

AUTOYOKE™

User Manual

Version 1.7

CITY

THEATRICAL

NEW YORK • LONDON

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SECTION 1: SPECIFICATIONS

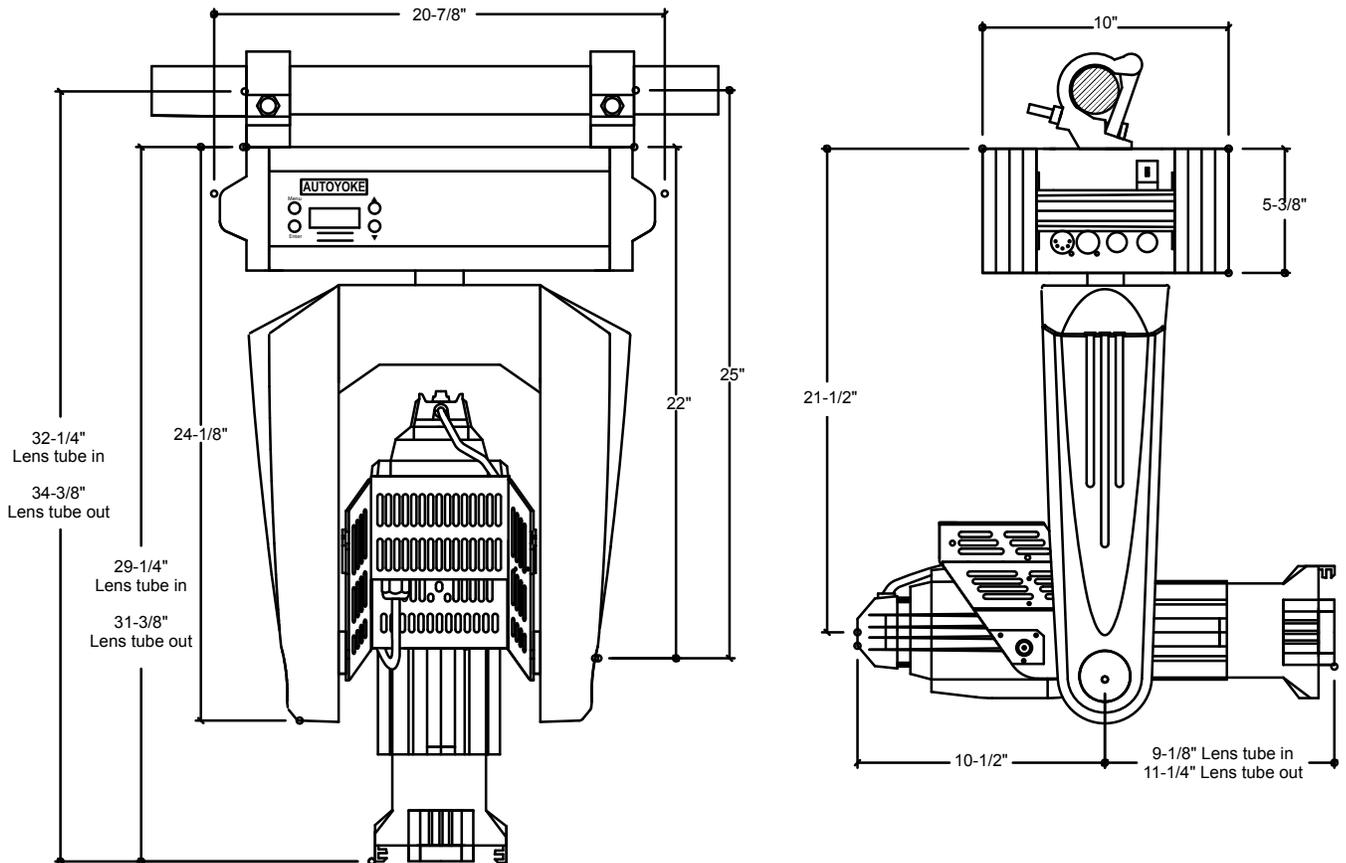
1.1 DIMENSIONS & WEIGHT

WEIGHT

AutoYoke: 26 lbs (11.7 kg)

AutoYoke with Source Four: 40 lbs (18 kg)

DIMENSIONS



Note: AutoYoke is shown with ETC Source Four and Light Source "Mega Claw" clamps

1.2 COMPLIANCE

Conforms to UL STD 73, Ninth Edition - Motor Operated Appliances.

Certified to CAN/CSA C22.2 NO.: 68.92

ETL# 9801635

CETL# 9801635

CE, GS,

1.3 ELECTRICAL

- Working voltage: 100-240 VAC, 50/60 Hz
- Rated current: 1.3A

1.4 PROTOCOL

- USITT DMX512
- Start code: (00h)
- Maximum load: 32 fixtures per DMX link (See Section 3.10, Data Cable)
- Maximum length of DMX link: 2000' (See Section 3.10, Data Cable)
- Required control channels: 7 (16-bit) or 5 (8-bit) (See Section 3.10, Data Cable)
- Termination: 120Ω (See Section 3.10, Data Cable)

1.5 MOTORS

- High torque stepper motor, half stack
- Rated voltage DC: 8.7
- Step angle (degrees): 1.8

SECTION 2: SAFETY

- ⚠ A moving light is a dangerous piece of equipment. It is for professional use only.
- ⚠ If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
- ⚠ Follow all safety procedures that apply to the lighting fixture, per its manufacturer's instructions.
 1. Refer to the lighting fixture's user manual for all applicable safety information.
 2. Maintain minimum safe distances.
- ⚠ The AutoYoke is designed for use only with the ETC Source Four 5°, 10°, 14°, 19°, 26°, 36°, 50°, 70° or 90°. Using a fixture other than those listed without manufacturer's approval **WILL VOID THE AUTOYOKE WARRANTY.**
- ⚠ Always ground (earth) the AutoYoke electrically.
- ⚠ Balance of the lighting fixture as mounted in the AutoYoke is critical to proper operation of the AutoYoke. Attempting to operate the AutoYoke while the lighting fixture is out of balance presents a significant risk of inaccuracy, increased motor noise and component failure. See Section 3.7, Securing the Counterweight System, for complete information.
- ⚠ Never lift the AutoYoke by the lighting fixture. Always lift and carry the AutoYoke by its two handles, located on the sides of the power supply.
- ⚠ Always suspend the AutoYoke from approved clamps secured to the designated points on the AutoYoke power supply. See Section 3.8, Hanging the AutoYoke, for further information.
- ⚠ Always use an approved safety cable when hanging the AutoYoke.
- ⚠ Always disconnect the AutoYoke from AC power before service.
- ⚠ Do not use DMX accessories that are not cited in this manual due to possible electrical incompatibility with the AutoYoke.
- ⚠ Do not allow the AutoYoke or its accessories to come into contact with moisture.
- ⚠ Do not put flammable materials on or near the AutoYoke.

SECTION 3: INSTALLATION AND SET-UP



WARNING: Using a fixture other than the ETC Source Four 5°, 10°, 14°, 19°, 26°, 36°, 50°, 70° or 90°. Using a fixture other than those listed without manufacturer's approval WILL VOID THE AUTOYOKe WARRANTY.

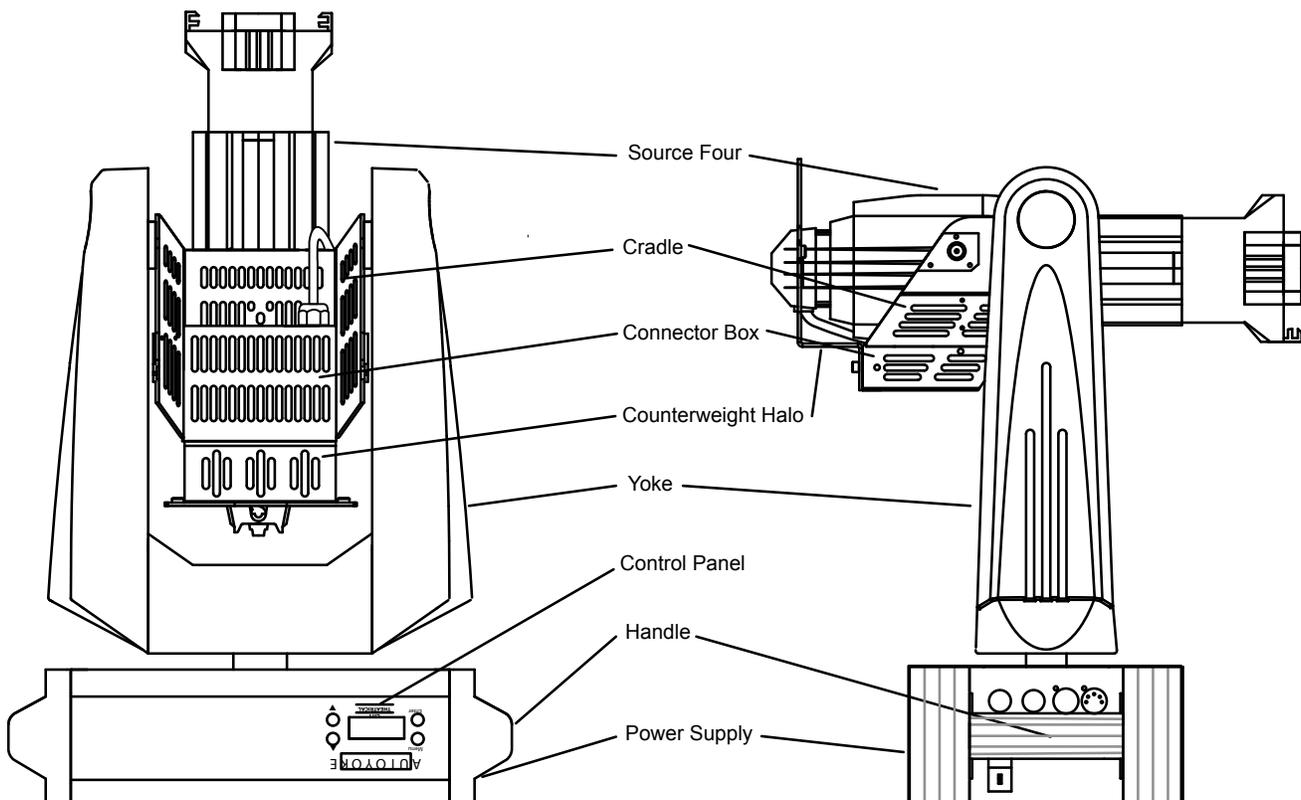
Additional hazards include the following:

