requires only 115 v., single phase, 60 Hz power and once it is installed and operating, it can be left completely unattended and be operated automatically until the projector must be rethreaded for another show.

II. UNPACKING

1. The Autowind is shipped in several crates (two to seven). First check to verify that the correct number of crates are received by checking the bill of lading or the shipping documents.

2. Be sure the containers are in the upright position. Then open the cases and remove any packing.

3. Carefully remove each item from its case and thoroughly inspect the unpacked units for possible damage that has occurred during shipment. Any damage discovered should be immediately reported to the transportation company for inspection and filing of claim. (Do not destroy any packing material or packing cases until a claim inspection has been performed by the shipping company).

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 on a level floor in the area where it is to be operated, usually in the projection booth near the projector. (See Fig. 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 rollers should be installed in order to transport the film from the Autowind to the projector and back. The distance between rollers should bot exceed ten (10) feet. The Autowind can be installed on either side of the projector.

2. Assemble the vertical column (#4, Fig. 1) to the foot (#5, Fig. 1) and fasten loosely with four Allen screws with lock washers. With a carpenters level of a plumb-bob, check that the vertical column is in the true vertical and then tighten the bolts securely.

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

   A. Locate the bottom (No. 3) platter assembly. This number is marked on the mounting end plate of the support arm channel. Place the platter assembly close to the vertical column. Pull the male "Jones" plug out of the center of the platter support arm and plug it 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 Allen screws with lock washers and tighten securely.

   B. Locate the center (No. 2) platter assembly. This assembly has a brake and clutch mounted on it and is easily distinguished from No. 1 and No. 3 platters. Install this assembly in its proper position (#2, Fig. 1) following the same procedure as in step 3A above.

   C. Locate and install the top (No. 1) platter assembly in its proper position (#1, Fig. 1) as described in step 3A above.

4. Next the make-up table is assembled as follows:

   A. Assemble the table post (#1, Fig. 2) to the foot (#8, Fig. 2) and tighten securely using four Allen screws with lock washers (#2, Fig. 2).

   B. Place the make-up table (#3, Fig. 2) in position on top of the post and loosely install the four flat washers, lock washers, and nuts, (#4, Fig. 2).

C. Connect the motor leads to its supply leads from the control panel using the wire connectors provided (#7, Fig. 2). If necessary, apply insulation tape to the wire connections.

D. Place the drive belt onto the motor and turntable pulleys. Pull the make-up table away from the motor until the drive belt remains in place but is loose enough to slip, then tighten the four nuts (#4, Fig. 2) securely.

5. Run the cable assembly from the make-up table to the vertical column of the Autowind and insert the seven-pin "Jones" plug (#6, Fig. 1) into the bottom receptacle of the vertical column. The lugged green wire protruding from the plug should be installed underneath the mounting screw of the receptacle.

6. Next the "Take-up" arms are installed on eash of the three platters of the Autowind.

A. Rotate the spindle assembly (#4, Fig. 3) so the alignment marking faces the direction of the take-up arm (See Fig. 3). Insert the take-up arm into the shaft of the spindle assembly and push the arm until the marking on arm aligns with the edge of the shaft (#3, Fig. 3).

When proper alignment is obtained, tighten the set screw (#6, Fig. 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. Assemble the bracket of the hydraulic spring assembly (#1, Fig. 4) to the take-up arm.

NOTE: When installing, observe the correct orientation of the bracket in relation to the take-up arm and spindle assembly (#2 & 3, Fig. 4). While maintaining the bracket in a horizontal position, tighten the slotted head screw securely.

7. Install the rollers on the vertical column. (See Fig. 5). There is a feed roller and a take-up roller for each table. In addition there is a dual-roller assembly at the top of the vertical column for feed, and another at the bottom for take-up. Note the variation in the bottom dual-roller position depending on the relative positions of the Autowind and the projector. (See Note Fig. 5).

8. The Autowind is now ready to be plugged in, turned on, and operated but before doing so, familarize yourself thoroughly with the principals of operation and check-out procedures in sections IV and V.

IV. PRINCIPAL OF OPERATION

1. Each platter of the Autowind is driven by a seperate universal-type electric motor with a gear reduciton drive. A speed control module (#7, Fig. 1) in the end of each platter support arm, controls the speed of the drive motor, insuring proper rotational speed of the platter to smoothly feed film to and take film from the projector.

2. The speed control is accomplished by a light "Valve" operating from the spindle of both feed arm and take-up arm. Each light valve operates between a light source and a light detector, and as the take-up 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, etc., may cause the platter speed to vary slightly. As the platter speed varies, the corresponding feed or take-up 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, in which case, the Trouble Shooting Hints should be followed.

V. ALIGNMENT AND CHECK OUT PROCEDURE

1. Plug in the 115 v., 15 amp., AC plug from the make-up table into a corresponding wall outlet.

2. Check out the operation of the make-up table and the center (No. 2) platter. The control panel instruments (Fig. 2) of the make-up table consists of the following:

   A. Three position switch (#12, Fig. 2), with the center position "OFF"; right position for Autowind "RUN" and center platter speed control; left position for "REWIND" and motor clutch engagement.

   B. RUN pilot-light (#13, Fig. 2).

   C. REWIND pilot-light (#14, Fig. 2).

   D. Rewind and turntable speed control and brake tension control (#15, Fig. 2).

   E. Center platter speed control for make-up (#16, Fig. 2).

F. Center platter and turntable brake switch (#17, Fig. 2).

3. Turn both control knobs fully counterclockwise.

4. Set the three-position switch (#12, Fig. 2) to "RUN" (right position). Observe that the RUN pilot-light is on and that the turntable and all three Autowind platters remain stationary (if any of the platters are running, the position of the light valve is incorrect and must be aligned, (See Trouble Shooting Hints).

5. Turn the center platter control knob (#16, Fig. 2) clockwise. The center platter (No. 2) will start to turn in counterclockwise direction. If it does not turn, press the brake switch (#17, Fig. 2). With the control knob set at maximum, the speed of the platter should be between 32 and 36 RPM. The maximum speed will vary with the AC line voltage which should be between 110 and 125 volts for proper operation. Turn the control knob all the way counterclockwise and observe that the center platter stops.

6. Set the three position switch to "REWIND" and the turntable will start to turn and you should hear the clutch on the center platter energize. The clutch disengages the drive motor from the center platter, allowing it to run freely. To check it, spin the center platter. Check that the turntable can be stopped with slight hand pressure. Also observe that the "REWIND" pilot light is on with the switch in this position.

7. Turn the turntable control knob (#15, Fig. 2) clockwise and observe that the turntable on the make-up table rotates in a clockwise direction. With the turntable running, spin the center platter clockwise. Then push the brake switch and observe that the center platter stops suddenly, and the make-up turntable stops slowly.

8. Push the brake switch (#17, Fig. 2) again to the OFF position, turn the turntable control knob fully counterclockwise and set the three-position switch to OFF. If any of the above procedures do not check out properly, refer to the Trouble Shooting Section to correct before proceeding.

9. Next set the three-position switch on the make-up table to "RUN" and proceed to the top platter (No. 1). To test the feed arm (#1, Fig. 6), gently with one finger, rotate it slowly to the left from its rest position. At about 1/2" - 3/4" of motion, 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.

10. With the feed arm in its extreme left position, the speed of the

platter should be a minimum of 28 RPM. (An easy way to check the speed is to put a piece of tape on the outside edge of the table. 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).

11. Repeat the above steps on No 2 and 3 platters. If any irregularities are observed, check the Trouble Shooting Procedures before proceeding to step 12, otherwise all the feed mechanisms are operating properly.

12. To test the take-up arm control, start with the No. 1 platter and move the take-up 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 control arm held against the vertical column.

13. After the platter stops moving, slowly move the take-up arm away from the column, When the arm is about 14 to 16 inches away from the column, the platter will start to run at a slow speed and the speed will increase as the arm is moved farther 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" position. As before, the minimum speed for the take-up arm is also 28 RPM.

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

15. Check the operation of the take-up arm and hydraulic arm assemblies of the other two platters.

VI. OPERATION WITH FILM

1. Film make-up procedure.

NOTE: For initial check-out of the Autowind system, a short film (two to ten minutes) should be used to test operation of all platters before a full show is made-up on the center platter.

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 take-up 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 take-up arm of the center platter should be temporarily tied to the vertical column while the Autowind is loaded with film.

B. Place the take-up ring (#2, Fig. 7) onto the center platter. Place the first reel of film to be shown on the turntable to the make-up table.

C. Pull the film leader from the reel and place it into the slot in the take-up ring (#3, Fig. 7).

D. Set the three-position switch (#12, Fig. 2) on the make-up table to the "RUN" position.

E. Gradually rotate the center platter control knob (#16, Fig. 2) 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 "trailer" off the end of the first reel and remove from the turntable. Place the trailer and the empty reel into the film container.

F. Place the second reel on the turntable, cut off the leader and splice the film to the end of the film number 1 reel.

NOTE: It may be helpful to place a piece of colored tape on the splice, making it easy to locate the splice when the film is being removed from the Autowind and returned to its original reels.

Again, turn the make-up table control knob 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 42 inch platters can accommodate up to approximately 14,000 feet of film.

2. Film Threading

A. Remove the take-up ring from the center platter (or whichever platter the film is on) and place it on an empty platter (with the Christie Autowind System, film can be fed from any platter onto any other platter of the system).

B. Take the end of the film from the inside of the loop (just remove from the slot in the take-up ring) and thread it through the feed arm (#1, Fig. 6) and the feed control and guide rollers (#2,3, Fig. 6). As the film is pulled, the platter will turn and feed film as required.

C. 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, Fig. 5) pull enough film through to go to the projector and return again to the Autowind.

