POWER CURTAIN

Instruction Manual

Please do not destroy. Give to farm manager, or purchaser of this machine.

HIRED-HAND

Agricultural Heating & Ventilation Systems

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HIRED-HAND®

Manual No. 4801-1204

READ AND STUDY ALL INSTRUCTIONS BEFORE INSTALLING YOUR NEW POWER CURTAIN

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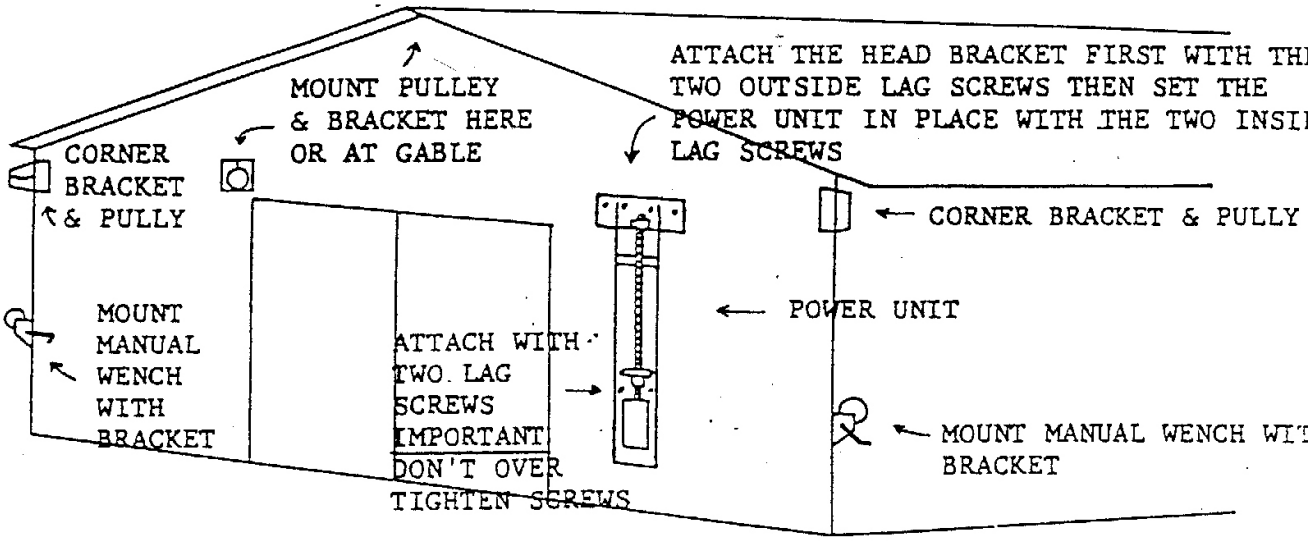
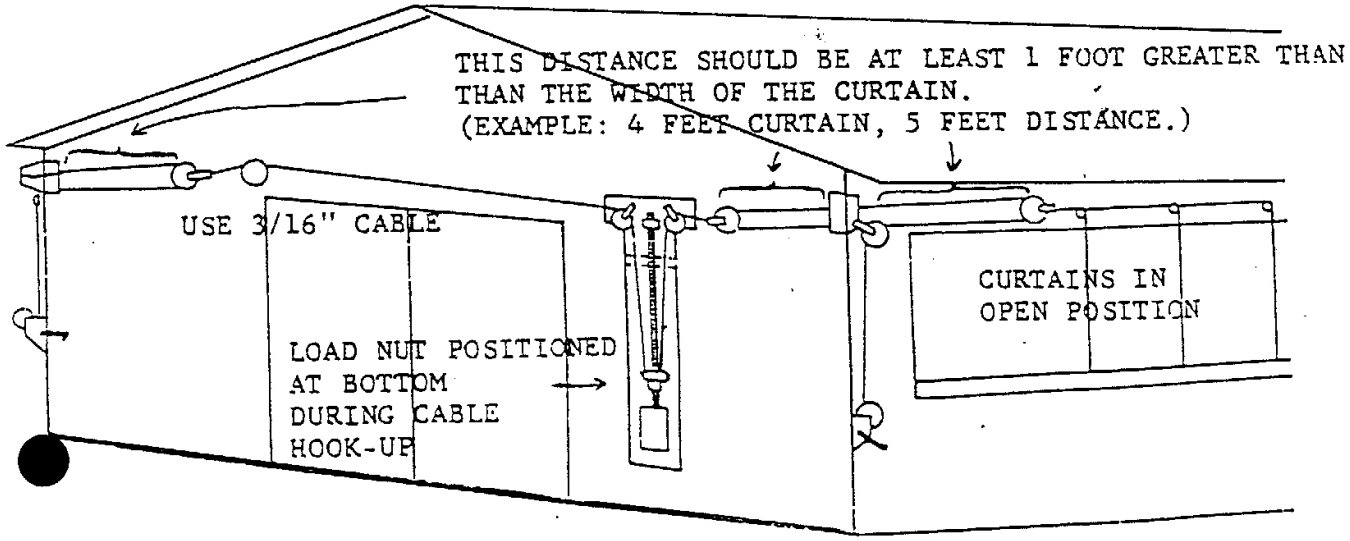
(ILLUSTRATION 1. POWER UNIT MOUNTED ON END OF BUILDING.)
RAISES CURTAINS ON BOTH SIDES

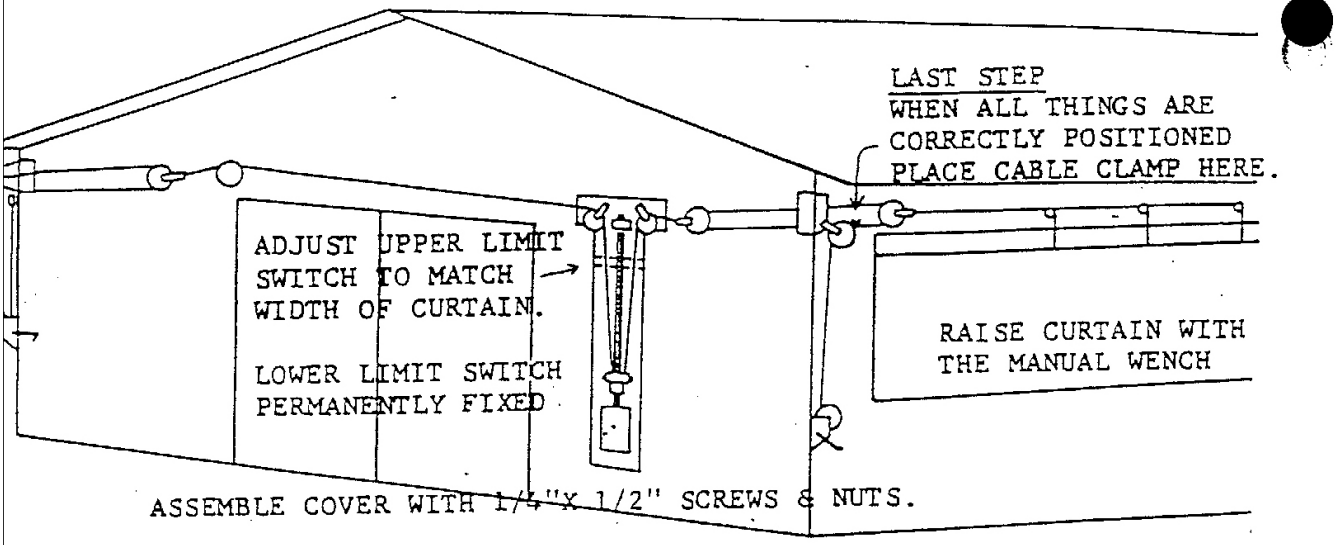


(ILLUSTRATION 2. POWER UNIT MOUNTED ON END OF BUILDING.)

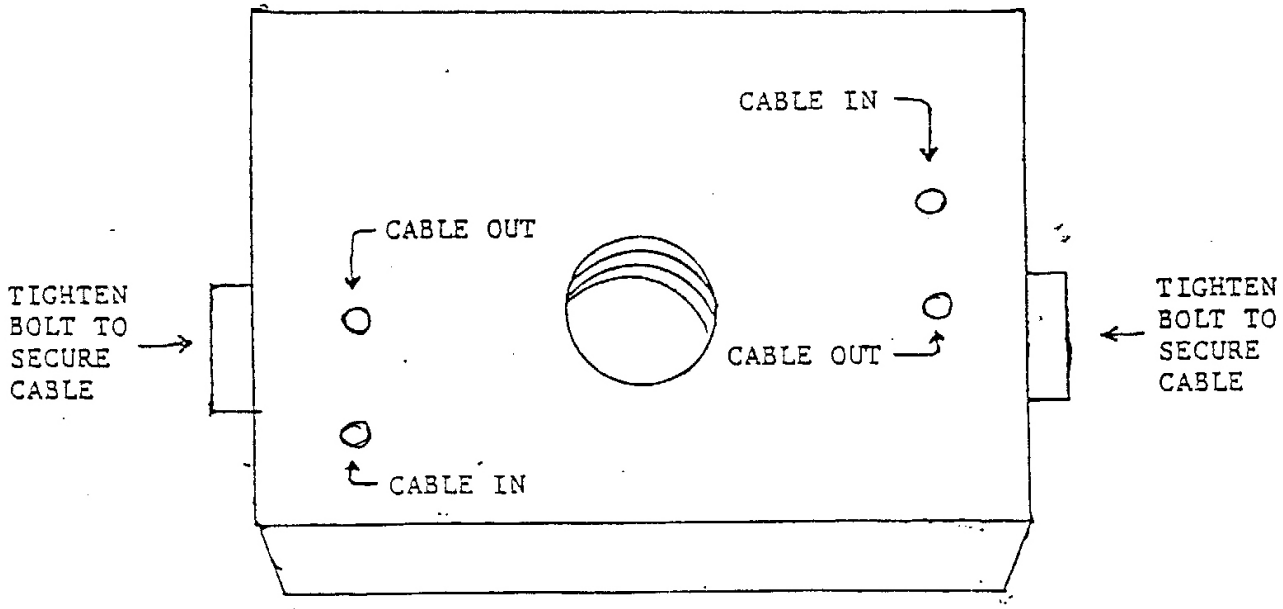


SEE ILLUSTRATION 4 BEFORE THREADING CABLE INTO BRASS LOAD NUT.