- Damaging both the AutoYoke and the lighting fixture
- Fixture detaching from the AutoYoke
- Fire hazard

3.1 UNPACK AND INSPECT THE SHIPPING CONTAINER

Verify that the AutoYoke with PARnel has arrived complete and undamaged. The shipping container will contain the following items:

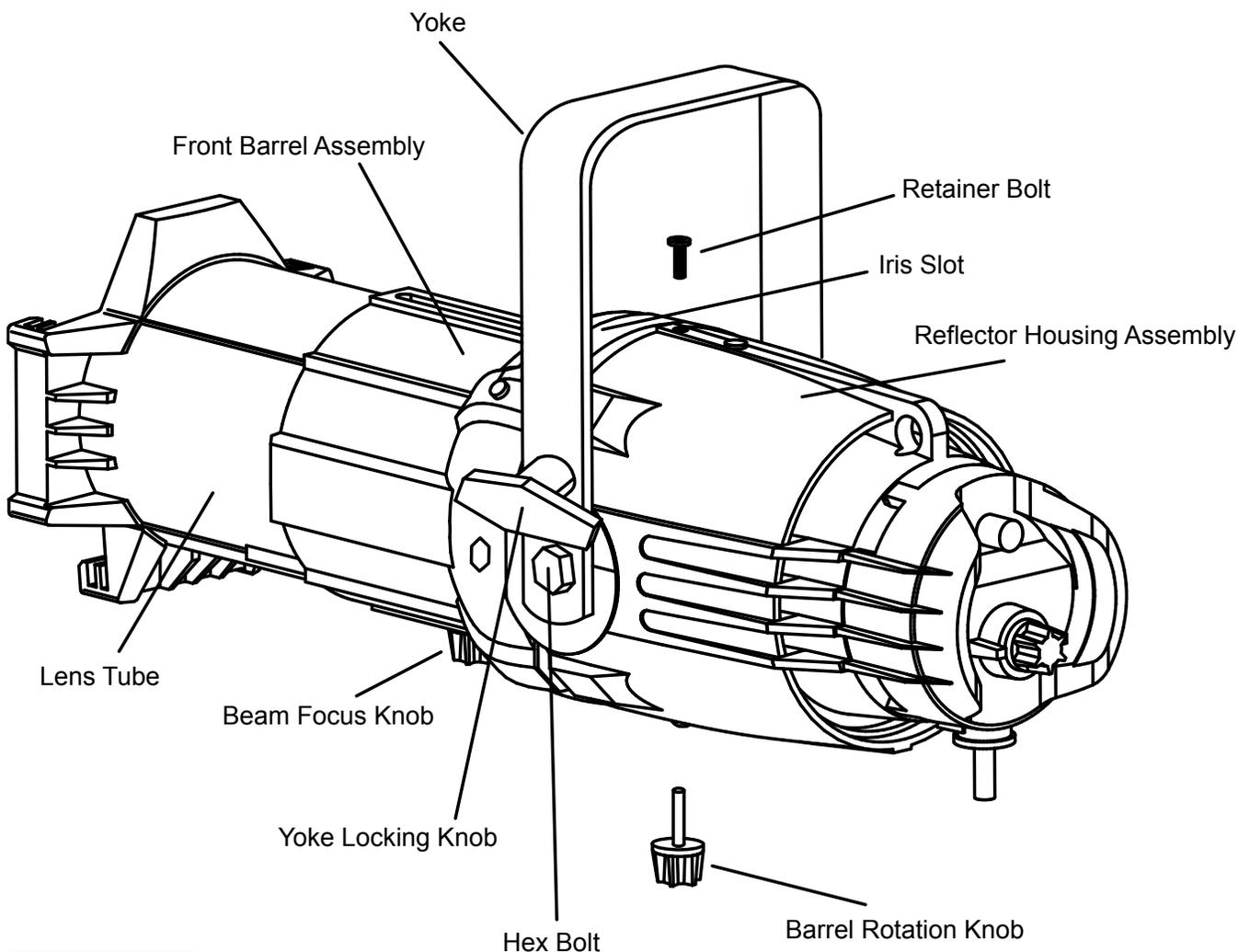
- (1) AutoYoke with User's Manual
- (1) Counterweight Halo
- (6) Counterweight Rings [2 lead, 4 steel]
- (2) Lighting Fixture Mounting Screws [5/16" - 18 x 1/2" flanged button head screws]
- (1) Lighting Fixture Mounting Screws [1/4" - 20 x 1/2" pan head screws]
- (2) Counterweight Halo Mounting Screws [1/4" - 20 x 1/2" socket head cap screws]
- (3) Counterweight Ring Mounting Screws [1/4" - 20 x 1-1/4" socket head cap screws]
- (3) Counterweight Ring Mounting Screws [1/4" - 20 x 2" socket head cap screws]



3-2 PLACING A LIGHTING FIXTURE IN THE AUTOYOKE

NOTE: SOURCE FOUR FIXTURES THAT WERE MANUFACTURED BEFORE JULY 1995 DO NOT HAVE A THREADED HOLE FOR THE “RETAINER BOLT” AS IN EXAMPLE 1 BELOW. THEY ONLY HAVE A “BARREL ROTATION KNOB”. INSTALLATION OF THESE UNITS WILL REQUIRE MODIFICATION FOR PROPER MOUNTING TO THE AUTOYOKE. CONTACT CITY THEATRICAL, INC. FOR A MODIFICATION KIT.

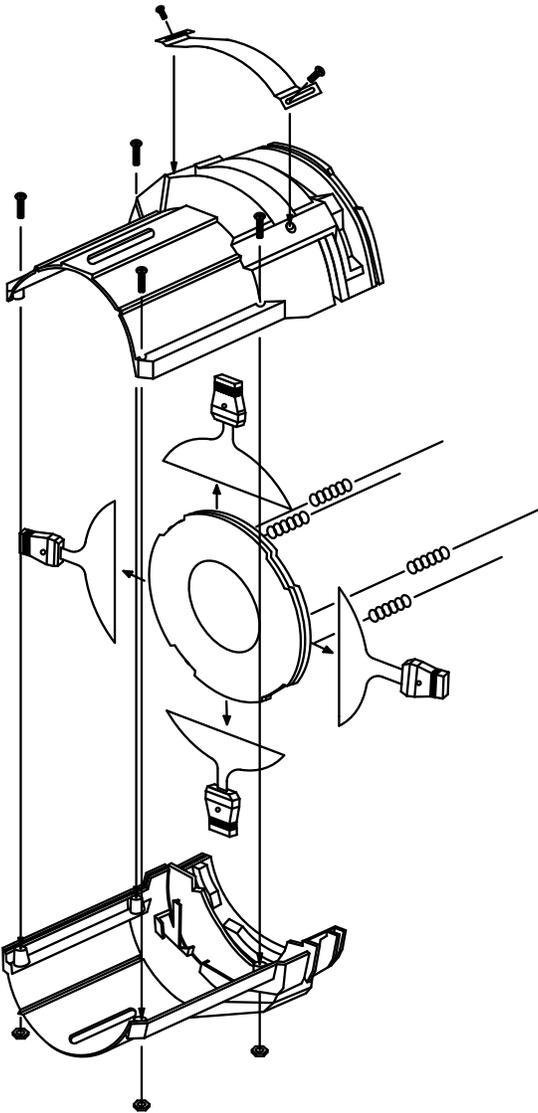
1. Remove all accessories from the lighting fixture (scroller, gel frame, top hat, etc.)
2. On the lighting fixture, remove the yoke by removing the yoke locking knob and the two hex bolts that are on either side of the lighting fixture.