D. Thread the film through the projector in the normal manner. Do not start the projector.

E. Return the film through the bottom roller assembly (#2, Fig. 5) and pivot roller (#3, Fig. 5) to the table of the Autowind where the take-up ring was previously placed. Move the take-up arm to the vertical column and hold or fasten it there. Insert the end of the film in the slot of the take-up ring (#3, Fig. 7).

F. If there was any excess slack in the film at this point, it should be taken out as follows: While guiding the film on the take-up arm roller, move the take-up 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 (the three position switch (#12, Fig. 2) on the make-up table should be in the "RUN" position). Allow the platter to rotate at a slow speed until all the slack is taken out of the film. When the slack is gone, release the arm.

3. The Autowind System is now ready for operation with the projector, but before starting the projector, please check that all of the previous steps in the instruction manual have been fully carried out.

4. Check that the three-position switch on the make-up table is set to the "RUN" position and that the "RUN" pilot light is on.

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

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.

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 platters No. 1 and No. 3.

VII. REWINDING AND "TEARING DOWN" FILM

1. Before "tearing down" any show, the operator should plan ahead that during the last screening of the show, he rewinds the film onto the center (No. 2) platter. The film should be removed from the Autowind only from the center platter.

2. Place an empty reel on the turntable of the make-up table.

3. Set the three-position switch on the make-up table to "REWIND" and observe that the "REWIMD" pilot light comes on. Check that the center platter turns freely.

4. Take the outside end of the film on the center table of the Autowind, run it over to the make-up table and attach it to the inside of the empty reel on the turntable.

5. Turn the rewind control knob slowly clockwise. This will start the turntable rotating causing the film to be pulled from the Autowind onto the reel. As the reel fills up, watch for the splice in the film, and when the splice appears push the brake button to stop the turntable and the center platter of the Autowind.

6. Open the splice in the film and splice a leader to the film on the reel and a trailer to the end of the film coming from the Autowind. Remove the full reel from the turntable, place it in its film can, and place another empty reel onto the turntable.

7. Fasten the film trailer to the empty reel and push the brake button on the make-up table. This will release the brake and start the turntable rotating.

8. Repeat steps four through seven above, until all of the film has been transfered from the Autowind to the original reels.

NOTE: If the last show is not rewound to the center (No. 2) platter, the Autowind does allow the film to be transfered from one platter to another without going through the projector. Thread the film as shown in Fig. 5. The Autowind is controlled by the position of the take-up arm which should be held (or tied) in position.

VIII. PREVENTATIVE 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 channels, and the drive motors (Fig. 8) are also interchangeable, and are mounted for extremely easy removal and replacement. However, as with any

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 in the oil cup (#8, Fig. 8) is all that is required. Do not use excessive oil.

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 1/8 of an inch or less of the brush remains, they must 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 shoulder of the table, causing the table to slip and operate erratically or too slowly.

4. Clean the platter surfaces, rollers, and make-up table at regular intervals. It is recommended this cleaning be done with "Windex" or equivalent, or a mild soap for best results.

5. The neon lamp assembly in the drive motor speed control module should be replaced approximately every 20,000 hours of operation, since by this time the intensity of the bulb will be decreasing. This can easily be replaced after removing the motor speed control module, by removing the two (2) mounting screws and four wires connected by quick disconnects.

AUTOWIND TROUBLE SHOOTING HINTS

MALFUNCTION	PROBABLE CAUSE	SUGGESTED CORRECTIVE ACTION
PLATTER TOO SLOW	Voltage too low	Needs step-up or constant voltage transformer.
	Light vane misaligned	Adjust front (take-up) vane per (1) below, or rear (feed) vane per (2) below, whichever is applicable.
	Neon lamp too dim	Replace neon lamp assembly in control module.
	Defective module	Replace with module from third platter or spares.
	Worn motor brushes	Replace brushes if less than 1/8" long.
	Worn capstan boot	Replace if less than 1/16" thick.
	Insufficient spring tension on motor bracket	Loosen 4 motor mounting screws and push drive motor assembly toward platter assembly. Retighten screws. If tension is still too weak, replace spring. (See Fig. 8).
PLATTER TOO FAST	Voltage too high	Needs step-down or constant voltage transformer.
	Light vane misaligned	Adjust front (take-up) vane per (1) below, or rear (feed) vane per (2) below, whichever is applicable.
	Defective module	Replace with module from third platter or spares.
PLATTER RUNS ALL THE TIME	Defective module	Replace with module from third platter or spares.
	Light vane misaligned	Adjust front (take-up) vane, per (1) below or rear (feed) vane, per (2) below, whichever is applicable.
	Defective wiring or connections	Check wiring and connections.

AUTOWIND TROUBLE SHOOTING HINTS

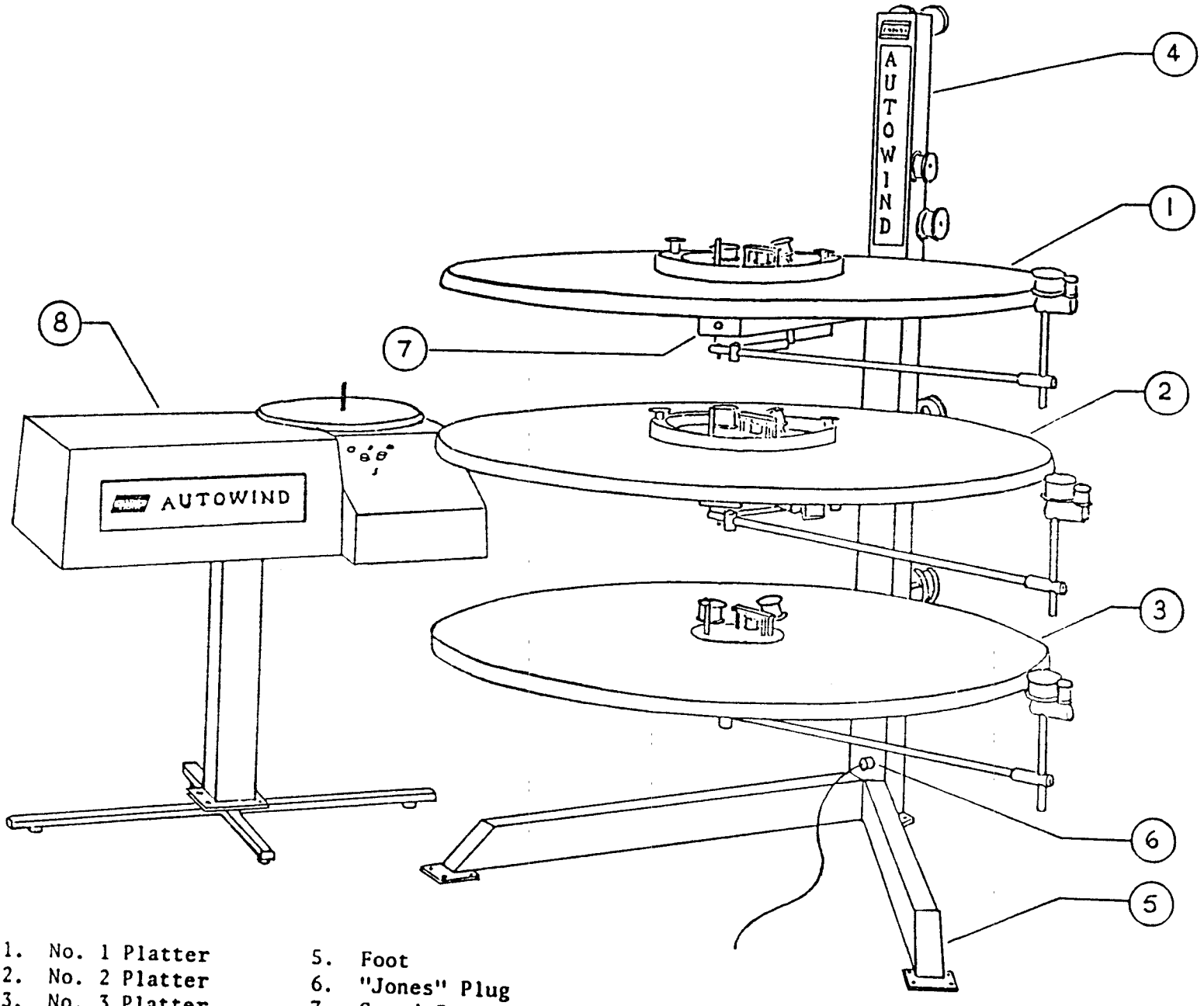
MALFUNCTIONS	PROBABLE CAUSE	SUGGESTED CORRECTIVE ACTION
PLATTER DOES NOT RUN AT ALL	No voltage	Check circuit breakers, fuses, etc.
	Defective wiring or connection	Check wiring and connections.
	Blown fuse	Replace a-c line fuse, check for defective component or wiring.
	Neon lamp burned out	Replace neon lamp assembly in control module.
	Worn motor brushes	Replace brushes if less than 1/8" long.
	Defective motor	Replace with motor from third platter or spares (See Fig. 8).
	Worn capstan boot	Replace if less than 1/16" thick.
	Insufficient spring tension or motor bracket	Loosen 4 mounting screws and push drive motor assembly toward platter assembly. Retighten screws. If tenstion is still too weak, replace springs.
EXCESSIVE TAKE-UP ARM OSCILLATION OR NOT TAKING UP FILM SLACK	Hydraulic arm misadjusted	Rotate hydraulic arm in proper direction to adjust tension. If adjsuted correctly, take-up arm should take 4-6 seconds to return from motor start to rest position. (Fig. 7).