(ILLUSTRATION 3. POWER UNIT MOUNTED ON END OF BUILDING.)

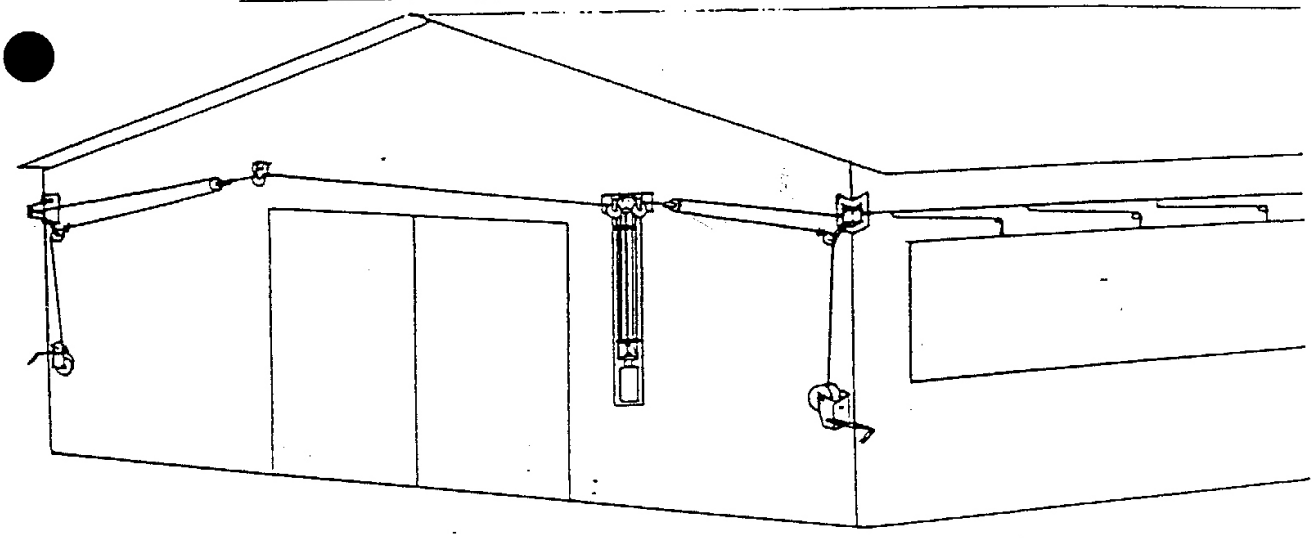


(ILLUSTRATION 4. CABLE THREADING OF BRASS LOAD NUT.)



THREAD CABLE DOWN THROUGH THE MISALIGNED HOLES, REVERSE THE DIRECTION AND RUN CABLE UP THROUGH THE CENTER HOLES. CABLE SHOULD EXTEND THROUGH BRASS LOAD NUT ABOUT 1/4 IN.
TIGHTEN SIDE BOLTS TO SECURE CABLE.

BOTH ILLUSTRATIONS SHOW 1 TO 2 CURTAIN MOVEMENT.



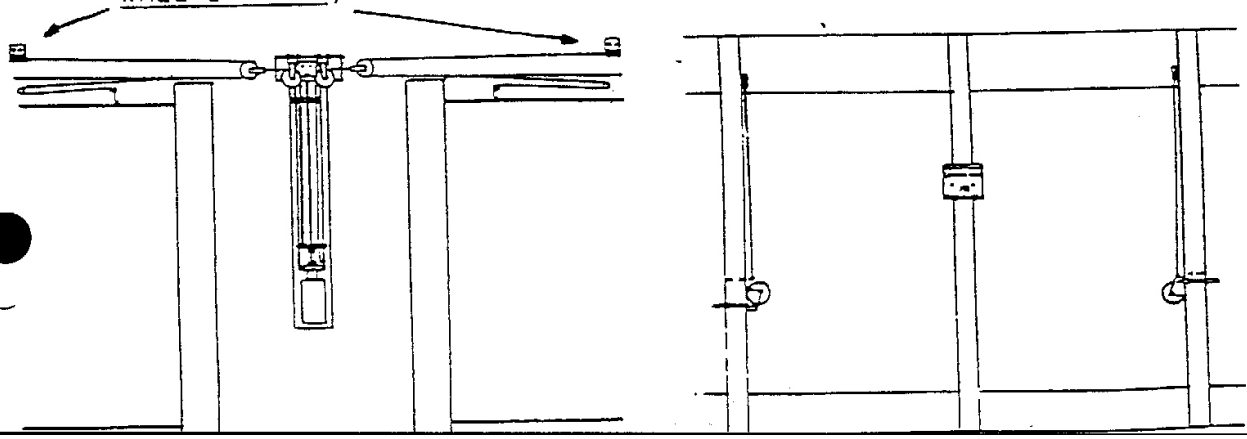
(ILLUSTRATION SHOWN ABOVE)

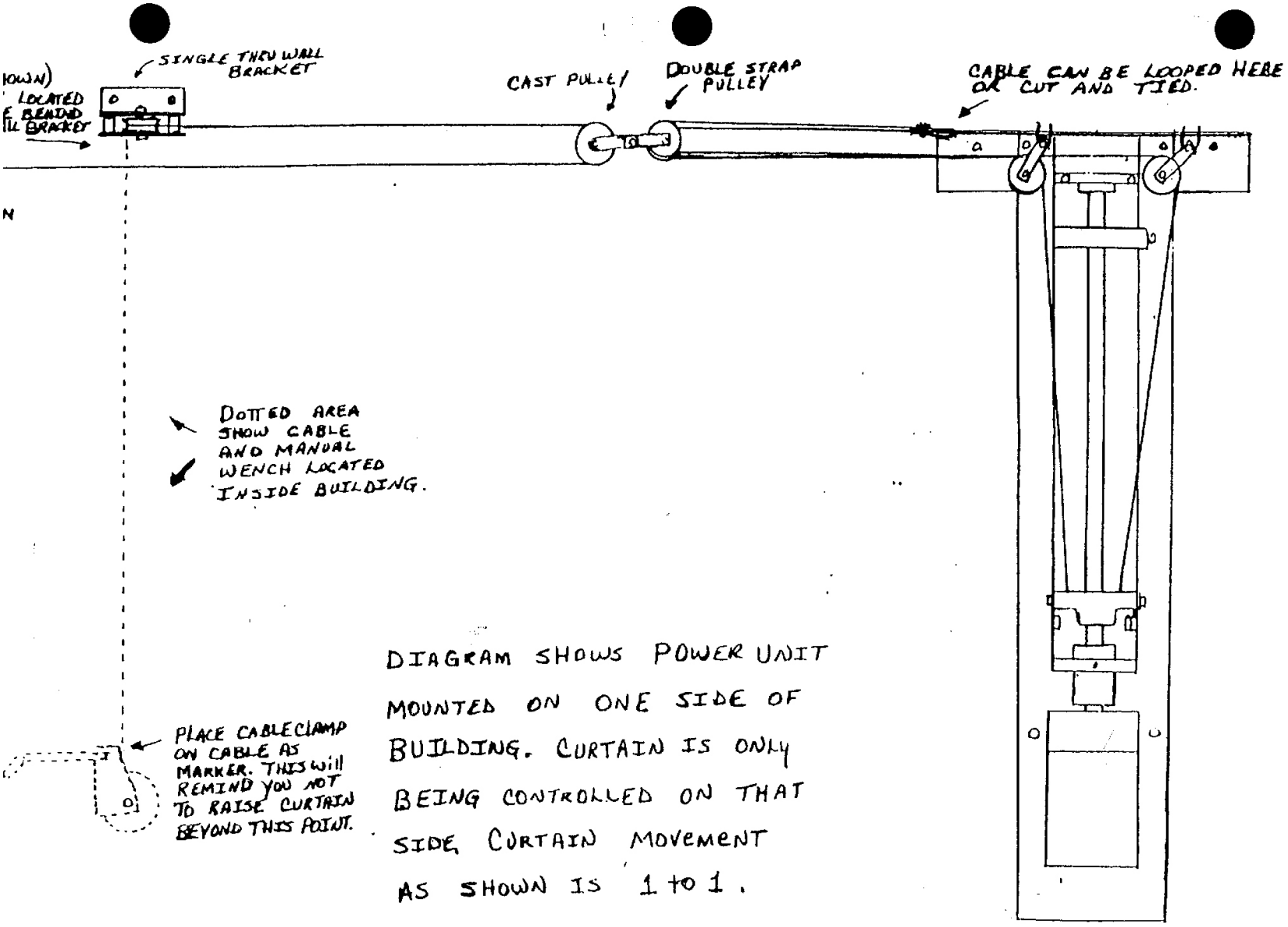
POWER UNIT MOUNTED ON END OF BUILDING, RAISES
CURTAINS ON BOTH SIDES.
ONE FOOT OF MACHINE MOVEMENT GIVES TWO FOOT OF CURTAIN MOVEMENT.