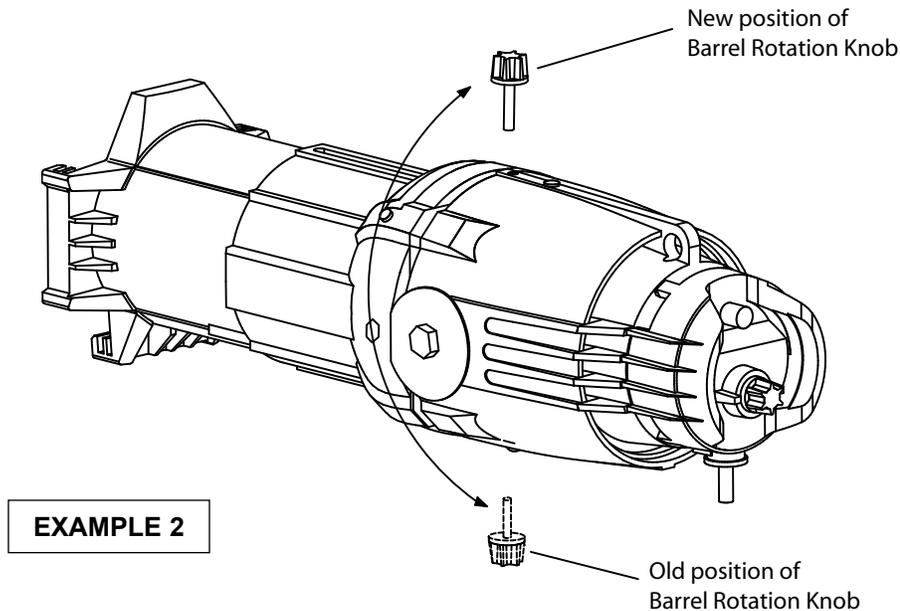
EXAMPLE 1

3. Remove the Source Four shutters with the following instructions:

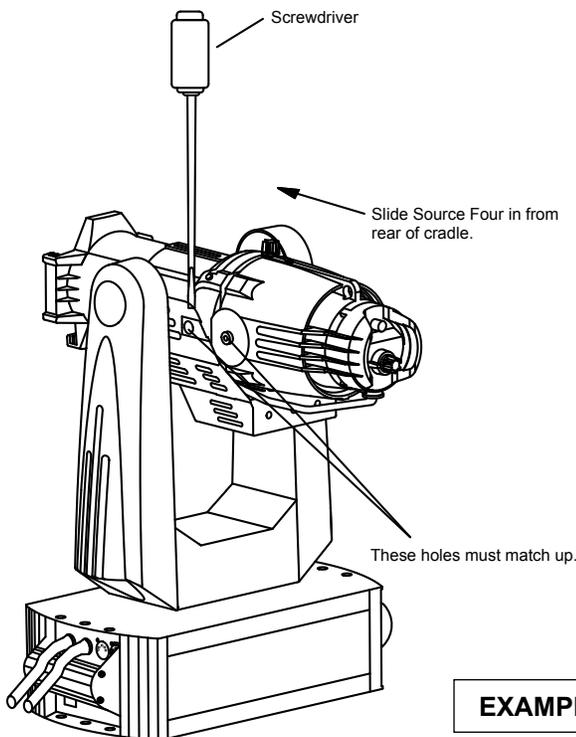
- a. Remove the lens tube from the front barrel assembly by removing the beam focus knob.
- b. Untwist and remove the Source Four front barrel assembly from the reflector housing assembly by loosening the barrel rotation knob and removing the retainer bolt.
- c. Lay the front barrel assembly on its side, with the iris slot pointing up.
- d. Remove the four pan head 8-32 x 3/4" screws and 8-32 Ny-lok nuts that fasten the top and bottom barrel casting. Remove the four shutter springs. **Always wear protective eyewear during this procedure, as the springs may pop out of place.**
- e. Separate the top and bottom barrel casting, and remove the four shutter blades. Keep the three divider plates in the same position relative to each other and the Source Four (refer to Source Four user manual for further details).
- f. Rejoin the top and bottom barrel casting. Starting at the holes closest to the shutters, use the four pan head screws and Ny-lok nuts to fasten the front barrel casting halves together. Hold the Ny-lok nuts tight against the casting while tightening the screws. Torque the screws to 25 inch/pounds [From *Source Four Parts and Assembly Instructions* published by ETC].
- g. Insert the four shutter springs between the four dimples in the shutter plate and the tabs in the lip of the casting. **Always wear protective eyewear during this procedure, as the springs may pop out of place** [From *Source Four Parts and Assembly Instructions* published by ETC].
- h. Twist and re-insert the front barrel assembly into the reflector housing assembly, and fasten by inserting the barrel rotation knob into the hole from which you previously removed the retainer bolt (**Example 2**). Do not re-insert the retainer bolt at this time. It will be used shortly.
- i. Re-insert the lens tube into the front barrel assembly, and fasten by tightening the beam focus knob.



4. Tighten the barrel rotation knob into the hole from which you previously removed the retainer bolt. The barrel rotation knob should now be on the same side as the iris slot. (Example 2)



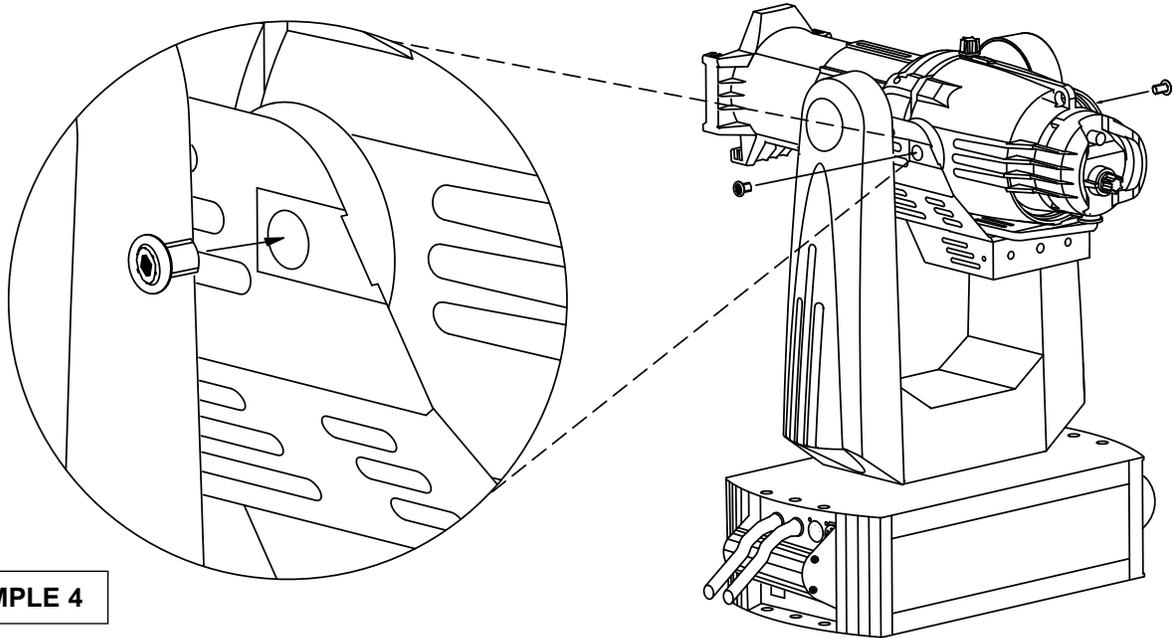
5. With its iris slot on top, rest the lens tube of the lighting fixture inside the cradle of the AutoYoke. The lighting fixture's cable should lie between the cradle and the lighting fixture (NOT directly beneath the lighting fixture), on the same side of the cradle as the strain relief on the connector box.



6. Using a flat head screwdriver for leverage between the lighting fixture and the AutoYoke cradle, **GENTLY** maneuver the lighting fixture into the cradle. When the lighting fixture is in the correct position, the holes on the sides of the lighting fixture from which you removed the hex bolts will line up with the matching holes on the cradle. (Example 3)

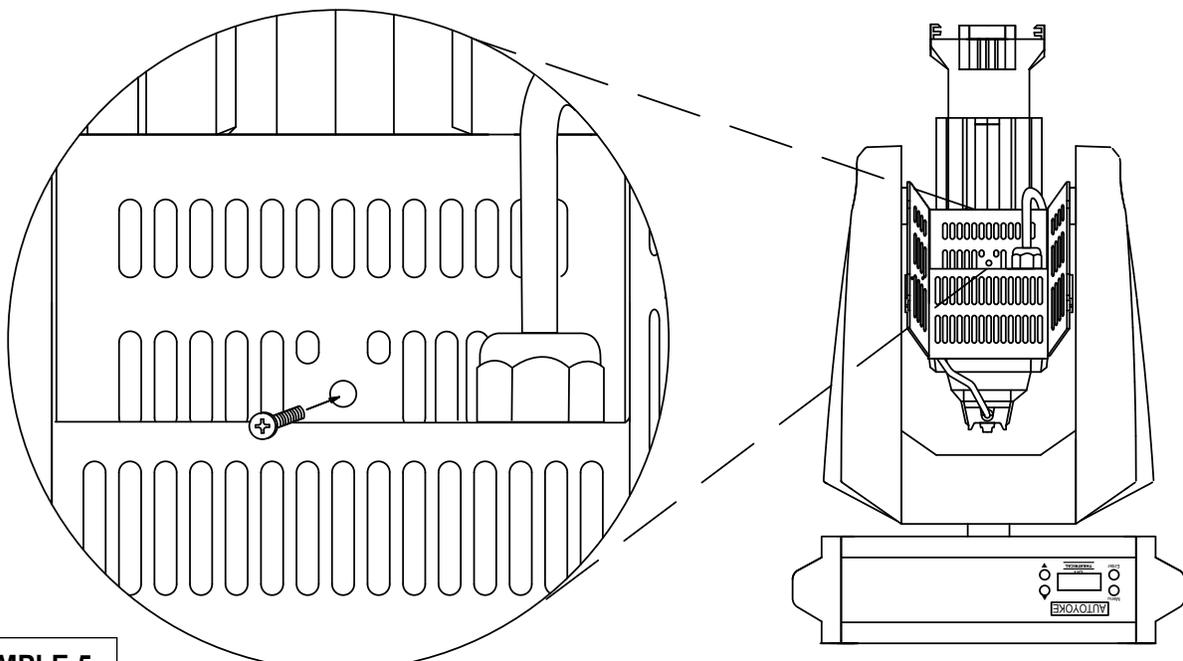
Note: If the lighting fixture will be permanently installed in the AutoYoke, City Theatrical Inc. suggests cutting the lighting fixture cable to 24" to eliminate interference with the movement of the fixture in the yoke.