AUTOWIND TROUBLE SHOOTING HINTS

(1) Pull the control module from the channel. Loosen the set screw (#12, Fig. 3) on the take-up control vane (#7, Fig. 3). Replace the control module. Slowly pull the take-up 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 assembly out of the channel. Set the module aside, reach inside the channel and firmly grasp the vane. While holding the vane, let the take-up arm return to its stop position. Make sure the vane shaft is vertical and in the center of the channel, and the vane itself is straight and in a horizontal plane. Tighten the set screw (#12, Fig. 3). Install the control module into the channel. Test out take-up control per steps 12 and 13 of Alignment and Checkout Procedure.

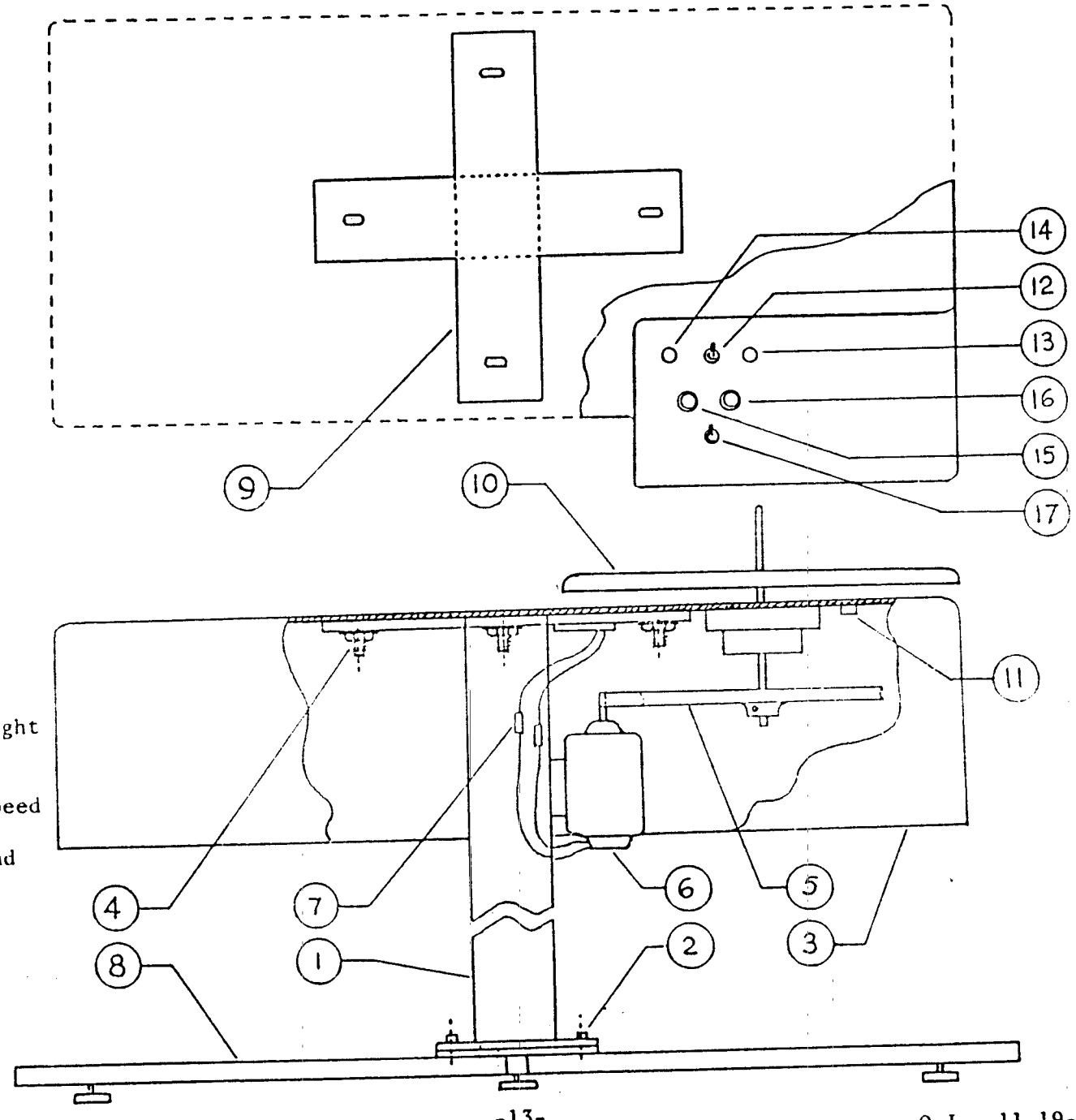
(2) Pull the control module from the channel under the platter. Check and make sure that the feed arm control vane (#8, Fig. 3) is straight and in a horizontal plane and the vane shaft vertical in the center of the channel. Install the control module back into the channel. With one finger, gently move 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. With a pair of pliers hold the nylon shaft (#4, Fig. 6) firmly in this position with one hand while moving the arm itself back to the normal start position (1/2" - 3/4" from rest position) with the other hand. Repeat if necessary. Test out feed control per steps 9 and 10 of Alignment and Checkout Procedure.

FIGURE 1
AUTOWIND ASSEMBLY



1. No. 1 Platter
2. No. 2 Platter
3. No. 3 Platter
4. Vertical Column
5. Foot
6. "Jones" Plug
7. Speed Control Module
8. Make-up Table

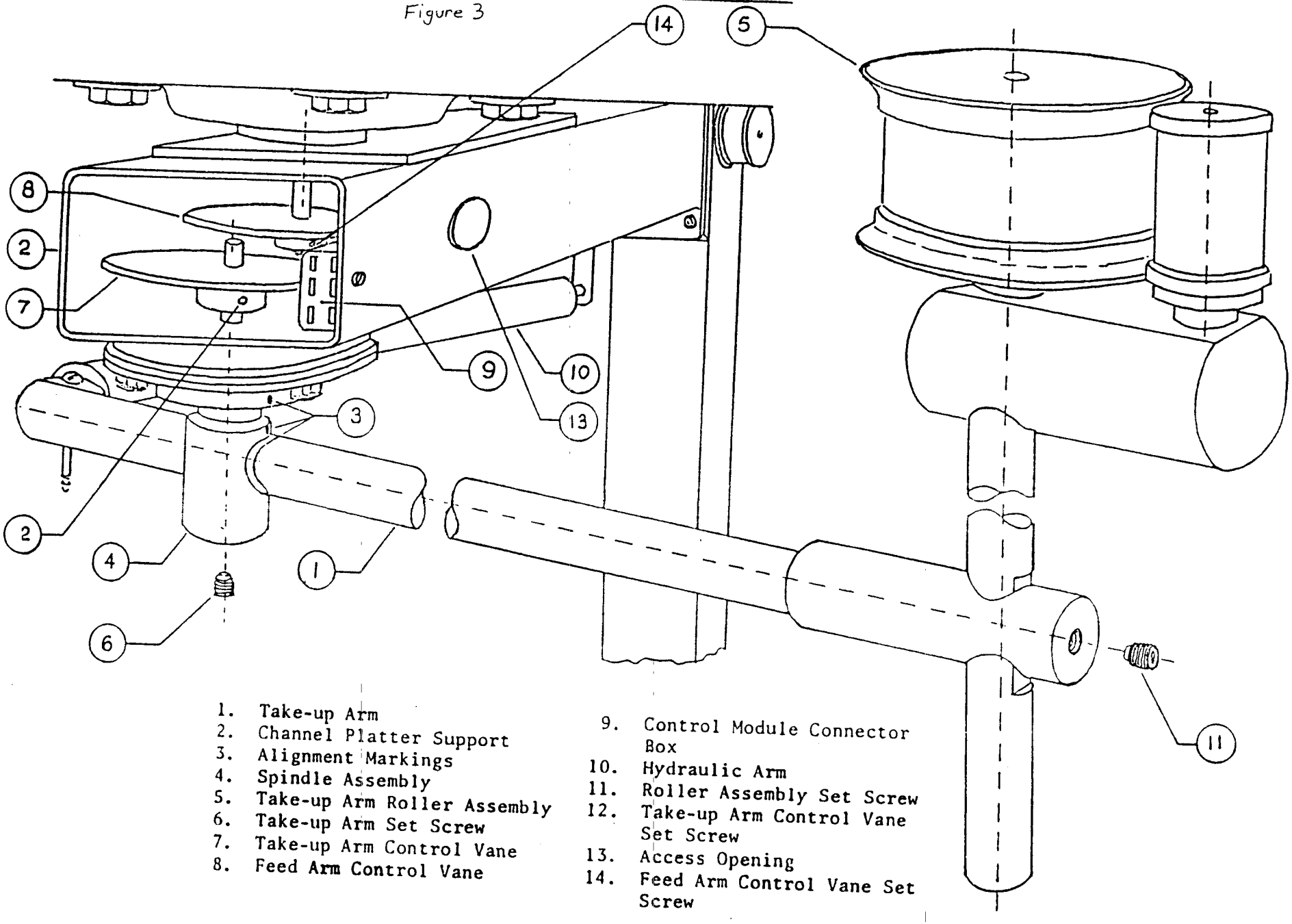
FIGURE 2
MAKE-UP TABLE ASSEMBLY



1. Table Post
2. Allen Screw with Lockwashers (4)
3. Make-up Table
4. Table Mounting Hardware
5. Drive Belt
6. Motor
7. Wire Connectors
8. Foot
9. Table Support
10. Turntable
11. Turntable Speed Control Module
12. Three Position Switch
13. "RUN" Pilot Light
14. "REWIND" Pilot Light
15. Turntable Control Knob
16. Center Platter Speed Control Knob
17. Center Platter and Turntable Brake Switch