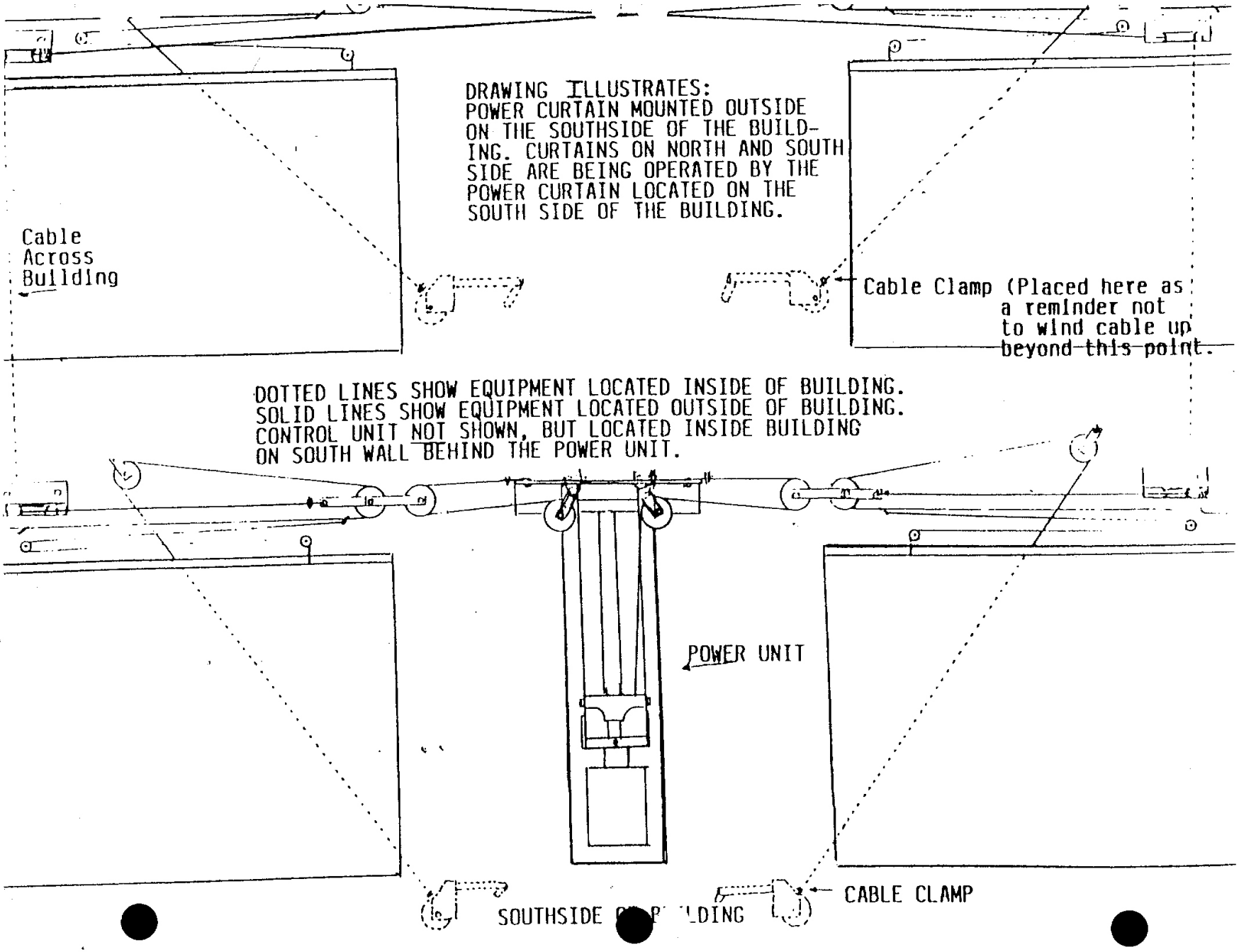
****

(INSTALLATION SHOWN BELOW)
POWER UNIT MOUNTED OUTSIDE IN MIDDLE OF SIDEWALL.
ONE FOOT OF MACHINE MOVEMENT GIVES TWO FOOT OF CURTAIN MOVEMENT.

WALL BRACKET, CABLE IS RUN THROUGH WALL TO MANUAL WINCHES.




SINGLE THRU WALL BRACKET
CAST PULLEY
DOUBLE STRAP PULLEY
CABLE CAN BE LOOPED HERE OR CUT AND TIED.
DOTTED AREA SHOW CABLE AND MANUAL WENCH LOCATED INSIDE BUILDING.
PLACE CABLECLAMP ON CABLE AS MARKER. THIS will REMIND YOU NOT TO RAISE CURTAIN BEYOND THIS POINT.
DIAGRAM SHOWS POWER UNIT MOUNTED ON ONE SIDE OF BUILDING. CURTAIN IS ONLY BEING CONTROLLED ON THAT SIDE. CURTAIN MOVEMENT AS SHOWN IS 1 to 1.


DRAWING ILLUSTRATES:
POWER CURTAIN MOUNTED OUTSIDE
ON THE SOUTHSIDE OF THE BUILD-
ING. CURTAINS ON NORTH AND SOUTH
SIDE ARE BEING OPERATED BY THE
POWER CURTAIN LOCATED ON THE
SOUTH SIDE OF THE BUILDING.
Cable
Across
Building
Cable Clamp (Placed here as
a reminder not
to wind cable up
beyond this point.
DOTTED LINES SHOW EQUIPMENT LOCATED INSIDE OF BUILDING.
SOLID LINES SHOW EQUIPMENT LOCATED OUTSIDE OF BUILDING.
CONTROL UNIT NOT SHOWN, BUT LOCATED INSIDE BUILDING
ON SOUTH WALL BEHIND THE POWER UNIT.
POWER UNIT
CABLE CLAMP

POWER CURTAIN FOR TUNNEL VENTILATED HOUSES
(Use with Evaporative Pads or Foggers)

OPERATION:

The Power Curtain Fast Controller will operate as an automatic curta controller, checking temperature every 5 minutes and making the necessa adjustments. The minimum adjustment, which can be made in any 5 minut period, is 3 inches (this can be easily increased). Also, we have Winter/Summer control switch on the lower left side of the Control Unit When this switch is in the **Winter** position, the Power Curtain will operat on a normal curtain control. But when it is placed in the **Summer** po sition, it becomes a Fast Controller and works as described in the para graphs that follow.

This unit has two thermostats, one for temperature control and th other to change from Natural to Tunnel Cooling fan ventilation. Thes thermostats can be identified by their label.

As summer comes on and the days get warmer, the need for Tunnel cool ing (pads or foggers), becomes necessary. The Power Curtain Contro unit is designed to automatically work with the Tunnel cooling program Example: As long as the temperature stays in the moderate zone (30°-85°) the Power Curtain will maintain the temperature by raising or lowerin the curtains according to the curtain machine thermostat setting. Thi thermostat has a 1½° differential. Let's assume that we have the Powe Curtain thermostat set on 70°.

The thermostat for Natural/Tunnel Ventilation should have a muc wider differential than the Power Curtain thermostat (This thermosta is adjustable from 3°-12°). Idealy, this differential should be abo 6°. If we want the Tunnel Cooling to begin at 85° and go back to Natura Ventilation at 79°, (this is a 6° differential), you will need to se the thermostat at the midpoint between 85° and 79°, which is 82°. Th will prevent the system from having problems in deciding whether it shou be in the Tunnel Cooling mode or the curtain ventilation mode. For ex ample, let's say that we have our Natural/Tunnel Cooling thermostat se to make at 85°. When the temperature reaches this level, the thermosta will make, causing the Power Curtain to close the curtains.There is switch on the left side of the Power Unit that can delay power to th fan (relay) until the curtain is closed, this switch is used to brea the current to the fan relay coils, to prevent the fans from operatin when the curtains are open or when they are closing. We always sugges that you have one or two timed run fans out of this control system, fo life support protection.

When the Tunnel Cooling begins, it will generally continue on int the night. As the countryside begins to cool off with the night air the house temperature will begin to fall. When the house temperatur reaches, for example, 79°, the Natural/Tunnel Cooling thermostat wil open, allowing the Power Curtain (temperature control) thermostat t take over. This is a double switch thermostat, one switch operates o the set-point, the other is pre-set by us at 5° above set-point. Example Set-point is 70°, if temperature is 75° or above, the Power Curtain wil open the curtains continuously until the curtain is totally open or th temperature falls below 75°. The Power Curtain will control temperatu throughout the night and until the temperature begins to rise the ne day.

Power Curtain Fast Controller systems must always have a back-u ventilation and alarm system. For back-up ventilation use the Curt-O-M tic II with high temp thermostat (Cm-120 w//T). For back-up alarm, u the Alert Alarm. It will monitor high & low temperature and power failur

RECOMMENDED WINTER THERMOSTAT SETTING FOR BROILERS:

First two days.....88°	Fourth week.....75°
Next five days.....85°	Fifth week.....72°
Second week.....82°	Sixth week.....70°
Third week.....79°	Seventh week plus.70°

RECOMMENDED SUMMER THERMOSTAT SETTING FOR BROILERS:

First three weeks, use winter setting. Fourth week and after, set at 77°. At this temperature, the POWER CURTAIN should react to summer showers and thunderstorms. You should determine what temperatures best suit your own needs.