7. Secure the lighting fixture into the cradle with the (2) 5/16 - 18 x 1/2" flanged button head screws provided (Example 4).



EXAMPLE 4

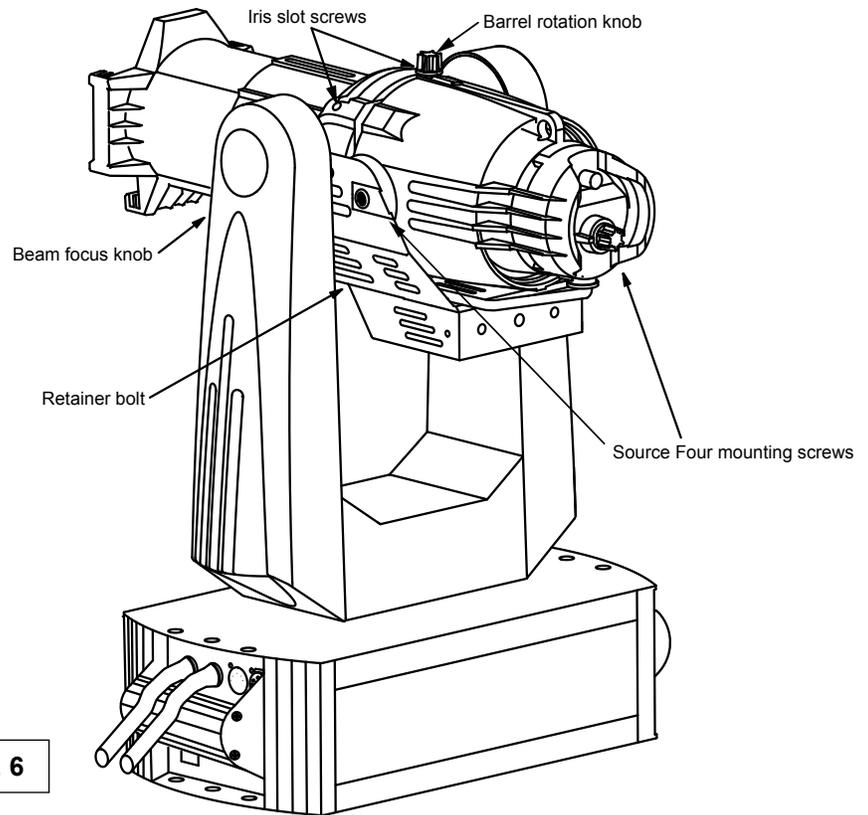
8. Rotate the lighting fixture and cradle 90 degrees so you have access to the bottom of the cradle. Use the retainer bolt that you originally removed to secure the lighting fixture into the bottom of the cradle through the hole in the cradle (Example 5)



EXAMPLE 5

9. TIGHTEN ALL HARDWARE.

Tighten the side hex screws, the bottom retaining bolt, iris slot cover screws and both the beam focus knob and the barrel rotation knob. This step is of the utmost importance. **IF THE HARDWARE IS NOT TIGHT, YOU RISK INACCURACY, NOISE, AND THE POSSIBILITY OF THE LIGHTING FIXTURE DETACHING FROM THE AUTOYOKE.** (Example 6)



EXAMPLE 6

3.3 INSTALLING THE LIGHTING FIXTURE TO THE AUTOYOKE Effective 01 July 2002

Be sure that AutoYoke power and the lamp power cables are unplugged!!

1. Cut the fixture's cable to about 24" from the cap.
2. Locate the black strain relief outside the connector box and remove the nut.
3. Slip the cable between the cradle and the fixture and pull it towards the strain relief.
4. Remove the connector box cover by using a philip's head screwdriver to remove the four 6-32 x 1/4" screws, two on each side, and locate the terminal block.

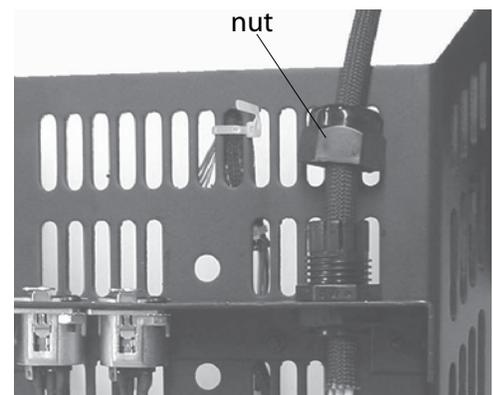


Image1

5. Slip the cable into the nut removed from the strain relief (step 2) and insert the cable into the strain relief from the outside of the connector box (image 1).

6. Cut about 3 inches off the sleaving to expose the 3 wires.
7. Strip about 1/4" of insulation from the 3 wires.
8. Using a 1/8" wide slotted screwdriver, loosen the three screws of the vacant slots on the terminal block.
9. Terminate the 3 lamp wires to the 3-pole terminal block as follows:
 - 1 black wire to black wire
 - 1 white wire to white wire
 - 1 green wire to green wire
10. Pull out the cable from the box leaving just enough slack inside and secure cable by tightening the nut of the strain relief.
11. Reinstall the connector box. (Be sure that the screws are tight.)

3.4 ATTACHING A SCROLLER

A color scroller is an optional accessory, and is not supplied by City Theatrical Inc. See Section 6 for further information.

THE AUTOYOKE SUPPORTS THE WYBRON FORERUNNER, WYBRON 4" CXI (See cable note below), **WYBRON COLORAMII** (See cable note below), **RAINBOW PRO SERIES, CHROMA Q SERIES, AND APOLLO SPECTRA Q SERIES AND WYBRON IT SERIES COLOR SCROLLERS. THE AUTOYOKE SUPPLIES POWER TO THE SCROLLER. OTHER MANUFACTURERS' SCROLLERS MAY NOT BE ELECTRICALLY COMPATIBLE. CONSULT WITH THE MANUFACTURER AND/OR CITY THEATRICAL BEFORE USING SCROLLERS OTHER THAN THOSE LISTED ABOVE TO AVOID ANY DAMAGES EITHER TO THE SCROLLER OR TO THE AUTOYOKE.** All AutoYoke-compatible scrollers that are not a Wybron CXI or a Wybron Coloram II are referred to in this manual as direct DMX scrollers.

City Theatrical also makes compatible scroller cable for both types of scrollers. Please contact your local City Theatrical dealer to order the parts listed below:

CTI PART NUMBER	SCROLLERS SUPPORTED
5035	Wybron ForeRunner, Wybron IT, Rainbow Pro Series, Chroma Q Series, and Apollo Spectra Q Series Color Scrollers
5036	Wybron ColorRam, Color Ram II, and CXI

See Section 4.2 for addressing and switch settings.

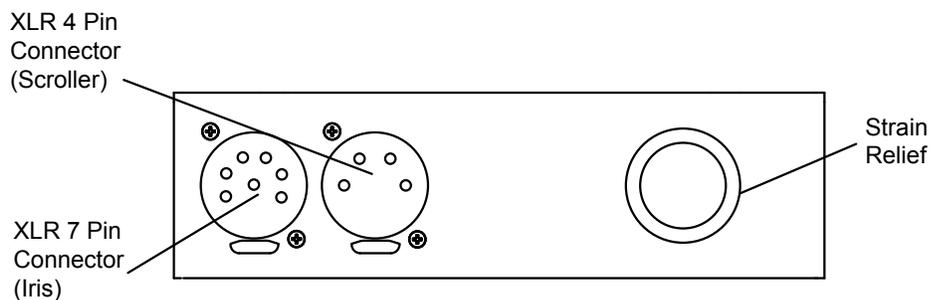
1. Insert the scroller into the lighting fixture gel frame holder.
2. Plug a 15" 4-Pin XLR cable into the scroller and into the cradle connector box on the AutoYoke. (See Example 7 for front view of cradle connector box)

Note: City Theatrical does not recommend using a cable that is longer than 15". Using a scroller cable that is longer than 15" runs the significant risk of interfering with the AutoYoke's range of motion.