Figure 3

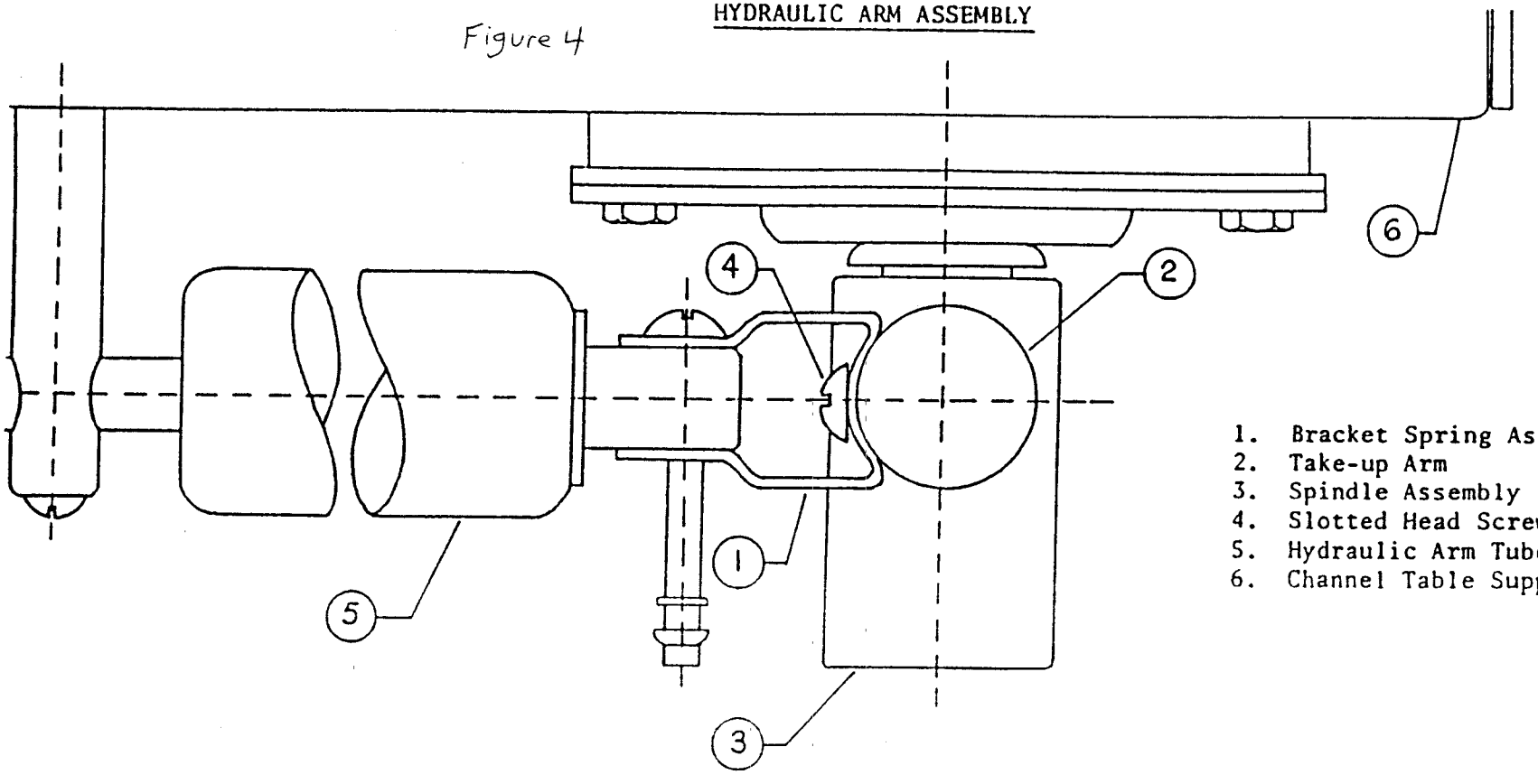
TAKE-UP ARM ASSEMBLY



1. Take-up Arm
2. Channel Platter Support
3. Alignment Markings
4. Spindle Assembly
5. Take-up Arm Roller Assembly
6. Take-up Arm Set Screw
7. Take-up Arm Control Vane
8. Feed Arm Control Vane
9. Control Module Connector Box
10. Hydraulic Arm
11. Roller Assembly Set Screw
12. Take-up Arm Control Vane Set Screw
13. Access Opening
14. Feed Arm Control Vane Set Screw

Figure 4

HYDRAULIC ARM ASSEMBLY



1. Bracket Spring Assembly
2. Take-up Arm
3. Spindle Assembly
4. Slotted Head Screw
5. Hydraulic Arm Tube
6. Channel Table Support

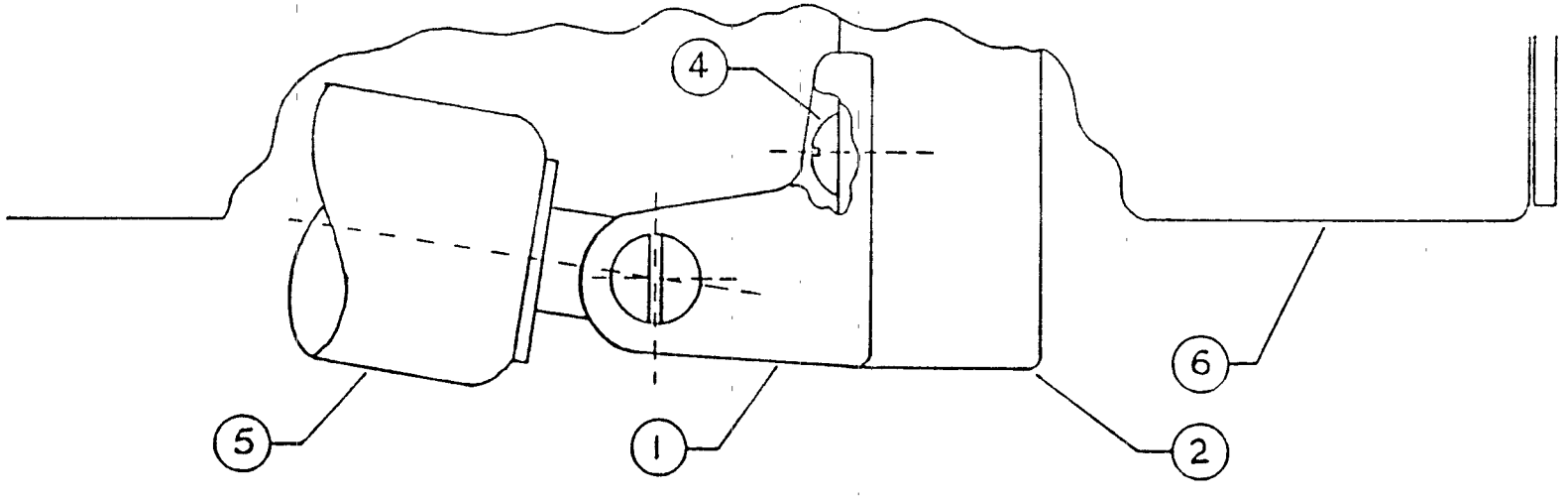
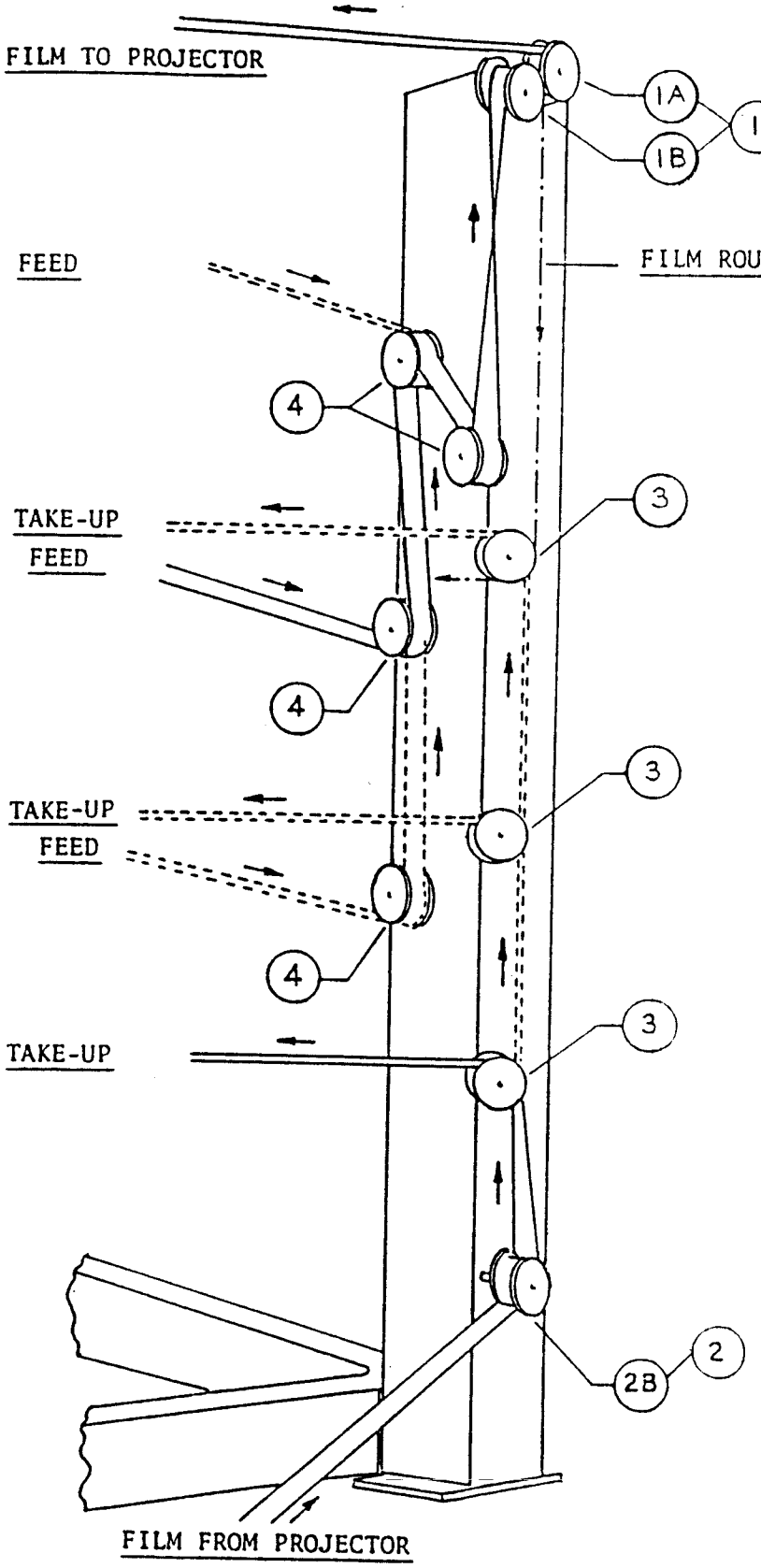