TO CHECK OUT POWER UNIT

To move load nut down screw, connect wires from POWER UNIT as follows:

WHITE BLACK	TO	LINE 120v.
BROWN	TO	BLUE
RED	TO	ORANGE
GREEN YELLOW	TO	TAPE (Each wire separately) OFF

To move load nut up screw, connect wires from POWER UNIT as follows:

WHITE GREEN	TO	LINE 120v.
BROWN	TO	ORANGE
RED	TO	BLUE
BLACK YELLOW	TO	TAPE (Each wire separately) OFF

1 YEAR WARRANTY

The POWER CURTAIN is warranted for one year from the date of purchase against electrical and mechanical defects in material and workmanship. If this unit fails to operate during this period, return it, prepaid to address below, for repair or replacement, without charge at the manufacturer's option. Damage by accident or abuse is not covered by this warranty. This warranty gives you specific legal rights which vary from state to state. To return, pack the POWER CURTAIN securely to prevent damage in transit.

CARE AND LUBRICATION:

The POWER CURTAIN should be lubricated on a regular basis when it is in operation. There are two points of concern. To get to these, the cover on the curtain machine must be removed.

The most critical point is the lubrication of the screw. This should be lubricated every 3 months. Valvoline val-plex EP wheel bearing grease should be applied to the full length of the screw and also the frame where the load nut slides. This grease can be aquired at most auto parts stores.

The other lube point is the thrust bearing located in the steel block at the base of the screw. A grease fitting is provided for this.

COVER FOR POWER UNIT:

The cover for the POWER UNIT has to be assembled. Start with main body of the cover and attach handles on each side of it with 1/4" X 1/2" screws and 1/4" nuts. Then attach the rain shield to the top of the main body with 1/4" X 1/2" screws and 1/4" nuts. You are now ready to mount cover over POWER UNIT. First, slide bottom of cover over 1/4" screws on the bottom of the POWER UNIT. Then, push the body of the cover toward the center of POWER UNIT until it touches 1/4" screws at the middle of POWER UNIT. Then push up approximately 1" to allow 1/4" screws to slip into the slot, and pull down to lock in.

HALF HOUSE BROODING:

It is generally not necessary to worry about the curtain on the un-used end of the building. In extreme temperatures, the curtain will usually remain closed during the first two weeks. To be certain that the curtains on the un-used end of the building will remain closed, you can chain the curtain off in the closed position. This can be done by going to the end of the brooding area and attaching a small chain to the side of the building above the curtain cable. Then clamp spring-hook onto curtain cable. When the curtain is in the closed position, pull chain tight and clip into spring-hook. This portion of the curtain will then remain in this position.

OPERATION OF THE POWER CURTAIN:

The POWER CURTAIN is designed primarily to raise or lower the curtains to maintain the desired temperature of the building. This is done by setting the thermostat to the desired temperature. The toggle switch on the CONTROL UNIT should be set to AUTO. This puts the POWER CURTAIN on automatic operation (Thus; controlled by the thermostat). The curtain will move in increments of about 3 inches each 5 minutes until set temperature is reached.

The POWER CURTAIN can also be operated manually by resetting the toggle switch to MANUAL and then setting the CURTAIN MOVEMENT switch to OPEN or CLOSE.

This unit is set up with manual winches to allow you to vary your curtain opening to suit your particular needs. A cable clamp should be placed on the cable prior to the pulley that leads to the manual winch. This will prevent anyone from raising the curtain beyond the extreme point which could cause cable breakage or other damage.

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POWER UNIT:

Mount the head bracket first, using the two outside holes, then the POWER UNIT by lining the two top holes on the POWER UNIT with the two inside holes on the head bracket. Now, attach the lower end of POWER UNIT. Important, do not over tighten. 3/8" lag screws are provided to mount the POWER UNIT and other necessary brackets. (See the illustration that applies to your installation).

CONTROL UNIT:

CONTROL UNIT is mounted on the inside in a convenient area. The 8 conductor cable from the POWER UNIT is then connected to the CONTROL UNIT according to the wiring diagram inside the control box. The thermostat is then positioned in an area representative of the environment of the house. Thermostat cable is run back to control unit and connected according to the wiring diagram. A 115 volt wall recepticle will be needed for the CONTROL UNIT.

CABLE HOOK-UP:

The POWER CURTAIN is shipped to you with the load nut near the closed position. This is the best position to work from in connecting your cables. (It garantees that there will be enough cable on the manual winch to manually operate the system).

Cable should be strung as shown in the illustration that fits your needs. On most curtain systems, it is better if all cable is 3/16".

RAISE CURTAIN:

To do this, go to CONTROL UNIT and set AUTO/MANUAL switch to MANUAL, and set CURTAIN MOVEMENT switch to CLOSE. Since the load nut is already close to the lower limit switch, it will only move 2 to 3 inches before cutting off. When POWER UNIT has stopped, raise curtains with the manual winches. Then place the cable clamp on cable. This will prevent anyone from raising curtains beyond the closed position.

LIMIT SWITCHES:

The lower limit switch is permanently fixed. The upper limit switch should be positioned to set the extreme movements of the curtain. Go back to CONTROL UNIT and set CURTAIN MOVEMENT switch to OPEN. The curtain will now begin to open automatically. Watch curtain, when it becomes completely open, move upper limit switch down to load nut to stop the machine. Permanently set upper limit switch at this point. You have now set the extreme movements of the curtain.

SAFETY SWITCHES:

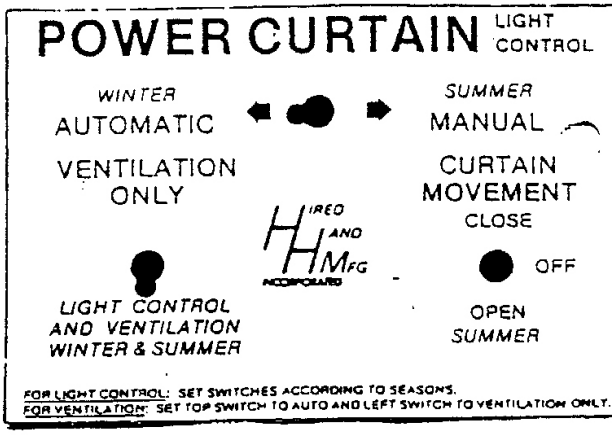
The POWER UNIT has safety switches located behind or beside primary switches. (Safety switch has short arms). If the unit ever failed to stop at this primary limit switch, the safety switch would stop it. In order to restart machine, you would need to manually back the screw off of the safety switch. This prevents the POWER UNIT from ever damaging itself.

POWER CURTAIN LIGHT CONTROL PLUS (+) SETTING

GHT CONTROL

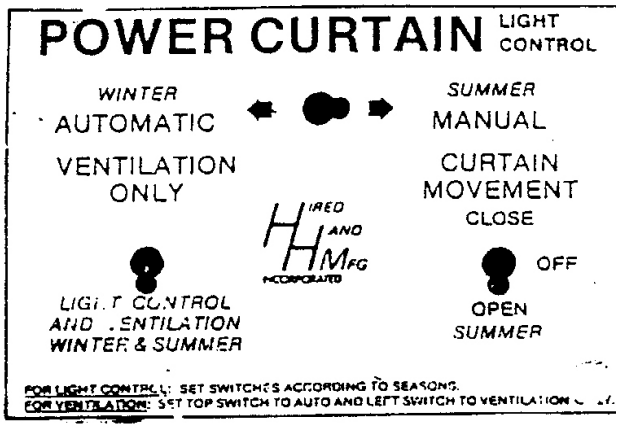
WINTER SETTING

Set switches to WINTER as shown. Set thermostat to desired temperature. When the time clock calls for light, the curtain will open to the bottom of the clear curtain (to the rocker switch). If the house temperature gets above the thermostat setting, the curtains will open to maintain the proper house temperature.



SUMMER SETTING

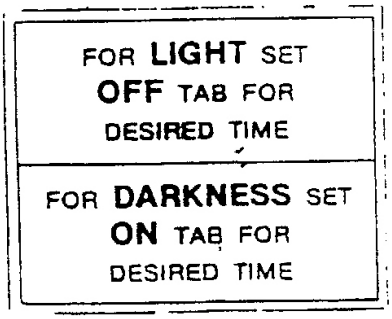
Set switches to SUMMER as shown. With this setting, Curtains are fully open or completely closed.



SETTING OF TIME CLOCK

The OFF tab is set at the time you want black curtain to OPEN to start lighting program.

The ON tab is set at the time you want the black curtain to CLOSE to stop lighting program.



FOR EXAMPLE:

WINTER - OFF tab set at 8 a.m. to start Lighting Program.
ON tab set at 4 p.m. to stop Lighting Program.

SUMMER - OFF tab set at 12 noon to start Lighting Program.
ON tab set at 4 a.m. to ventilate during the night.
(The Lighting Program will end at senset).

CONTROL OF FANS

The fans are controlled through a relay which is activated when the curtains are completely closed. When this happens, the fan relays will automatically energize, allowing the fans to operate when the thermostat and relays call for it. As soon as the curtains begin to open the fans stop. When the curtains open to the bottom of the

POWER CURTAIN
TROUBLE SHOOTING GUIDE

PROBLEM: POWER CURTAIN will not do anything on manual or auto.

CHECK: -To see if POWER CURTAIN is getting 120v.
-To see if load nut has run through long arm limit switch and is against short arm safety switch. If so, manually turn screw and back load nut off of safety switch. If unit works in one direction, you have probably got a bad long arm limit switch.
-Open Control Box and check Relay. Contacts may be stuck or burred. If so, replace relay or remove plastic cover on relay, unstick and sand contacts.
-Compasitor may be bad on motor
-Motor shorted out.(very unlikely)

PROBLEM: POWER CURTAIN will work on Manual, tut not Auto.

CHECK: -Sinc.Timer, Gearmotor that drives Timer may not be working, watch Timer wheel (or wheels) to see if it is turning.

PROBLEM: POWER CURTAIN will work on Manual, but on Auto, it will only close.