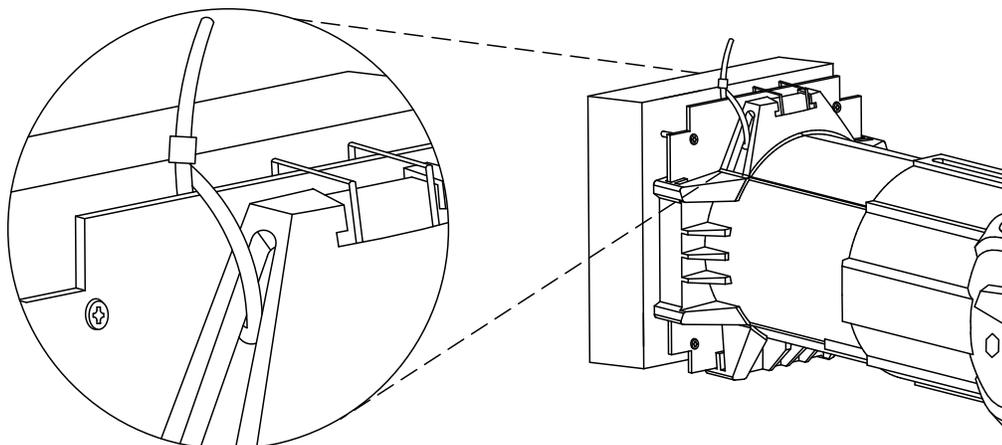
Note: When using a Wybron CXI or a Coloram II, the scroller cable must be wired in the following way:

- Male pin 1 to Female pin 4
- Male pin 2 to Female pin 2
- Male pin 3 to Female pin 3
- Male pin 4 to Female pin 1

Using a cable that is not wired this way may destroy the scroller. Always consult the color scroller manufacture's signal cable requirements before connecting a scroller to the AutoYoke.



3. Use at least one wire tie to secure the scroller to the lighting fixture (Example 8). The scroller must not be able to shift in the gel frame holder; Shifting may result in AutoYoke inaccuracy and the scroller falling from the fixture.

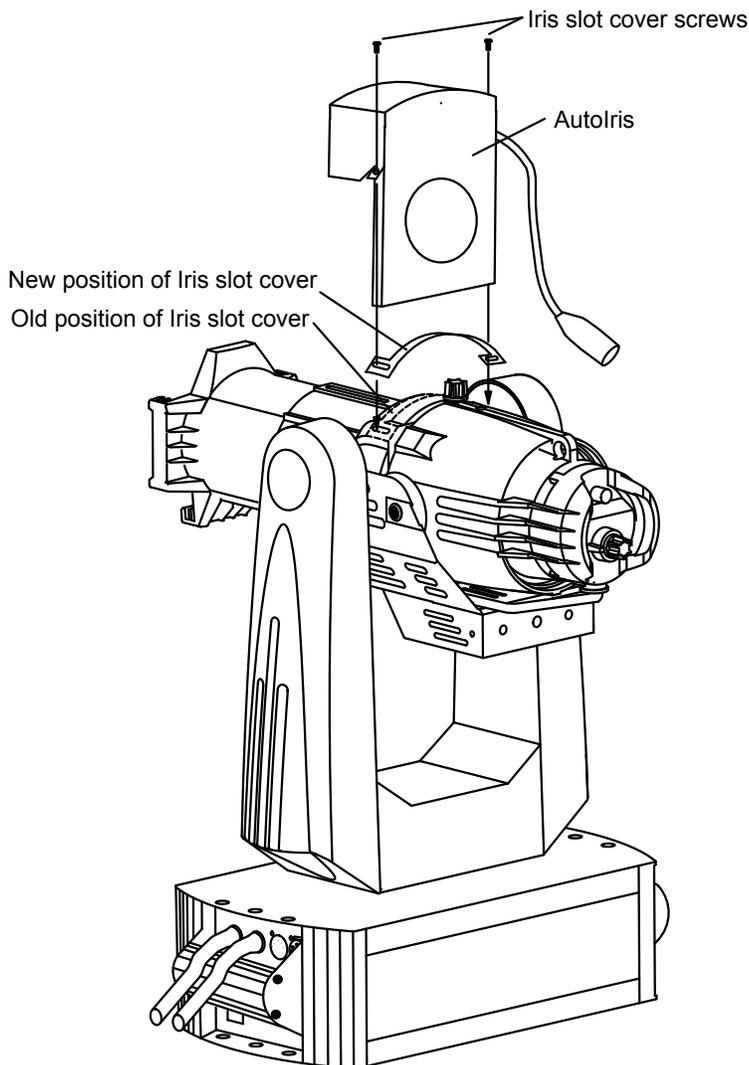


3.5 INSERTING THE AUTOIRIS

The AutoIris is an optional accessory. See Section 6 for further information.

Note: It is extremely important to avoid damaging the AutoIris with the end of the lens tube while it is in the fixture. This can occur while focusing the lighting fixture if the lens tube is forced all the way in. Damage can also occur if the AutoYoke is shipped with a loose lens tube allowing the tube to slam into the AutoIris.

1. Remove iris slot cover from lighting fixture and keep the screws.
2. Rotate iris slot cover 180° and hold in place.
3. Insert the AutoIris into the drop-in iris slot on the lighting fixture.
4. Replace screws through holes to retain AutoIris and reversed iris slot cover.
5. Plug the AutoIris cable into the 7-Pin female XLR on the AutoYoke cradle connector box.

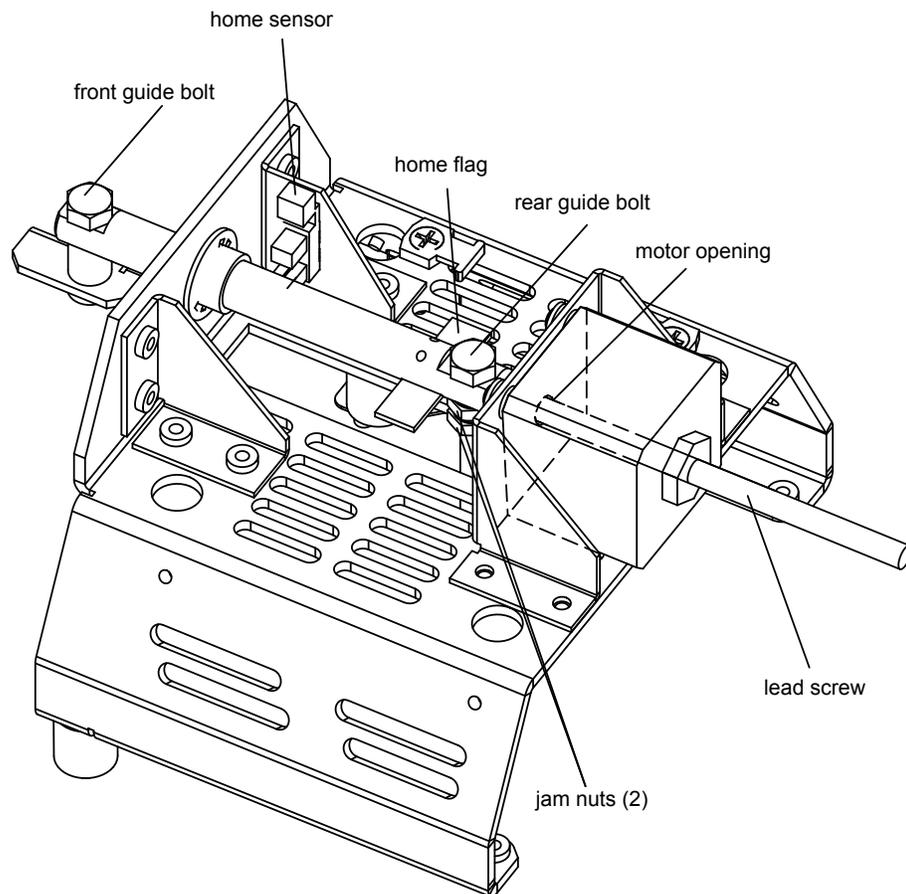


3.6 AUTOFOCUS

AutoFocus is an optional accessory. **It is a factory installation ONLY.** It will be necessary to perform simple field maintenance with the following tools:

- #1 Phillips head screwdriver
- #2 Phillips head screwdriver
- (2) 7/16 open end wrenches (optimally with offset heads).

CRITICAL MAINTENANCE POINTS



- Tighten all Phillips head screws as much as possible.
- Tighten the front guide bolt as much as possible.
- Verify that the lead screw is exiting the motor opening at center. Observe this with the scroller attached and the lead screw positioned either all the way out or all the way in. If the lead screw is not at the exact center of the motor opening, loosen the two jam nuts. Then tighten or loosen the rear guide bolt so that the lead screw is centered in the motor opening. Once positioned correctly, use one crescent wrench to hold the rear guide bolt in place, and use the other one to tighten the two jam nuts.
- Verify that the home flag is perpendicular to the drive shaft and flat so that it passes through the home sensor correctly. Carefully adjust as needed.

3.7 CHANGING LENS TUBES (FOR UNITS WITH AUTOFOCUS)

If the Autoyoke is installed with AutoFocus and you wish to change or replace the Source Four lens tube, follow these conversion procedures:

REMOVING EXISTING LENS TUBE FROM AUTOYOKE WITH AUTOFOCUS:

- Remove Autofocus cover
- Remove the 'front guide bolt' holding the front of the lenstube and the autofocus shaft.
- Loosen the 2 jam nuts on the 'rear guide bolt' located just above the focus motor.
- Loosen the 'rear guide bolt' (it is not necessary to remove the screw from the shaft).
- Lens tube may now be removed from the barrel.

MODIFICATION OF THE LENS TUBE:

1. Remove plastic knob, ¼" screw and brass ferrule, they are not used. Remove all eight plastic guides, they are not used.
2. Cut strips of "BLACKTAK" (CTI Part #3600) 5 ¾" long and cover the slots where the plastic guides were removed in the previous step. Smoothen "BLACKTAK" carefully to remove creases.

For Source 4 Type 1 Lens Tubes, continue onto Step 3.