FIGURE 5
SYSTEM FILM THREADING (VERTICAL COLUMN ASSEMBLY)

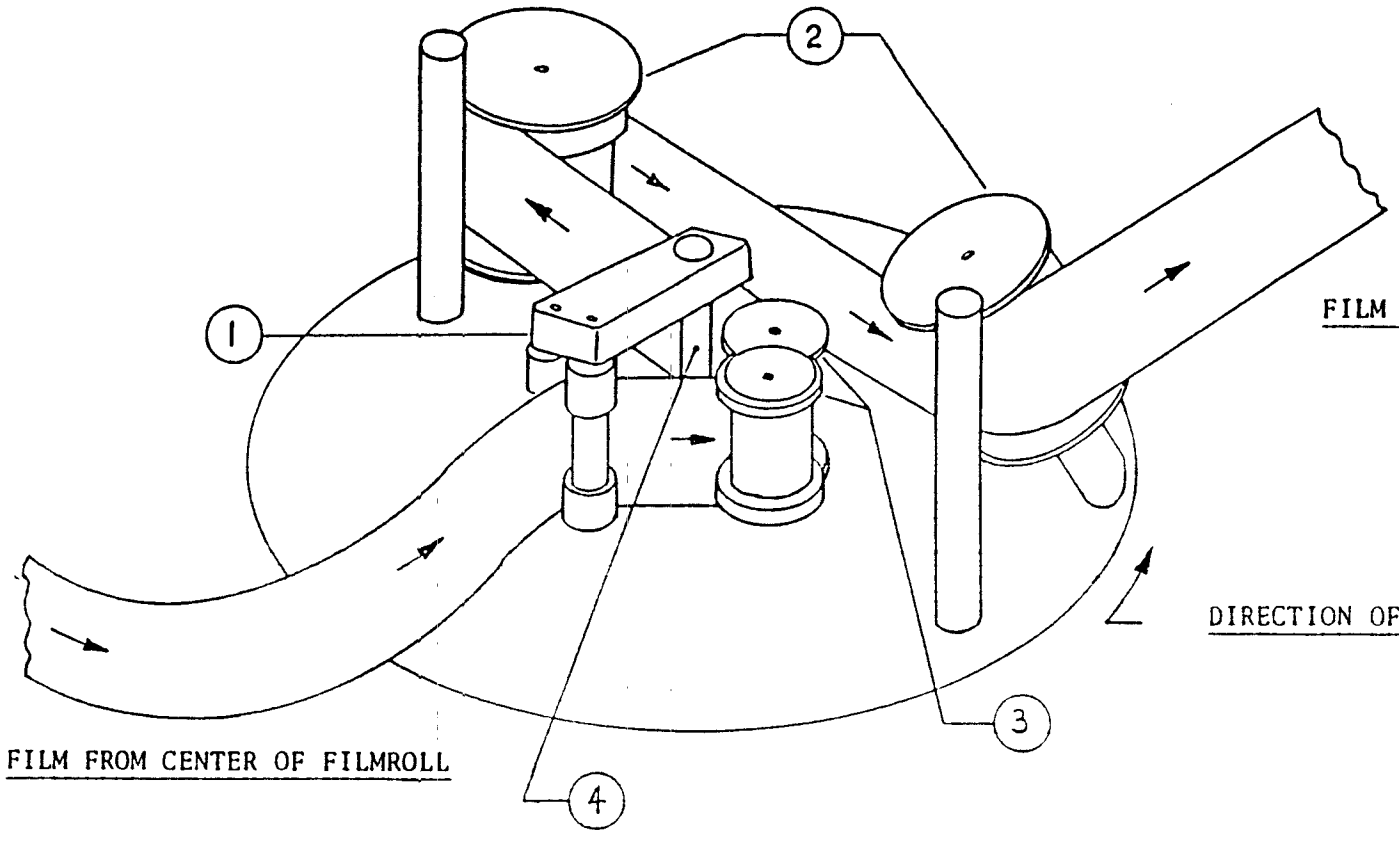


1. Top Roller Assembly
1A. Flat Roller (Short Shaft)
1B. Grooved Roller (Short Shaft)
2. Bottom Roller Assembly

2B. Grooved Roller (Long Shaft)
3. Pivoting Take-up Rollers (3)
4. Feed Rollers (4)

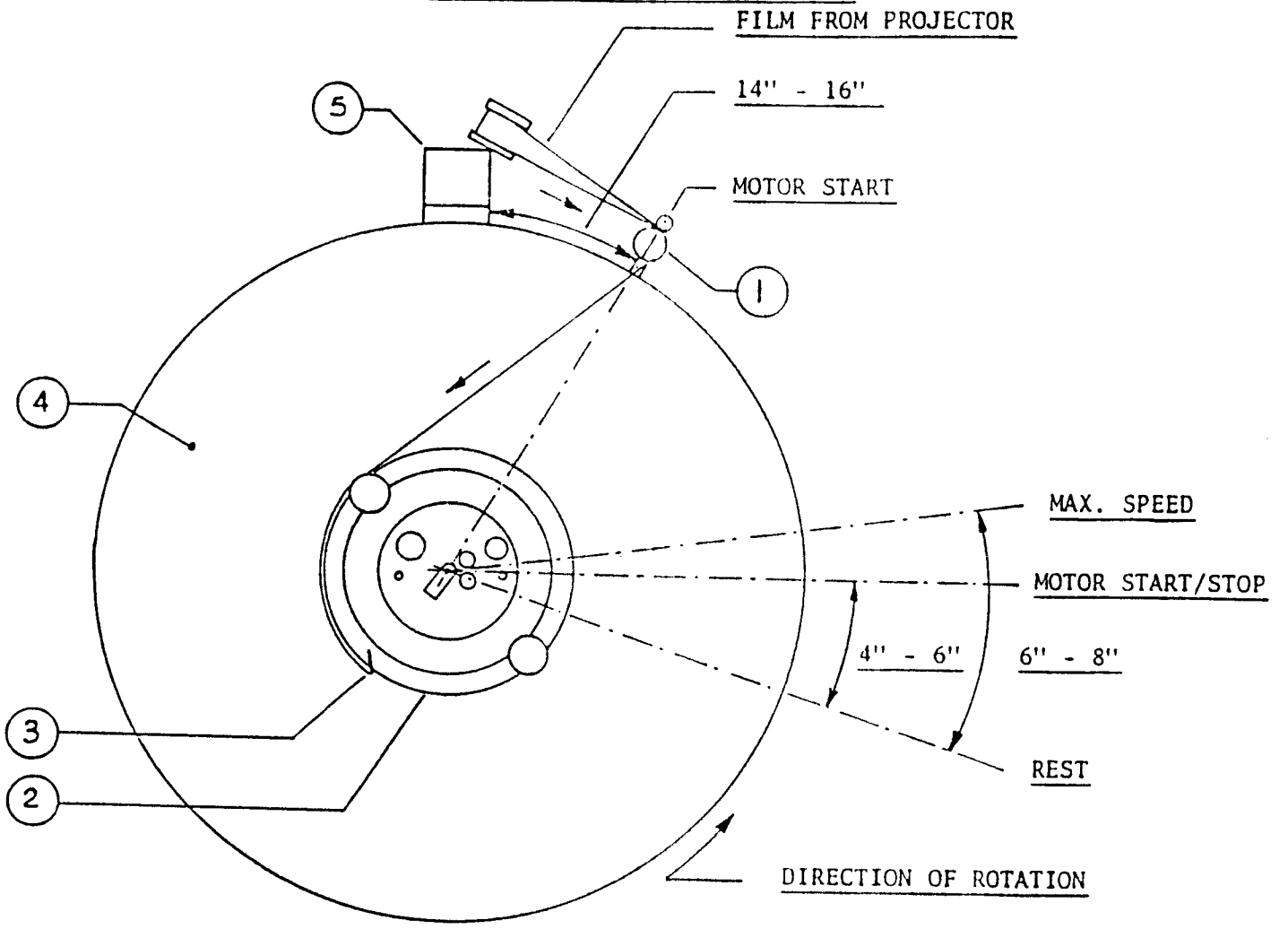
NOTE: Reverse position of grooved roller of Bottom Roller Assembly, if Autowind is installed on other side of projector.