CHECK: -Wire going to thermostat, to see if false connection is being made. (Staple may have been driven into jacket of 3 conductor wire, and made a direct connection between the black and red wires.)
-Sinc. Timer cams may be out of place.
-Sinc. Timer switch may have burned out.
-Thermostat may not be working correctly.

PROBLEM: POWER CURTAIN will work on Manual, but will open on Auto.

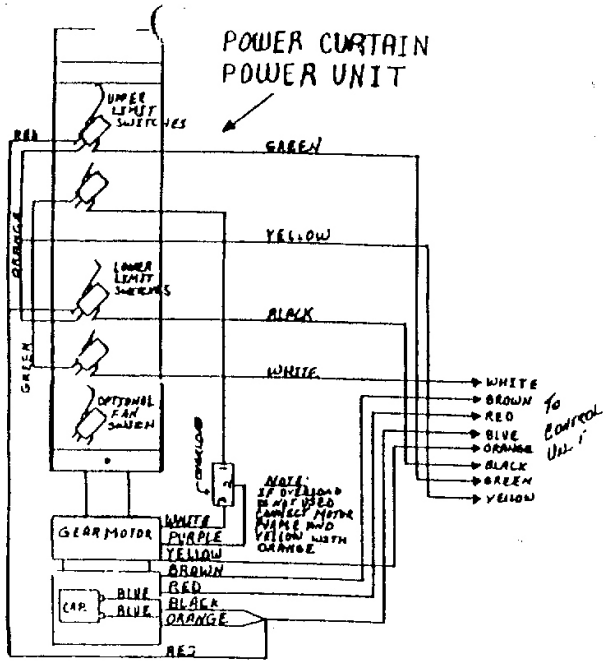
CHECK: -Cam wheel on Sinc. Timer, check cams.
-Switch on Sinc. Timer.
-Wire going to thermostat may have broken.
-Thermostat may not be working correctly.

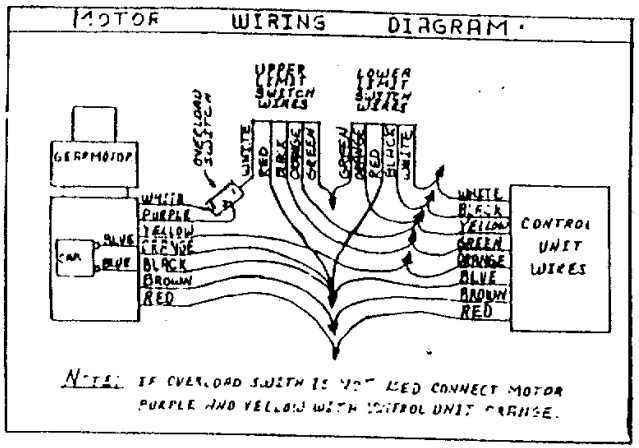
PROBLEM: POWER CURTAIN works on Manual, but eratic on Auto.

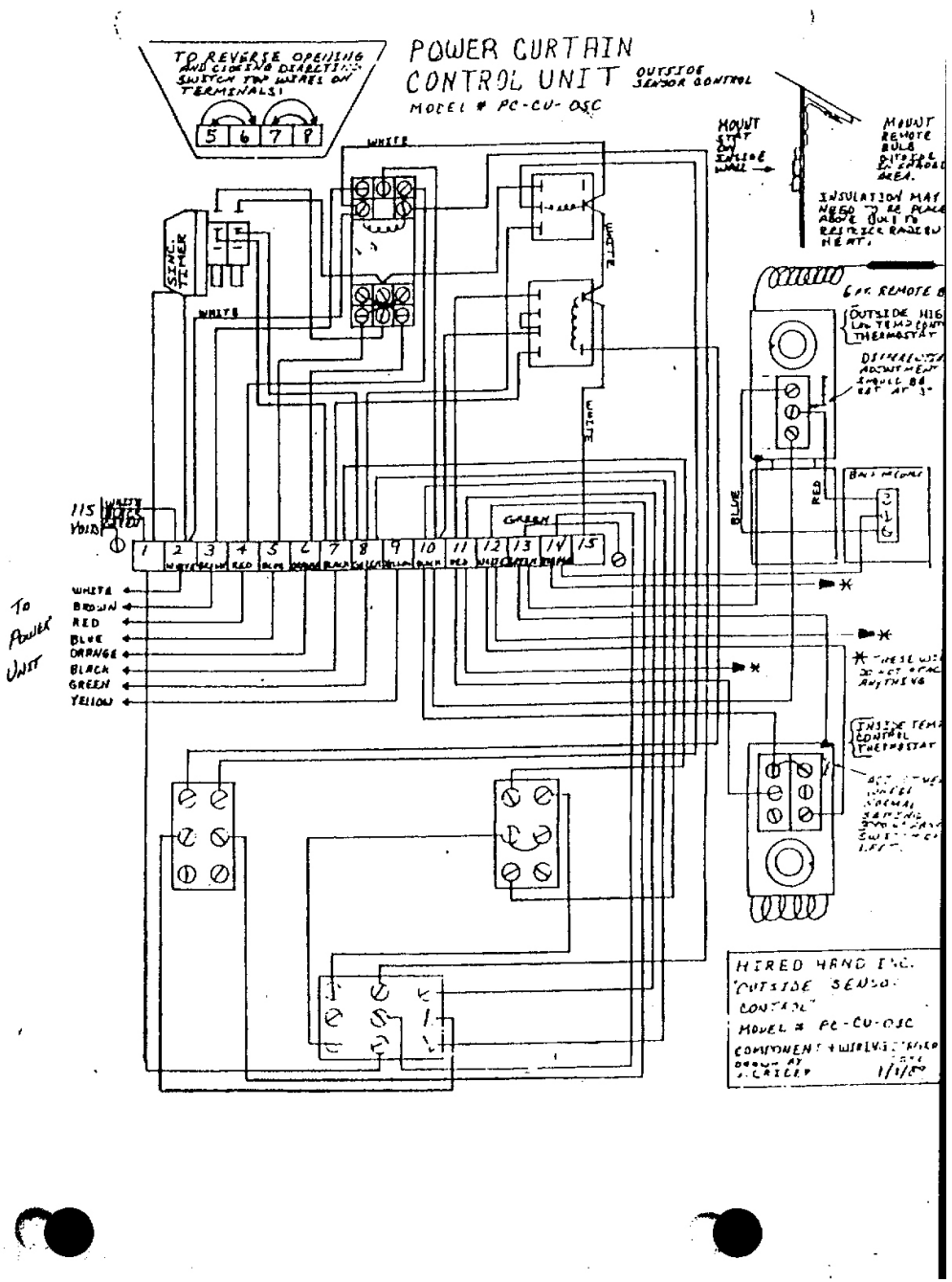
CHECK: -3 Conductor Wire going to thermostat may have staple through jacket making a connection between the red or black wire, and the white wire. This provides a hot leg feed back to control box and causes the relay to act eratic. You can disconnect white wire in control box to check this.

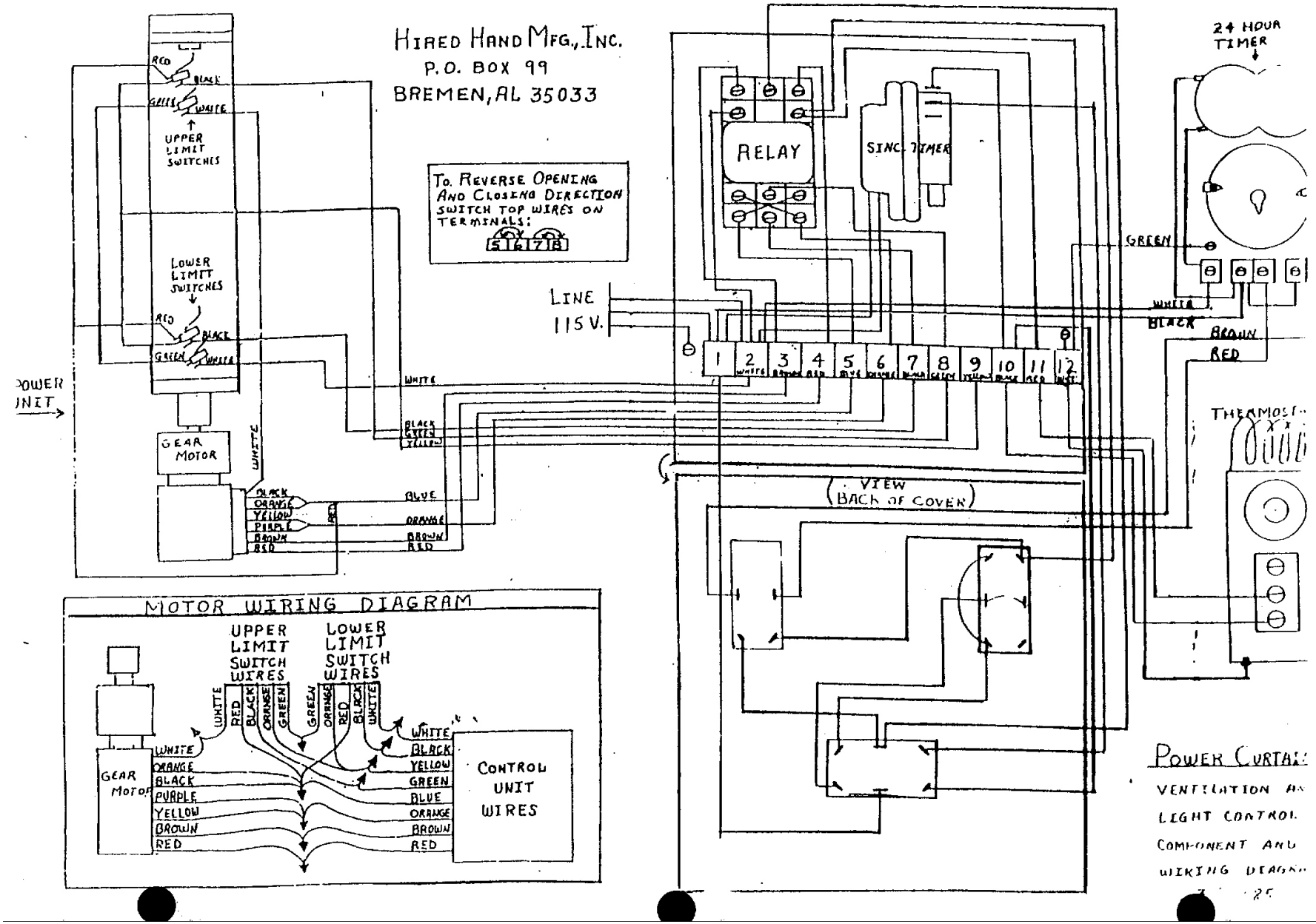
PROBLEM: Motor runs or hums, but gearbox does not turn.