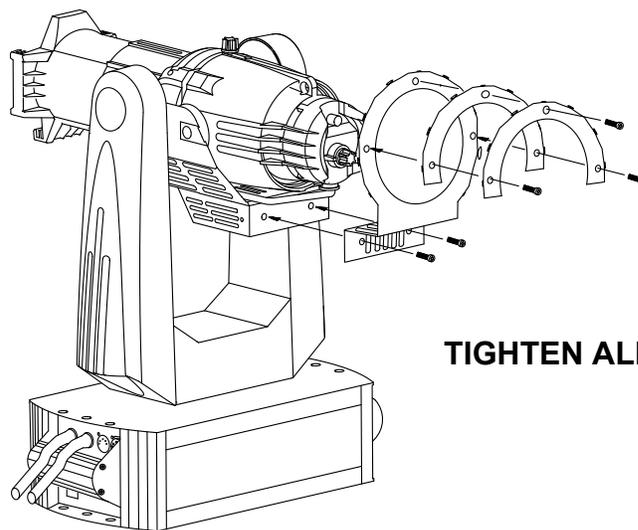
For Type II Lens Tubes, Skip to Step 8.

3. Disassemble two halves of lens by removing three 8-32 screws with nuts and one 8-32 screw (at the lower gel clip) which is tapped into the lens tube or may be also have a nut in some versions.
4. Look at the inside front of the lens. One side of the lens tube has three lens holders and the other side has two. Lay the side of the lens with the three lens holders down on the bench and carefully separate the two halves of the lens, leaving the side with the three lens holders on the bench. For European lenses with the safety screen, keep the screen in the half of the lens with the three lens holders.
5. Insert one (1) ¼" x 1/32" flat washer as a shim under the nut on the opposite side of the gel frame retaining clip in the lens casting.
6. Put the two halves of the back together. Be careful that the spring clip goes into the hole properly.
7. Reinstall the two 8-32 screws with nylock nuts at the rear of the lens to hold the two halves together Reinstall one 8-32 screw with nylock nut near the spring clip (use needle-nose pliers or modified nut-driver to hold the nut)
8. Install Front Lens Mount Bracket at the lower gel clip with the one screw which is tapped into the casting. The clip goes adjacent to the clearance hole. Use the same screw which was in there originally.

3.8 SECURING THE COUNTERWEIGHT SYSTEM

1. This step must be done after attaching the scroller and Autoiris (when applicable) to ensure proper balance.
2. Facing the back of the lighting fixture, line up the holes on the bottom of the counterweight halo with the matching holes on the rear of the connector box. Use two of the counterweight screws (1/4-20 x 1/2" socket head cap screws) to secure the counterweight halo into place.
3. The 6 counterweight rings provided with the AutoYoke should be added one at a time until the lighting fixture is in balance. Facing the back of the lighting fixture, position the **Lead** rings on the back of the counterweight halo, lining up the holes. Add Lead weights until the AutoYoke is close to the point of balance and then add a Steel ring last to sandwich the lead weights. Use the remaining two counter weight screws (1/4-20 x 2" or 1-1/4" socket head screws) to secure the rings into place.

Note: If you are operating the AutoYoke with a Chroma Q scroller you may not need to add the lead counterweight rings. Refer to the counterweight chart at the back of this manual.



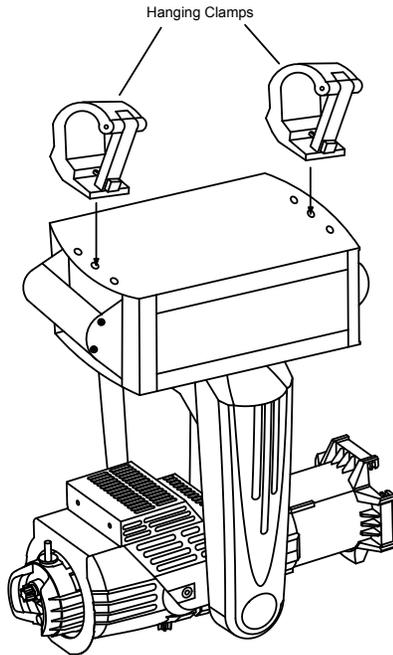
TIGHTEN ALL HARDWARE

4. The lighting fixture will be in balance when it freely drifts to a horizontal position (perpendicular to the AutoYoke). **Operating the AutoYoke with the lighting fixture out of balance will result in inaccuracy.**

Note: If you are operating the AutoYoke **without a scroller or with the lens tube of the lighting fixture run all the way in**, you may not need to add the counterweight rings or the counterweight halo. In addition, the counterweight quantity may have to be adjusted once the lens tube position is established. Operating the AutoYoke without a scroller will create an out of balance condition that will not effect the accuracy or repeatability of the AutoYoke. Though not critical, this out of balance condition can be improved with the addition of a color extender. Remember to safety all gel slot accessories.

3.9 HANGING THE AUTOYOKE

The AutoYoke must be securely attached to the hanging position with hanging clamps. The Power Supply must be placed either directly above or directly below the lighting fixture for proper operation. A secondary means of suspension—a safety cable—must be used to prevent the AutoYoke from falling in the event of hanging clamp failure.



NOTE: The AutoYoke **MUST NOT** be hung at any angle to avoid imbalance and malfunction of the unit.

Pan direction is **CLOCKWISE** from 0% to 100% when the AutoYoke is hanging Power Supply up, facing the Front Panel, looking at the AutoYoke hanging from below. Keep this in mind when choosing hanging orientation for optimal travel.

1. Attach hanging clamps to the specified holes on the top of the Power Supply.
2. Hang the AutoYoke on a minimum of 2'3" centers and with a clearance of 3' from the top of the Power Supply to a fully extended lens tube and scroller.
3. Fasten a safety cable through one of the handles of the AutoYoke, and secure it to the hanging position.

3.10 POWER CABLE

AutoYoke: The cable with the three pin Edison connector supplies power to the AutoYoke. Plug to a **NON DIM** power supply that is **configured for a switchable PSU** or a hot circuit that does not pass through a dimmer rack.

Lamp: The cable with the three pin stage or twist lock connector (or without connector) supplies power to the lighting fixture. Plug it to a dimmer.

3.11 DATA CABLE

Plug a DMX cable to the male 5-pin XLR on the AutoYoke Power Supply.

- Cable must be twisted pair, 120W, shielded EIA485 cable (Belden 9829, 9842 or equivalent), minimum 22 AWG.
- Recommended maximum cable length is 1640' (500m). [Recommended Practice for DMX512]
- Adam Bennette 1994] Maximum cable length is 2000' (610m).
- A maximum of 32 DMX receiving devices can be present on a single DMX line.
- The last DMX device on the line must be terminated with a resistor with a value of 120W.

SECTION 4: USER INTERFACE

4.1 MENU SYSTEM

Several of the routines (marked with a * below) that are performed at the front panel are also accessible from the control channel (See Section 5.4, Control Channel, for further details).

The menu on the front panel of the AutoYoke allows you to do the following:

- Set DMX address
- Calibrate*
- Invert Pan, Tilt, Iris and Focus travel direction
- Select 8- or 16-bit operation
- Select DMX smoothing value
- Set Pan, Tilt, Iris and Focus Limits*
- Display software version
- Invert display
- Change LED display properties
- Restore Factory Defaults (except for DMX512 address and display settings)
- Display Error messages

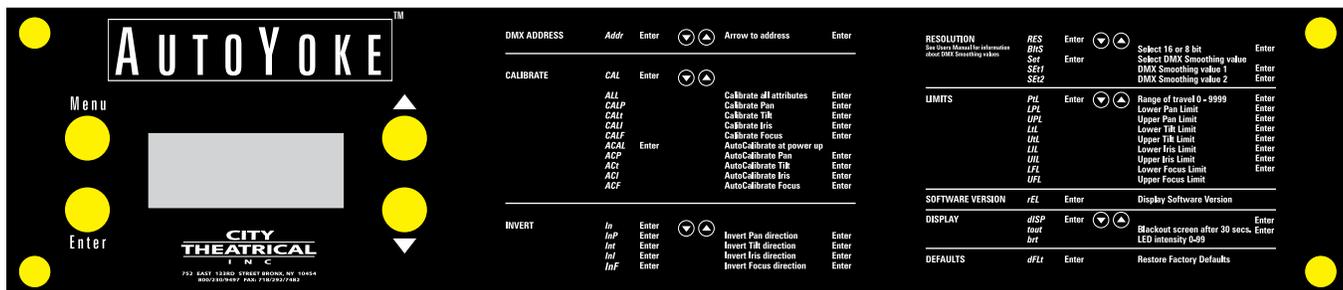
Throughout this manual, the following conventions will be used to explain menu navigation:

Menu: The Menu button allows you to enter the menu item or return to the upper level menu items.

Enter: The Enter button allows you to select a function.

▲▼: The arrow keys allow you to navigate into and out of the menu system.

Addr: Menu items that appears on the LED display on the front panel will be presented in this format.



4.2 ADDRESS

The AutoYoke requires 7 channels (16-bit) or 5 channels (8-bit) per fixture to operate. The scroller requires an address other than those addresses occupied by the AutoYoke. When using a Wybron CXI scroller, the scroller must be addressed at **001**, and it will occupy 3 control channels - the 8th, 9th, and 10th in the sequence when operating in 16-bit and the 6th, 7th, and 8th when operating in 8-bit. When using a Coloram II scroller, the address at the head (rotary switch) is inconsequential, but the scroller will always occupy the 8th channel in the sequence (in 16-bit) and the 6th channel in the sequence (in 8-bit). All other specified scrollers can be set at a user selected DMX address as long as it is not occupied by an AutoYoke attribute. It is only necessary to select the first DMX address for the AutoYoke.