Figure 6



1. Feed Arm
2. Guide Rollers (2)
3. Feed Control Rollers (2)
4. Nylon Shaft

FIGURE 7
TAKE UP CONTROL ARM AND THREADING



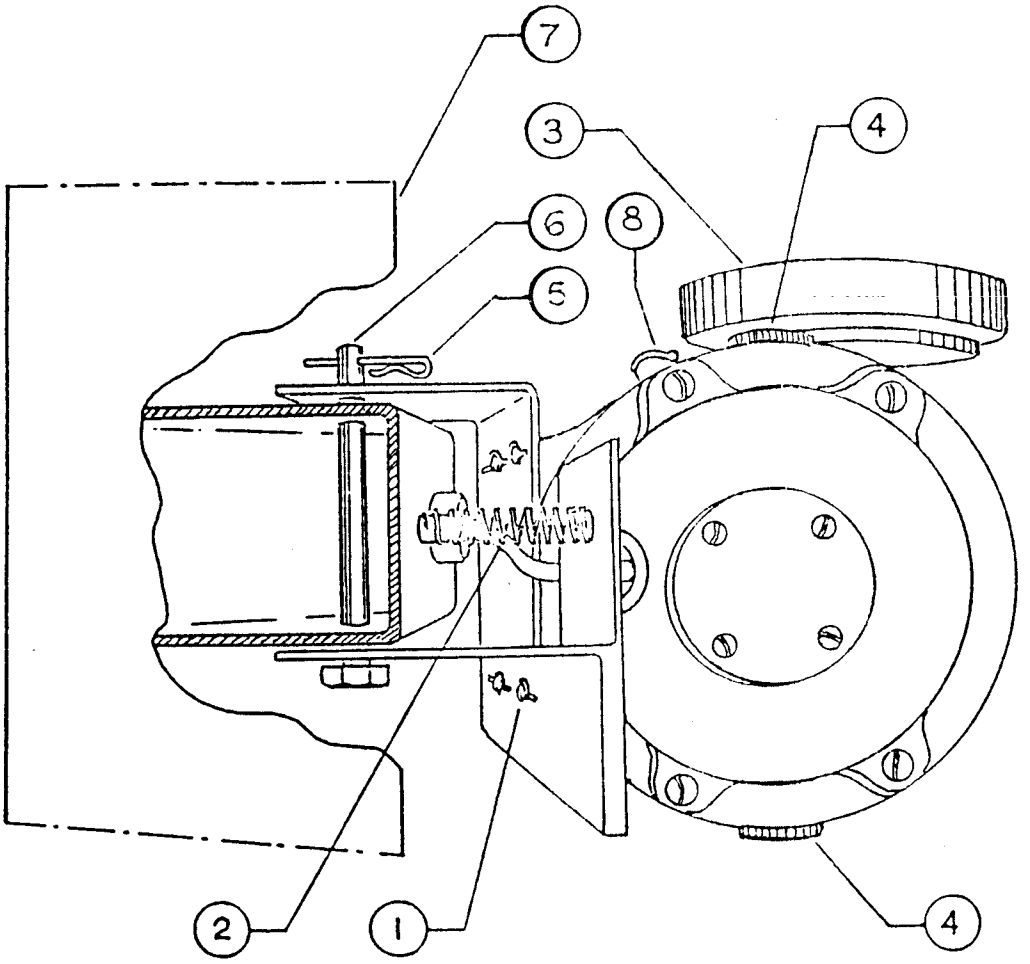
1. Take-up Arm
2. Take-up Ring (Remove for Feed)
3. Film Slot (In Take-up Ring)
4. Platter
5. Vertical Column

NOTE:

#1. Take-up Arm should take approx. 4 sec. to return to rest position.

#2. When threading film for take-up, take-up arm must be held close to the Vertical Column.

FIGURE 8
DRIVE MOTOR ASSEMBLY



1. Drive Motor Mounting Screws (4)
2. Motor Bracket Spring
3. Drive Pulley
4. Motor Brushes
5. Locking Pin
6. Motor Assembly Mounting Bolt
7. Vertical Column
8. Oil Cup

TO REMOVE MOTOR ASSEMBLY:

A. Remove Locking Pin 5
B. Push Motor to Compress Spring 2 Slightly
C. Remove Mounting Bolt 6 Holding Motor
D. Remove Motor Assembly

CONVERSION OF FAIL SAFE LIGHT PROBE TO MAGNETIC ROLLER SENSOR
(AUTOWIND SYSTEMS)

Remove Light Sensor Probe Assembly and unsolder wires in sensor box.

Remove roller B2 (see manual: grooved roller long shaft) and mount Roller Sensor instead.

Solder red wire from Light Sensor Probe to any of the two terminals on Roller Sensor and shield to the other terminal.

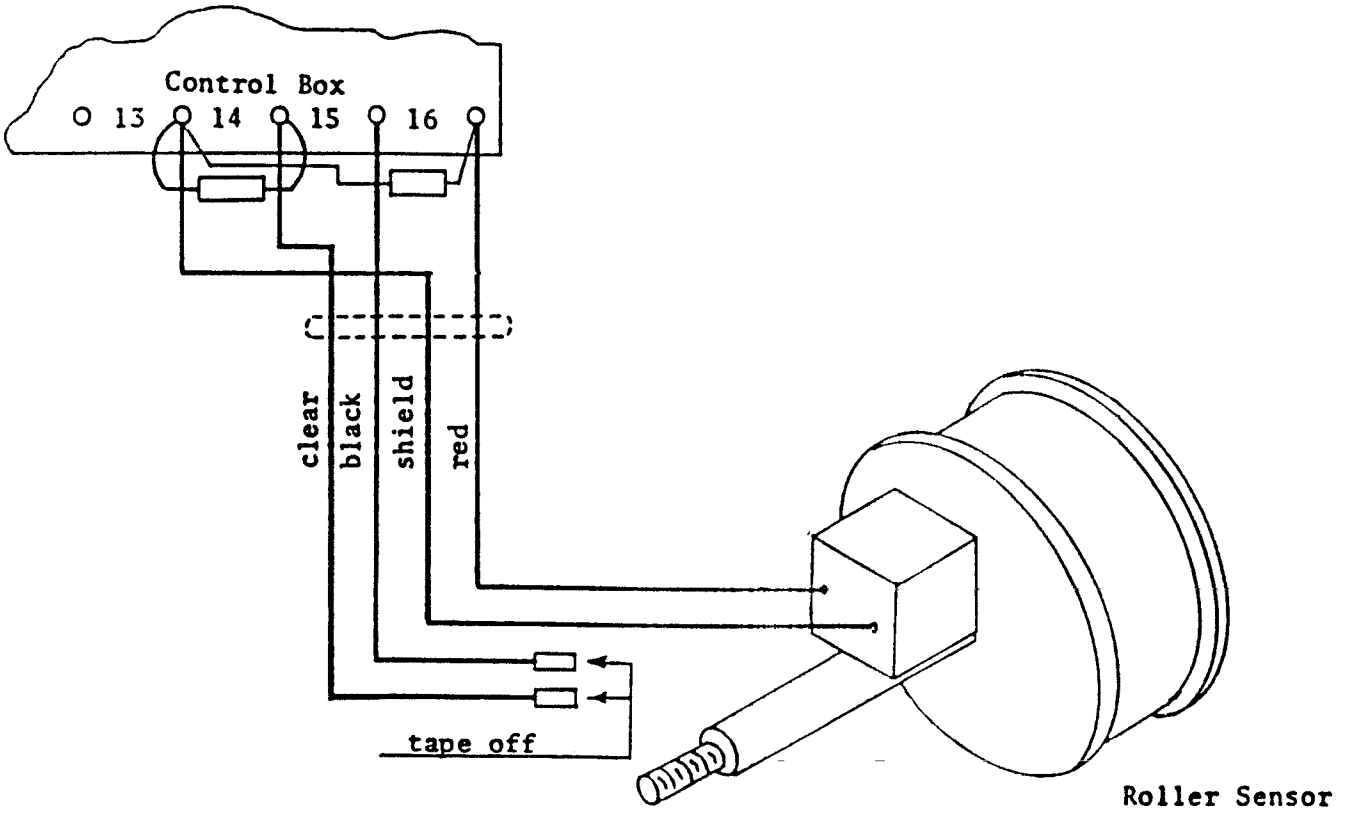
Tape off clear and black wires.