CHECK: Bottom of motor to see if fan shaft is turning. If it is, the gearbox is probably stripped out.
-If the fan shaft is not turning, you may have a bad compasitor.


POWER CURTAIN
POWER UNIT
UPPER LIMIT SWITCHES
LOWER LIMIT SWITCHES
OPTIONAL FAN SWITCH
OVERLOAD
GEAR MOTOR
CAP.
RED
ORANGE
GREEN
YELLOW
BLACK
WHITE
BROWN
BLUE
PURPLE
NOTE: IF OVERLOAD IS NOT USED CONNECT MOTOR PURPLE AND YELLOW WITH ORANGE
TO CONTROL UNIT


MOTOR WIRING DIAGRAM.
GEAR MOTOR
CAP.
OVERLOAD SWITCH
UPPER LIMIT SWITCH WIRES
LOWER LIMIT SWITCH WIRES
CONTROL UNIT WIRES
NOTE: IF OVERLOAD SWITCH IS NOT USED CONNECT MOTOR PURPLE AND YELLOW WITH CONTROL UNIT ORANGE.


TO REVERSE OPENING AND CLOSING OPERATION SWITCH TOP WIRES ON TERMINALS!
5 6 7 8
POWER CURTAIN
CONTROL UNIT
OUTSIDE SENSOR CONTROL
MODEL # PC-CU-OSC
SYNC. TIMER
115 VOLTS
TO POWER UNIT
WHITE
BROWN
RED
BLUE
ORANGE
BLACK
GREEN
YELLOW
MOUNT REMOTE BULB OUTSIDE OF ENCLOSED AREA.
INSULATION MAY NEED TO BE PLACED ABOVE UNIT TO RESTRICT RADIANT HEAT.
OUTSIDE HIGH TEMPERATURE THERMOSTAT
HIRED HAND INC.
"OUTSIDE SENSOR CONTROL"
MODEL # PC-CU-OSC


HIRED HAND MFG., INC.
P.O. BOX 99
BREMEN, AL 35033
TO REVERSE OPENING AND CLOSING DIRECTION SWITCH TOP WIRES ON TERMINALS: 5 6 7 8
UPPER LIMIT SWITCHES
LOWER LIMIT SWITCHES
RED
BLACK
GREEN
WHITE
GEAR MOTOR
LINE 115 V.
RELAY
SYNC. TIMER
24 HOUR TIMER
1 2 3 4 5 6 7 8 9 10 11 12
VIEW (BACK OF COVER)
MOTOR WIRING DIAGRAM
UPPER LIMIT SWITCH WIRES
LOWER LIMIT SWITCH WIRES
WHITE
ORANGE
BLACK
PURPLE
YELLOW
BROWN
RED
BLUE
GREEN
CONTROL UNIT WIRES
POWER CURTA
VENTILATION A
LIGHT CONTRO
COMPONENT AND
WIRING DIAGR

Winter

The black curtain will open to provide light and ventilation for the number of hours set on time clock. Curtains will lower, only if, temperature in house gets above setting on thermostat. If this does not happen, the back-up lighting will come on to insure that the chicken get the required light.

Summer

In most cases, the black curtain will open approximately 8 hours before sunset and will remain open to about an hour before sunrise. (This setting keeps the curtains open during the heat of the day).

For Ventilation Only

To be used during the early growing period when light control is not necessary.

Setting For The Power Curtain Light Control Unit:

-Set Automatic/Manual switch to AUTOMATIC. (Top Switch)
-Set Ventilation Only/Light Control switch to VENTILATION ONLY. (Lower Left Hand Switch)
-Set Curtain Movement/Light Control switch to OFF POSITION. (Lower Right Hand Switch)

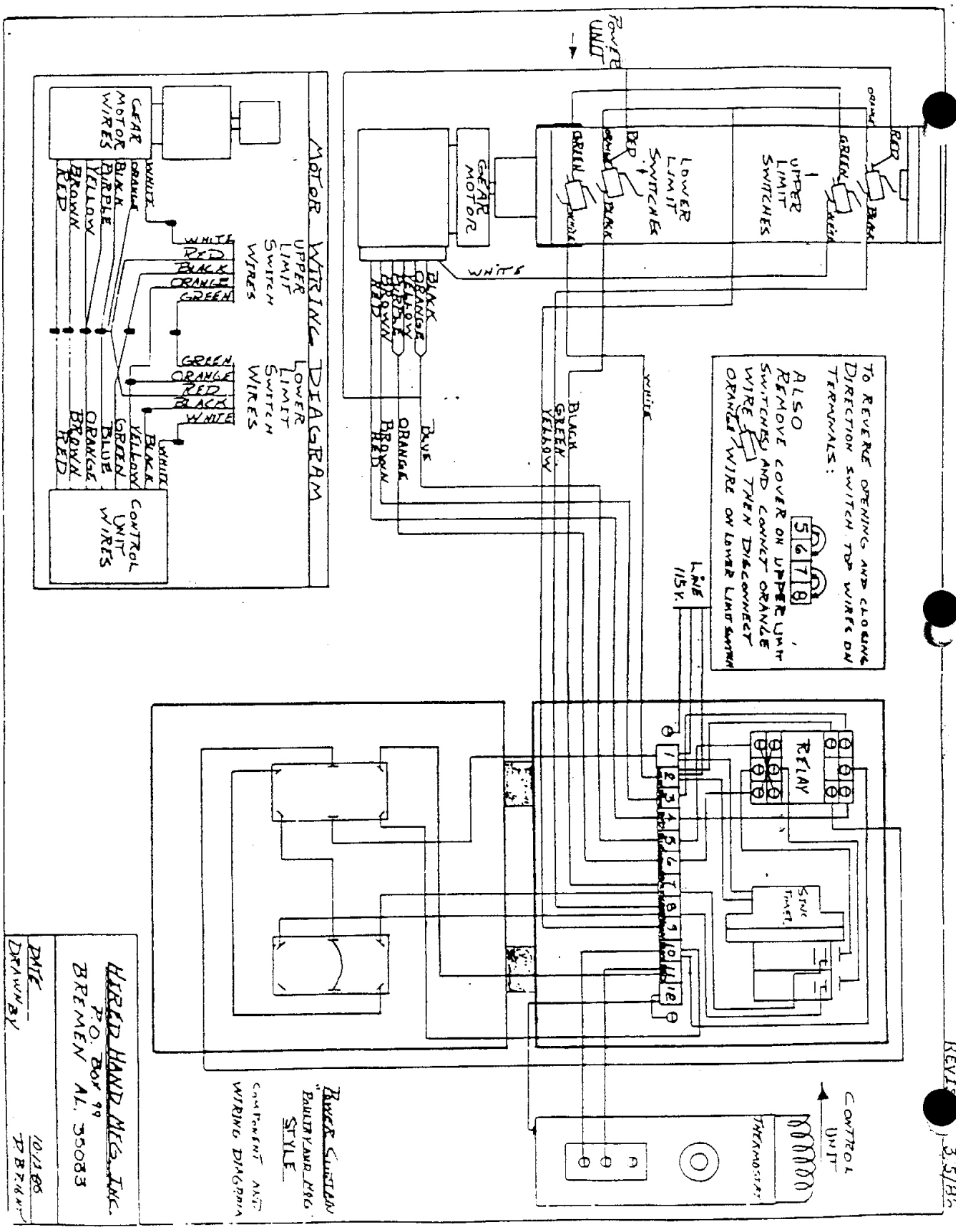
The Power Curtain will now operate Automatically to maintain house temperature depending upon the setting of the Power Curtain thermostat located in the middle of the house. The unit will monitor the temperature every 5 minutes to maintain desired house temperature. (So long as this can be done by opening or closing curtains). You will need to use your back-up lighting system.