NOTE: When using COLORAM II scrollers, set the DIP switches as follows:

- Switch 1 - OFF (Motor Speed - Normal)
- Switch 2 - ON (Operation - 24-Chan)
- Switch 3 - OFF (Chan Range - 1~12)
- Switch 4 - OFF (Fan Speed - Remote Xtrol)

DMX CHANNEL ASSIGNMENTS

16-bit

- 1 - Pan Coarse
- 2 - Pan Fine
- 3 - Tilt Coarse
- 4 - Tilt Fine
- 5 - Iris (occupied if not used)
- 6 - Focus (occupied if not used)
- 7 - Control Channel

8-bit

- 1 - Pan
- 2 - Tilt
- 3 - Iris (occupied if not used)
- 4 - Focus (occupied if not used)
- 5 - Control Channel
- **Address scroller independently
- **Address scroller independently

1. Turn on the AutoYoke. Pan, Tilt, Iris and Focus will AutoCalibrate as the word **Go** travels across the LED display (This will only occur if the AutoYoke is still configured with Factory Defaults. See Section 4.9 for Factory Default settings). If the AutoYoke is receiving DMX, it will travel to the DMX values once it has calibrated. If the AutoYoke is not receiving DMX, it will move to a 50/50 position on the Pan and Tilt axes upon the completion of calibration. The 50/50 position is at the halfway point of the attributes' travel range. See Section 5.2 for further information about the 50/50 position

Note: If the AutoYoke is not receiving DMX, a series of dashes will continuously travel across the LED display

Note: The scroller is not part of the AutoCalibrate or Calibrate routine, but will autodetect and self - test at Power Up.

- | | | | |
|-------------------------|----------------|-----------|--|
| 2. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 3. Press Enter : | | | Default (or previously programmed) address will appear on the display. |
| 4. Press ▲▼ : | 0 - 504 | | Select DMX address from 0 - 504 |
| 5. Press Enter : | | | Address is recorded. |

4.3 CALIBRATE

Calibration is necessary to insure accurate operation at both power up and following an error state. In the event that an AutoYoke is forced off of its recorded position, it should be recalibrated. See Section 5.6, Encoders, for further information about recovering recorded position after the AutoYoke has been hit. If any of the AutoYoke attribute is not Calibrated at power up, it will not operate.

In the Calibrate sub-menu, the options are as follows:

- **ALL** Calibrate Pan, Tilt, Iris and Focus
- **CALP** Calibrate Pan and Tilt (Tilt always Calibrates with Pan)
- **CALt** Calibrate Tilt
- **CALI** Calibrate Iris
- **CALF** Calibrate Focus
- **ACP** AutoCalibrate Pan and Tilt at power up
- **ACT** AutoCalibrate Tilt at power up
- **ACI** AutoCalibrate Iris at power up
- **ACF** AutoCalibrate Focus at power up

The default Calibrate setting is AutoCalibrate Pan, Tilt, Iris and Focus at power up. You may choose to turn off the AutoCalibrate option or you may choose to AutoCalibrate only some of the attributes. However, every attribute **MUST** be Calibrated before you operate the AutoYoke. See Section 5.3, Factory Defaults, for further information.

4.3a CALIBRATE ALL (Pan, Tilt, Iris and Focus)

- | | | | |
|-------------------------|-------------|-------------|---|
| 1. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | CAL | (Calibrate) | Advance to CAL . |
| 3. Press Enter : | ALL | | ALL will appear on the display. |
| 4. Press Enter : | | | Pan, Tilt, Iris and Focus will Calibrate. |

4.3b CALIBRATE A SINGLE ATTRIBUTE (Pan or Tilt or Iris or Focus)

- | | | | |
|-------------------------|-------------|----------------|--|
| 1. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | CAL | (Calibrate) | Advance to CAL . |
| 3. Press Enter : | ALL | | ALL will appear on the display. |
| 4. Press ▲▼ : | CALP | (Pan and Tilt) | Advance to CALP or |
| | CALt | (Tilt) | CALt or |
| | CALI | (Iris) | CALI or |
| | CALF | (Focus) | CALF |
| 5. Press Enter : | | | Pan, Tilt, Iris or Focus will Calibrate. |

4.3c AUTOCALIBRATE PAN, TILT, IRIS AND FOCUS (or any combination thereof)

Step #1 - #3 are not necessary if operator is already in step #4 of Section 4.3a or in steps #4 - #5 of Section 4.3b.

- | | | | |
|-------------------------|-------------|-------------------------|---|
| 1. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | CAL | (Calibrate) | Advance to CAL . |
| 3. Press Enter : | ALL | | ALL will appear on the display. |
| 4. Press ▲▼ : | ACAL | (AutoCalibrate) | Advance to ACAL . |
| 5. Press Enter : | ACPY | (AutoCalibrate Pan Yes) | ACPY will appear on the display. |
| 6. Press Enter : | ACPn | (AutoCalibrate Pan no) | Enter key will allow the operator to toggle between ACPY and ACPn .
Whichever option is last on the display will be automatically selected by pressing ▲▼ or Menu as the next step. To AutoCalibrate Pan at power up, be sure that ACPY is the last option on the display. |

- 7. Press ▲▼: **ACtY** (AutoCalibrate Tilt Yes)
- 8. Press **Enter**: **ACtn** (AutoCalibrate Tilt no)

Advance to **ACtY**.
Enter key will allow the operator to toggle between **ACtY** and **ACtn**. Whichever option is last on the display will be automatically selected by pressing ▲▼ or **Menu** as the next step. To AutoCalibrate Tilt at power up, be sure that is the last option on the display.

- 9. Press ▲▼: **ACIY** (AutoCalibrate Iris Yes)
- 10. Press **Enter**: **ACIn**

Advance to **ACIY**.
Enter key will allow the operator to toggle between **ACIY** and **ACIn**. Whichever option is last on the display will be automatically selected by pressing ▲▼ or **Menu** as the next step. To AutoCalibrate Iris at power up, be sure that **ACIY** is the last option on the display.

- 11. Press ▲▼: **ACFY** (AutoCalibrate Focus Yes)
- 12. Press **Enter**: **ACFn** (AutoCalibrate Focus No)

Advance to **ACFY**.
Enter key will allow the operator to toggle between **ACFY** and **ACFn**. Whichever option is last on the display will be automatically selected by pressing ▲▼ or **Menu** as the next step. To AutoCalibrate Focus at power up, be sure that **ACFY** is the last option on the display.

- 13. Press **Menu**:

Return to upper level and menu.

4.4 In - INVERT

Note: If you are planning to set limits, set your limits before inverting any parameter (See Section 4.6 and Section 5.5 for details on setting limits).

Default Pan direction is CLOCKWISE from 0% to 100% when the AutoYoke is hanging Power Supply up, facing the Front Panel, standing below the AutoYoke. Inverting Pan will make the travel direction COUNTERCLOCKWISE from 0% to 100%.

Default Tilt is at 0% when the gel frame holder side (front) of the lighting fixture is tilted towards the rear of the power supply [the rear of the power supply is the long side without the label, the front of the power supply is the long side with the label]; Tilt is at 100% when the front of the lighting fixture is tilted towards the front of the power supply. When Tilt is inverted, the opposite is true.

Iris direction:	Closed	0%	Open	100%.
Inverted Iris direction:	Closed	100%	Open	0%
Focus direction:	Tube out	0%	Tube in	100%
Inverted Focus direction:	Tube out	100%	Tube in	0%

1. Press **Menu**: **Addr** (Address)
2. Press **▲▼**: **In** (Invert)
3. Press **Enter**: **InPn** (Invert Pan No)
4. Press **Enter**: **InPY** (Invert Pan Yes)

Addr appears on the display. Advance to **In**. **InPn** will appear on the display. **Enter** key will allow the operator to toggle between **InPn** and **InPY**. Whichever option is last on the display will be automatically selected by pressing **▲▼** or **Menu** as the next step. To not invert Pan at power up, be sure that **InPn** is the last option on the display. Advance to **Intn** (Invert Tilt No). **Enter** key will allow the operator to toggle between **Intn** and **IntY**. Whichever option is last on the display will be automatically selected by pressing **▲▼** or **Menu** as the next step. To not invert Tilt at power up, be sure that **Intn** is the last option on the display.

5. Press **▲▼**: **Intn** (Invert Tilt No)
6. Press **Enter**: **IntY** (Invert Tilt Yes)

- 7. Press ▲▼: **InIn** (Invert Iris No)
- 8. Press **Enter**: **InIY** (Invert Iris Yes)

Advance to **InIn**.
Enter key will allow the operator to toggle between **InIn** and **InIY**. Whichever option is last on the display will be automatically selected by pressing ▲▼ or **Menu** as the next step. To not invert Iris at power up, be sure that **InIn** is the last option on the display.

- 9. Press ▲▼: **InFn** (Invert Focus No)
- 10. Press **Enter**: **InFY** (Invert Focus Yes)

Advance to **InFn**.
Enter key will allow the operator to toggle between **InFn** and **InFY**. Whichever option is last on the display will be automatically selected by pressing ▲▼ or **Menu** as the next step. To not invert Focus at power up, be sure that **InFn** is the last option on the display.
 Return to upper level and menu.