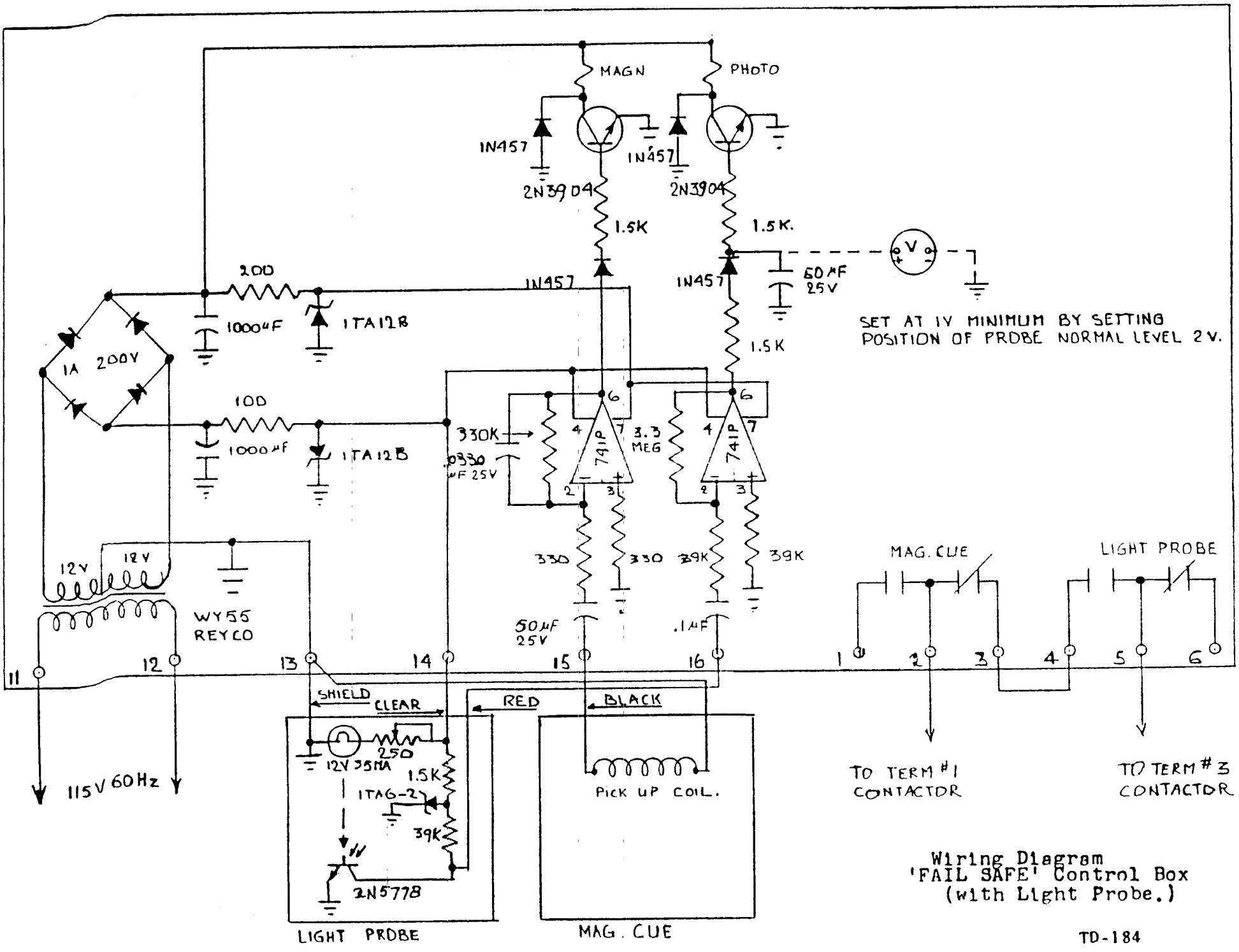
On Control Box:

Connect a 220 OHM 0.5W resistor between terminals #13 & #14, and a 1K OHM, .5W resistor between terminals #13 and #16.

IMPORTANT:

1. Check if roller on Roller Sensor turns freely.
2. To start system hold start-switch closed for at least one second to give Roller Sensor time to reach its operating speed (appr. 60 RPM.).





Wiring Diagram
'FAIL SAFE' Control Box
(with Light Probe.)

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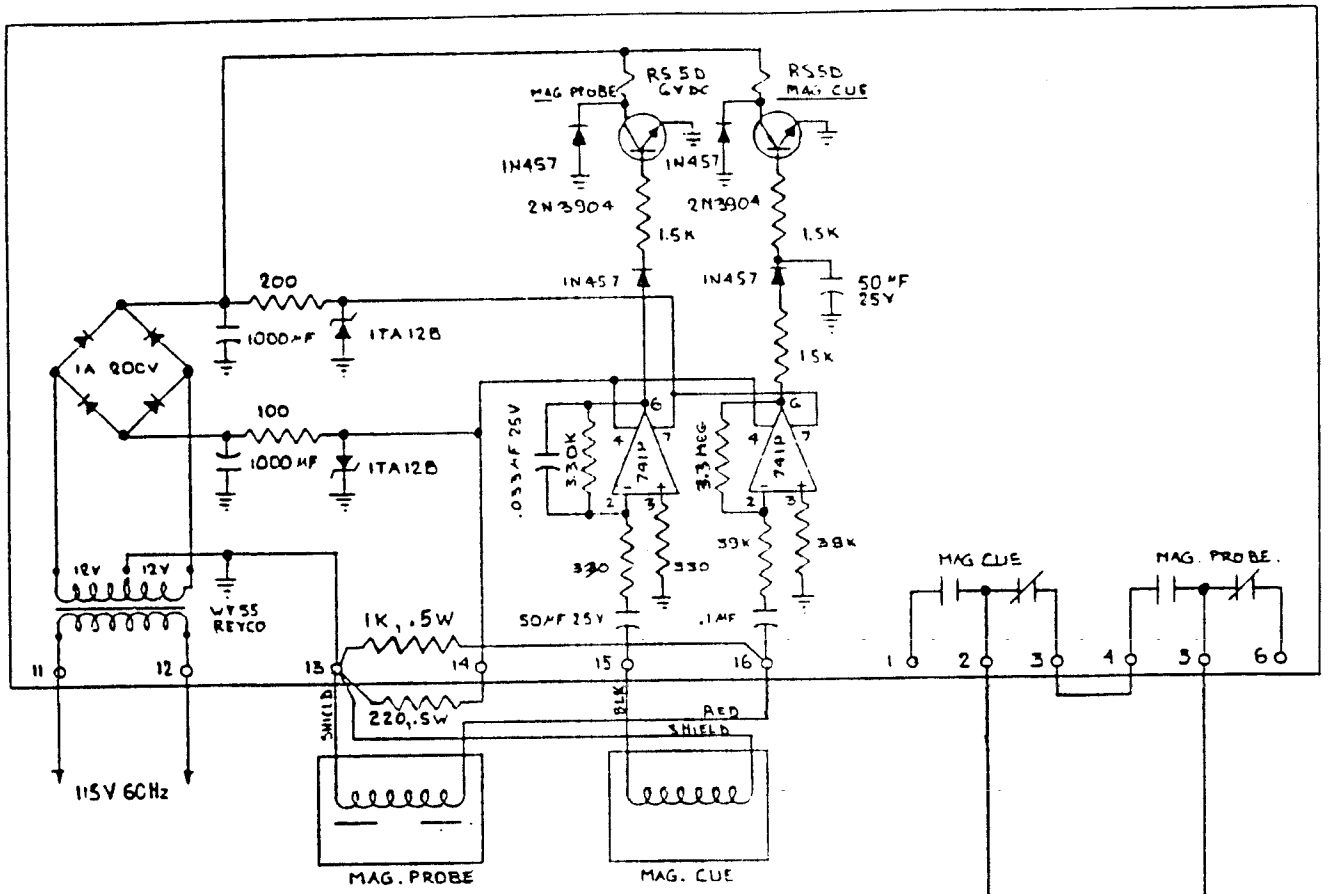
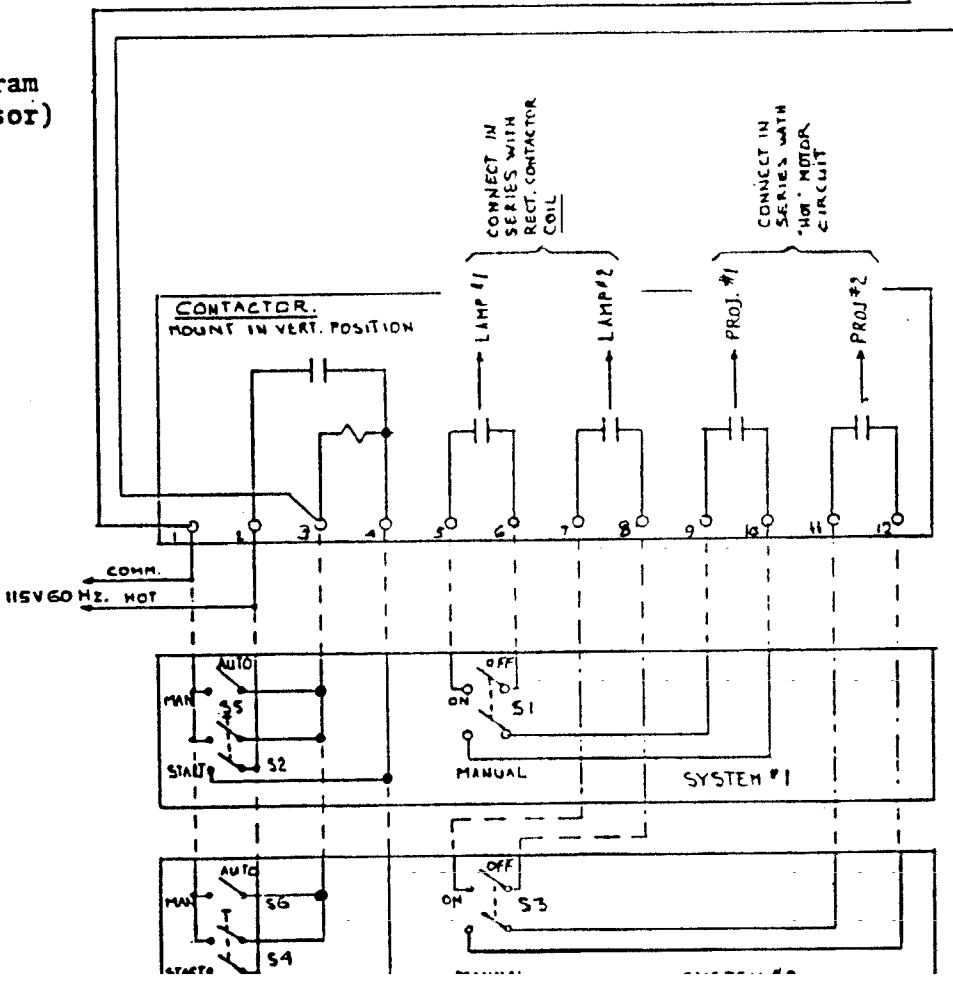
"FAIL SAFE" Wiring Diagram (Roller Sensor)