For Manual Operation

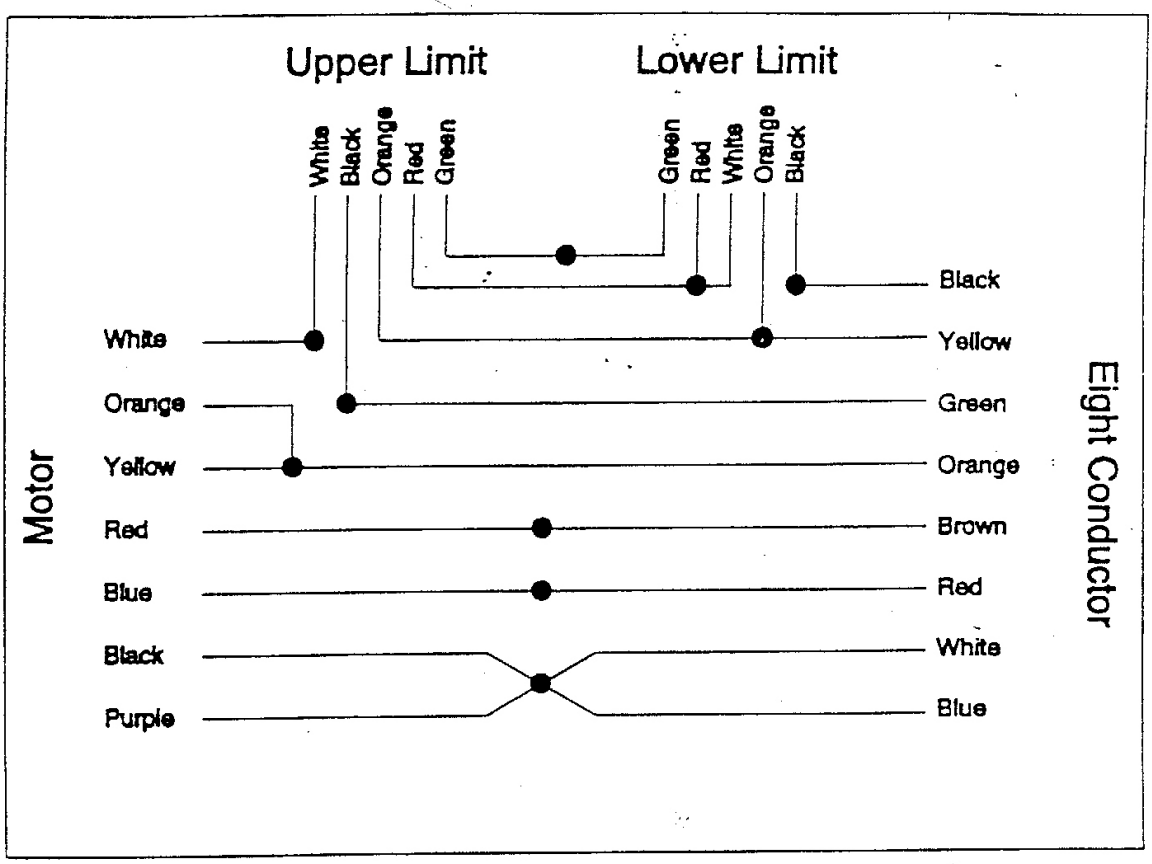
Setting For Power Curtain Light Control Unit:

-Set Automatic/Manual switch to MANUAL. (Top Switch)
-Set Ventilation Only/Light Control switch to VENTILATION ONLY. (Lower Left Hand Switch)

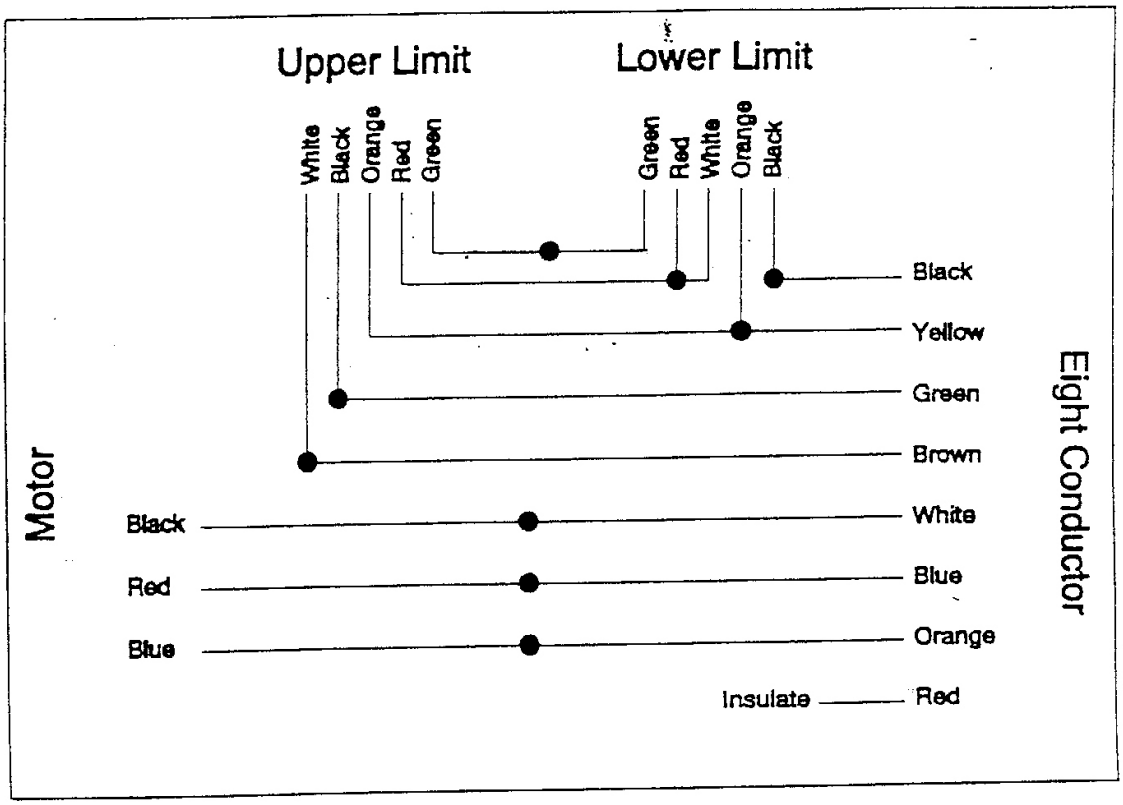
Set Curtain Movement/Light Control switch to:
-OPEN position to open curtains.
-CLOSE position to close curtains. (Lower right hand switch)


MOTOR WIRING DIAGRAM
UPPER LIMIT SWITCH WIRES
LOWER LIMIT SWITCH WIRES
GEAR MOTOR WIRES
CONTROL UNIT WIRES
WHITE
RED
BLACK
ORANGE
GREEN
BLUE
YELLOW
BROWN
TO REVERSE OPENING AND CLOSING DIRECTION SWITCH TOP WIRES ON TERMINALS: 5 6 7 8
ALSO REMOVE COVER ON UPPER LIMIT SWITCHES AND CONNECT ORANGE WIRE TO THEN DISCONNECT ORANGE WIRE ON LOWER LIMIT SWITCH
UPPER LIMIT SWITCHES
LOWER LIMIT SWITCHES
GEAR MOTOR
POWER UNIT
LINE 115 V.
RELAY
STOP TIMER
CONTROL UNIT
THERMOSTAT
KEY
HERRON HAND MFG., INC.
P.O. BOX 99
BREMEN AL. 35033
DATE 10/13/66
DRAWN BY JD BROWN

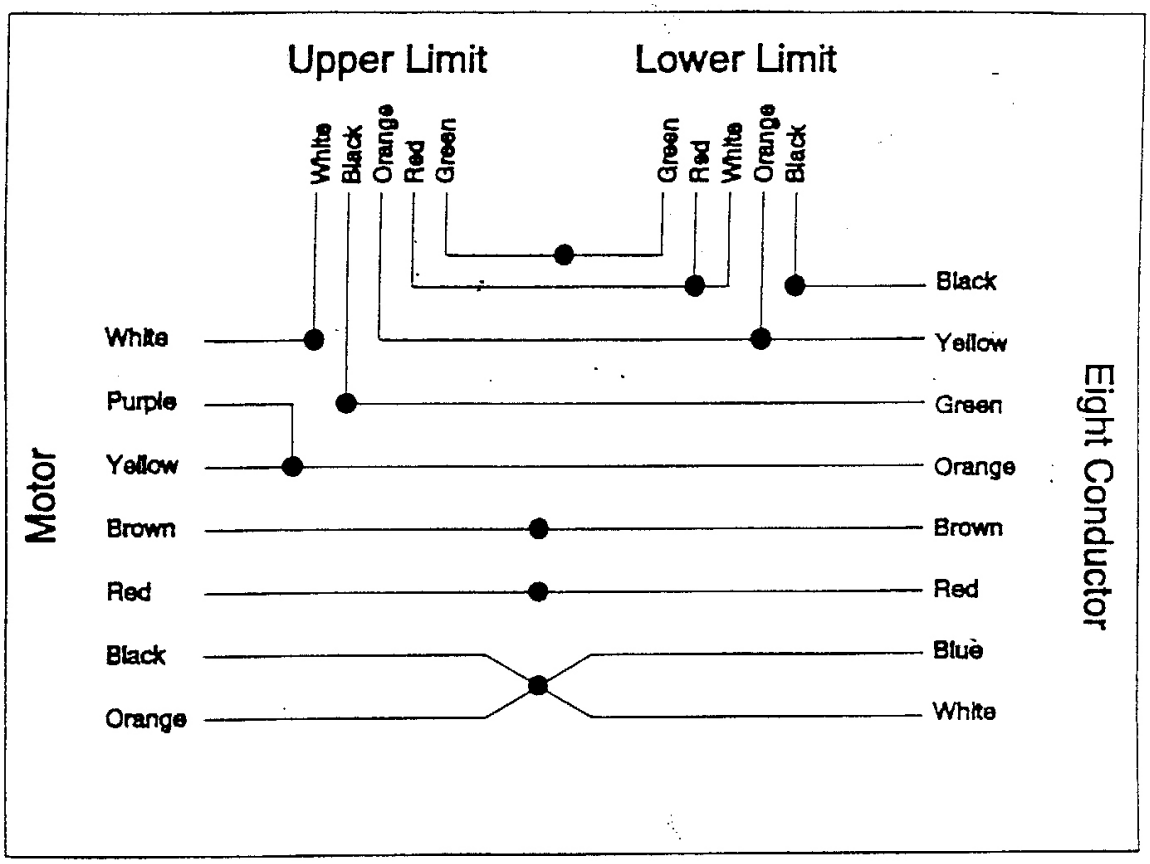
Fasco Model V0301AB88 15 RPM 115/240 V



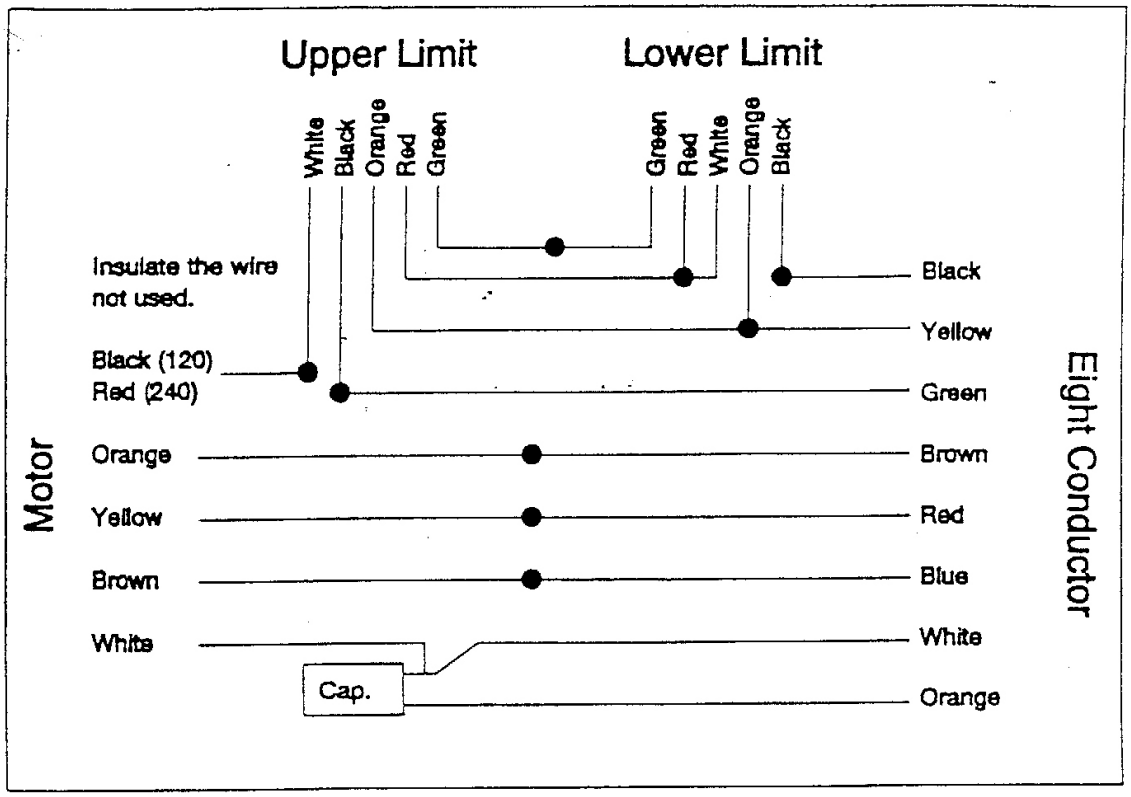
Fasco 30/60 RPM



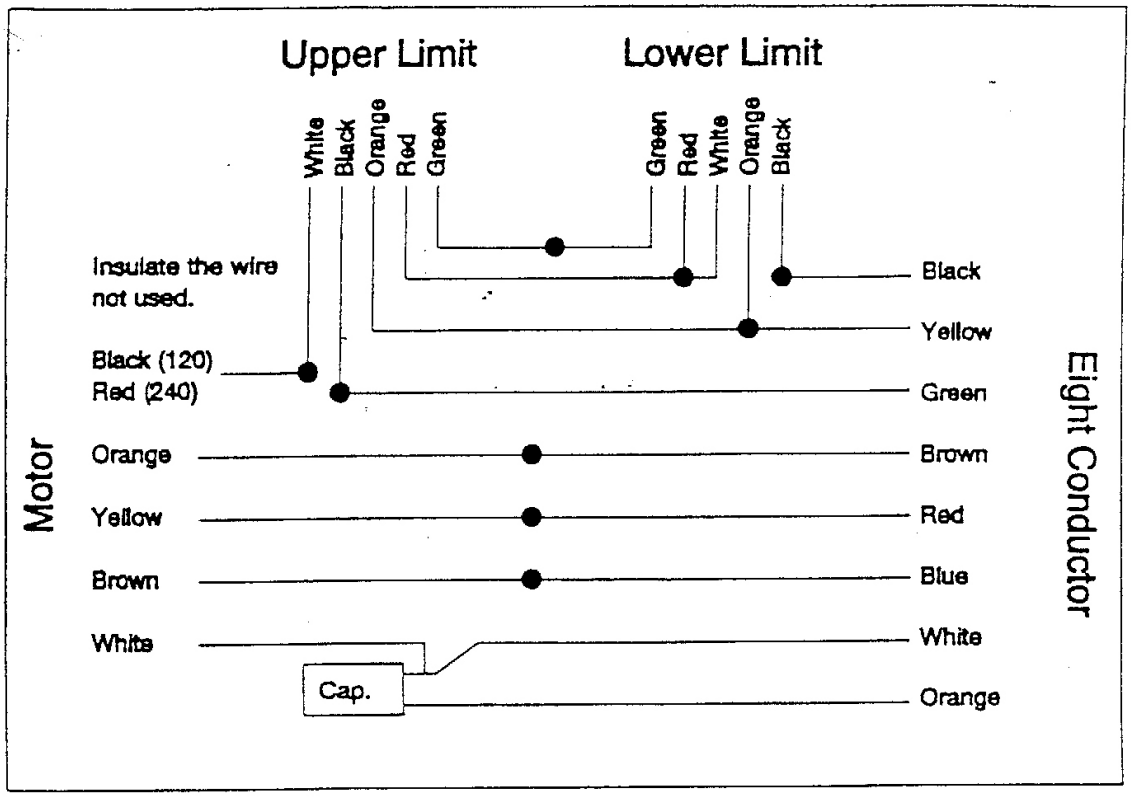
Bison, Franklin, Maxtorque 15 RPM 120V



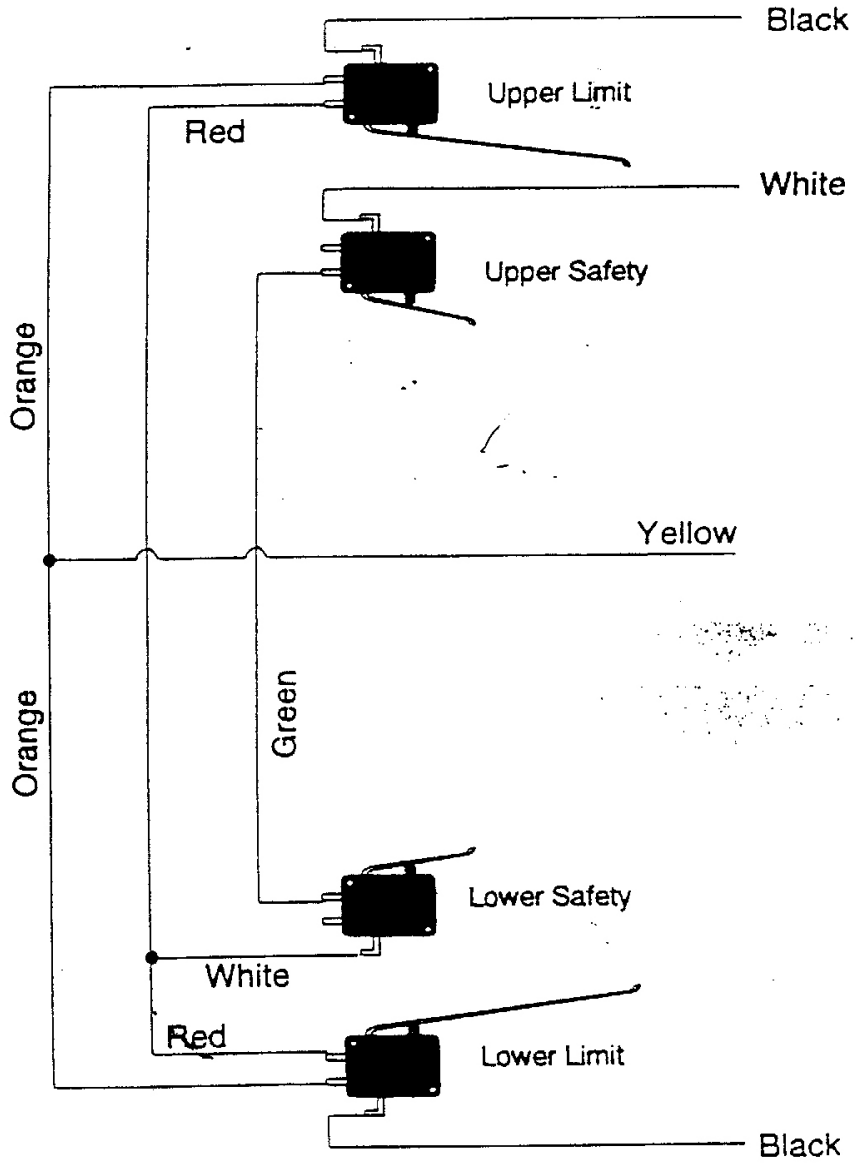
Bison 60 RPM Gearmotor



Bison 60 RPM Gearmotor



Limit Switch Wiring



Bison Maxitorque 40/33 RPM