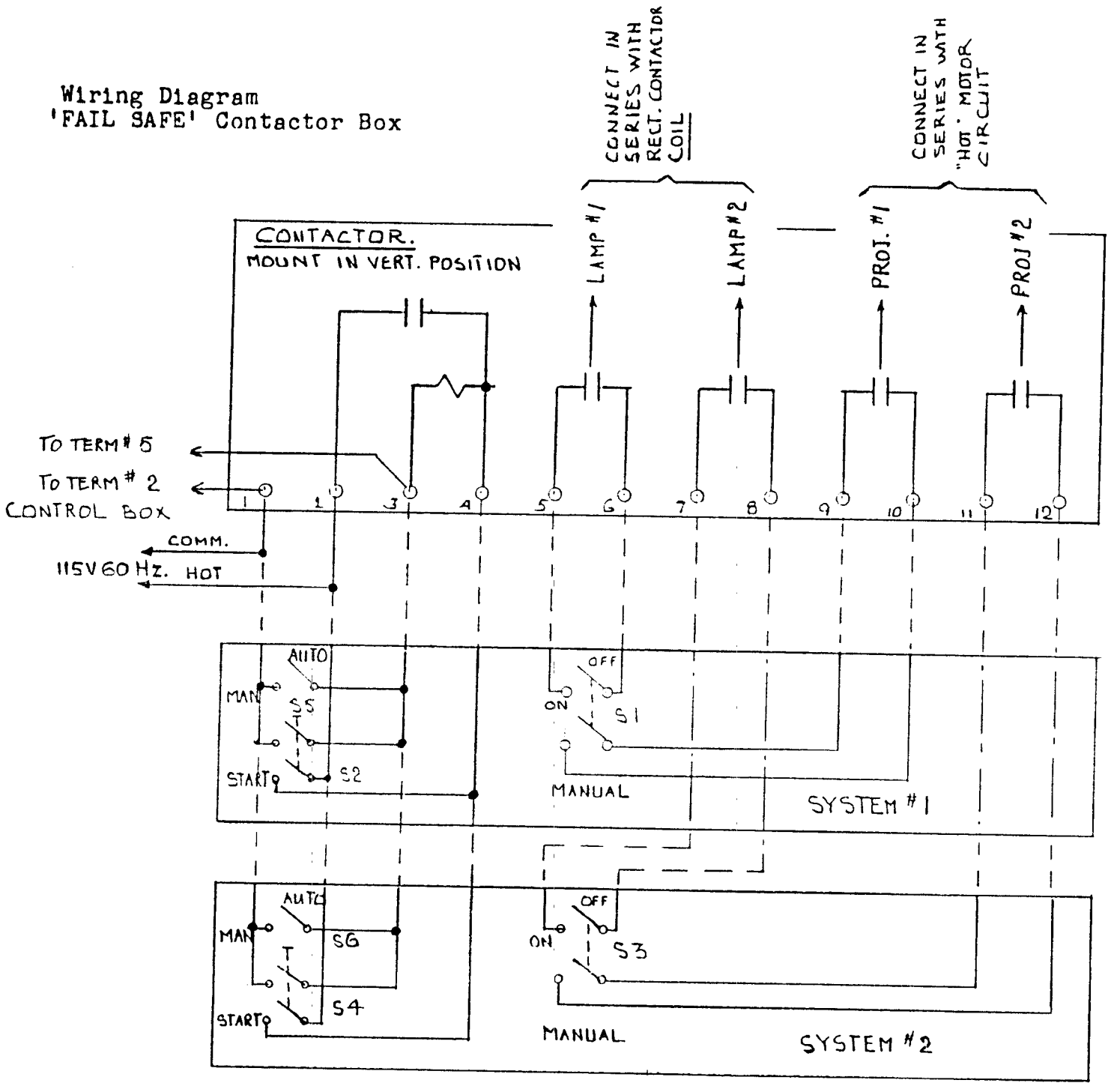




Notes:

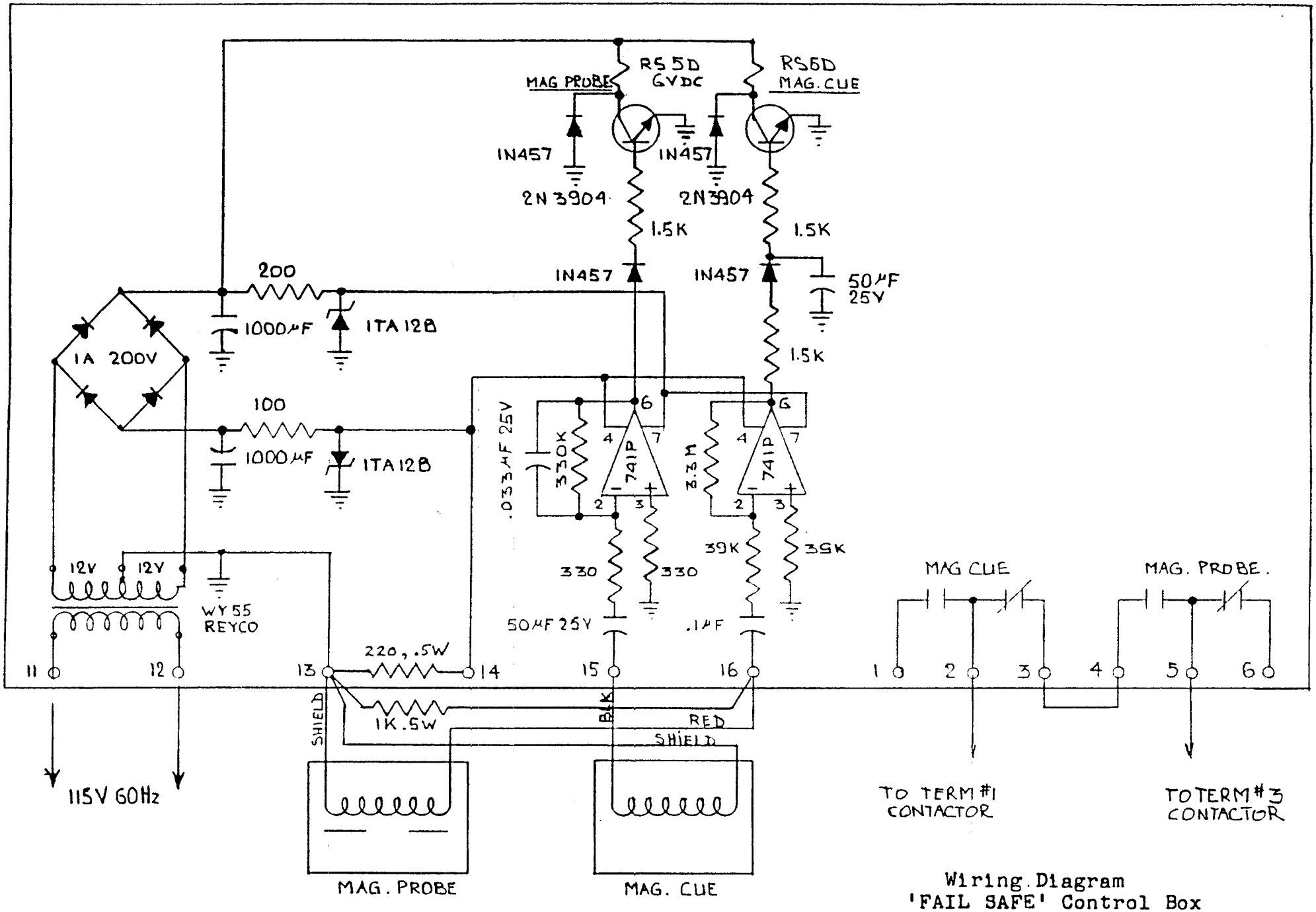
1. use #16 stranded TW wire or equiv.
2. Mark each wire with wiremarkers according to terminal connect. A leo spade luge should be used.
3. Mount switches S1, S2, S5 on projector base #1. Mount S3, S4 on projector base #2 if used. (If desired S5 can be paralled with S5. Mount it on proj #2.)
4. Mount sensor amplifier and contactor in proj base, otherwise in a suitable enclosure nippled on proj. base (mount both on a vert. surface.)
5. S1, S2 & S5 supplied by C.E.C. S3, S4 & S6 customer furnished.
6. Close S1 Or S3 for manual operation. Open S1 or S3 for automatic operation.

Wiring Diagram
'FAIL SAFE' Contactor Box



Notes:

1. use #16 stranded TW wire or equiv.
2. Mark each wire with wiremarkers according to terminal connect. Also spade lugs should be used.
3. Mount switches S1, S2 S5 on projector base #1. Mount S3, S4 on projector base #2 if used. (if desired S6 can be paralled with S5. Mount it on proj. #2.)
4. Mount senser amplifier and contactor in proj. base, otherwise in a suitable enclosure nippled on proj. base. (mount both on a vert. surface.)
5. S1, S2 & S5 supplied by C.E.C. S3, S4 & S6 customer furnished.
6. Close S1 Or S3 for manual operation. Open S1 or S3 for automatic operation.



Wiring Diagram
'FAIL SAFE' Control Box
(with Roller Senser.)

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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 AUTOWIND (AW-MW- & ELF)
FILM HANDLING SYSTEM

Manufactured by: CHRISTIE INCORPORATED
(herein 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 and normal use for a period of one (1) full year *(90 days on electric motors)* from the date of installation *(except as noted below)* but not to exceed eighteen (18) months from the date of shipment from Christie Incorporated. Christie reserves the right to have the apparatus returned, freight prepaid, to Christie factory to effect the warranty repairs.

Replacement parts for warranty repairs will be shipped promptly by Christie f.o.b. factory, and invoiced to the customer. Credit will be issued upon return of the defective part(s), 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:

Special customer specified purchased parts, materials, or components modified to customer specifications.

This warranty does not apply to parts of any Christie product which have been opened, disassembled, repaired, or altered by anyone other than Christie, or subjected to misuse or abuse.

Christie shall not be liable for any consequential damages.