- 11. Press **Menu**:

4.5 rES - RESOLUTION

Different consoles process DMX in different ways. The AutoYoke has two smoothing values to accommodate those differences.

Use this submenu to select:

- 8 bit mode (16 bit mode is the default setting) and
- DMX Smoothing value #2 for Horizon (DMX Smoothing value #1 for Strand and ETC consoles is the default setting).

4.5a 8 BIT or 16 BIT

- | | | | |
|-------------------------|-------------|--------------|---|
| 1. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 2. Press ↔ : | rES | (Resolution) | Advance to rES . |
| 3. Press Enter : | 16bt | (16 Bit) | 16bt will appear on the display. |
| 4. Press Enter : | 8bt | (8 Bit) | Enter key will allow the operator to toggle between 16bt and 8bt . Whichever option is last on the display will be automatically selected by pressing ▲▼ or Menu as the next step. |
| 5. Press Menu : | | | Return to upper level and menu. |

4.5b DMX SMOOTHING VALUES

- DMX Smoothing value #1: Strand and ETC consoles
 - DMX Smoothing value #2: Horizon
- | | | | |
|-------------------------|-------------|--------------------|--|
| 1. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | rES | (Resolution) | Advance to rES . |
| 3. Press Enter : | | | 16bt and 8bt or will appear on the display. |
| 4. Press ▲▼ : | SEt1 | (Smooth Setting 1) | Advance to SEt1 |
| 5. Press Enter : | SEt2 | (Smooth Setting 2) | Enter key will allow the operator to toggle between SEt1 and SEt2 . Whichever option is last on the display will be automatically selected by pressing ▲▼ or Menu as the next step. |
| 6. Press Menu : | | | Return to upper level and menu. |

4.6 PtL – PAN, TILT, IRIS AND FOCUS LIMITS

This option allows you to limit the range of travel for Pan, Tilt, Iris and Focus. Limiting the Pan and Tilt range compresses DMX resolution, resulting in smoother travel. Limit range is 0 - 9999. **If an upper limit value is selected that is lower than a lower limit value, the attribute will invert.** The AutoYoke will not restore full range until full range option is selected or default settings restored. The AutoYoke will retain its limits if power is terminated.

Note: Set limits before inverting any parameter.
Calibration routines will override limits.

1. Press **Menu**: **Addr** (Address) **Addr** will appear on the display.
2. Press **▲▼**: **PtL** (Pan, Tilt, Iris, Focus limits) Advance to **PtL**.
3. Press **Enter**: **LPL** (Lower Pan Limit) **LPL** will appear on the display.
4. Press **Enter**: The current Lower Pan Limit will appear on the display, and the AutoYoke will move to the currently selected limit.
5. Press **▲▼**: **0 - 9999** Select Lower Pan Limit from **0 - 9999**
6. Press **Enter**: **LPL** (Lower Pan Limit) **LPL** will appear on the display.
7. Press **▲▼**: **UPL** (Upper Pan Limit) Advance to **UPL**.
8. Press **Enter**: The current Upper Pan limit will appear on the display, and the AutoYoke will move to the currently selected limit.
9. Press **▲▼**: **0 - 9999** Select Upper Pan Limit **from 0 - 9999.**
10. Press **Enter**: **UPL** (Upper Pan Limit) **UPL** will appear on the display.
11. Press **▲▼**: **LtL** (Lower Tilt Limit) Advance to **LtL**
12. Press **Enter**: The current Lower Tilt limit will appear on the display, and the AutoYoke will move to the currently selected limit.
13. Press **▲▼**: **0 - 9999** Select Lower Tilt Limit from **0 - 9999.**
14. Press **Enter**: **LtL** (Lower Tilt Limit) **LtL** will appear on the display.
15. Press **▲▼**: **Utl** (Upper Tilt Limit) Advance to **Utl**
16. Press **Enter**: The current Upper Tilt Limit will appear on the display, and the

17. Press ▲▼: **0 - 9999**

18. Press **Enter**:

19. Press ▲▼: **0 - 9999**

20. Press **Enter**: **LIL** (Lower Iris Limit)

21. Press ▲▼: **UIL** (Upper Iris Limit)

22. Press **Enter**:

23. Press ▲▼: **0 - 9999**

24. Press **Enter**: **UIL** (Upper Iris Limit)

25. Press ▲▼: **LFL** (Lower Focus Limit)

26. Press **Enter**:

27. Press ▲▼: **0 - 9999**

28. Press **Enter**: **LFL** (Lower Focus Limit)

29. Press ▲▼: **UFL** (Upper Focus Limit)

30. Press **Enter**:

31. Press ▲▼: **0 - 9999**

32. Press **Enter**: **UFL** (Upper Focus Limit)

33. Press **Menu**:

AutoYoke will move to the currently selected limit.

Select Upper Tilt Limit from **0 - 9999**.

The current Lower Iris Limit will appear on the display, and the AutoYoke will move to the currently selected limit.

Select Lower Iris Limit from **0 - 9999**

LIL will appear on the display.

Advance to **UIL**

The current Upper Iris Limit will appear on the display, and the AutoYoke will move to the currently selected limit.

Select Upper Iris Limit from **0 - 9999**.

UIL will appear on the display.

Advance to **LFL**.

The current Lower Focus limit will appear on the display, and the AutoYoke will move to the currently selected limit.

Select Lower Focus Limit from **0 - 9999**.

LFL will appear on the display.

Advance to **UFL**

The current Upper Focus Limit will appear on the display, and the AutoYoke will move to the currently selected limit.

Select Upper Focus Limit from **0 - 9999**

UFL will appear on the display.

Return to upper level and menu.

RESTORING FULL RANGE OF TRAVEL

(steps #1 - #3 are unnecessary if already in Section 4.6, steps #4 - #34)

1. Press **Menu**: **Addr** (Address) **Addr** will appear on the display.
2. Press **▲▼**: **PtL** (Pan, Tilt, Iris, Focus limits) Advance to **PtL**.
3. Press **Enter**: **LPL** (Lower Pan Limit) **LPL** will appear on the display.
4. Press **▲▼**: **FULL** Advance to **FULL**.
5. Press **Enter**: **FL P** (Full Pan Range) **FL P** will appear on the display.
6. Press **Enter**: This will restore full range of travel on Pan. To maintain the current Pan Range, press **▲▼** instead.
7. Press **▲▼**: **FL t** (Full Tilt Range) Advance to **FL t**.
8. Press **Enter**: This will restore full range of travel on Tilt. To maintain the current Tilt range, press **▲▼** instead.
9. Press **▲▼**: **FL I** (Full Iris Range) Advance to **FL I**.
10. Press **Enter**: This will restore full range of travel on Iris. To maintain the current Iris range, press **▲▼** instead.
11. Press **▲▼**: **FL F** (Full Focus Range) Advance to **FL F**.
12. Press **Enter**: This will restore full range of travel on Focus. To maintain the current Focus range, press **▲▼** instead.
13. Press **▲▼**: **ALL** Advance to **ALL**.
14. Press **Enter**: This will restore full range of travel on all attributes. To maintain the current range, press **Menu** as in the next step instead.
15. Press **Menu**: Return to upper level and menu.

4.7 SOFTWARE RELEASE VERSION

To view the version of software that your AutoYoke is operating with:

- | | | |
|-------------------------|-----------------------|---|
| 1. Press Menu : | Addr (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | rEL (Release) | Advance to rEL . |
| 3. Press Enter : | | Current software release number will appear on the display. Return to upper level and menu. |
| 4. Press Menu : | | Return to upper level and menu. |

4.8 LED DISPLAY

This option allows you to choose whether or not you want the LED display to go blank after 30 seconds (Timeout function). You may also invert (**Ud**) and select the brightness of the LED display.

4.8a tout - TIMEOUT

- | | | |
|-------------------------|-----------------------|---|
| 1. Press Menu : | Addr (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | dISP (Display) | Advance to dISP . |
| 3. Press Enter : | tout (Timeout) | tout will appear on the display. |
| 4. Press: | Y (Yes) | Y will appear on the display. |
| 5. Press Enter : | n (No) | n will appear on the display. |
| | | Enter key will allow the operator to toggle between Y and n . |
| | | Whichever option is last on the display will be automatically selected by pressing ▲▼ or Menu in the next step. |
| 6. Press Menu : | | Return to upper level and menu. |

4.8b brt - BRIGHTNESS

- | | | | |
|-------------------------|---------------|--------------|--|
| 1. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | dISP | (Display) | Advance to dISP . |
| 3. Press Enter : | tout | (Timeout) | tout will appear on the display. |
| 4. Press ▲▼ : | brt | (Brightness) | Advance to brt . |
| 5. Press Enter : | | | Previous brightness value will appear on the display. |
| 6. Press ▲▼ : | 0 - 99 | | Select a brightness value from 0 - 99
(CAUTION : A setting of 0 will dim the display to blank.) |
| 7. Press Enter : | | | This will store the information. |
| 8. Press Menu : | | | Return to upper level and menu. |

4.9 dFLt - RESTORE FACTORY DEFAULTS

See Section 5-3 for default settings.

- | | | | |
|-------------------------|-------------|------------|---|
| 1. Press Menu : | Addr | (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | dFLt | (Defaults) | Advance to dFLt . |
| 3. Press Enter : | Yes | | Yes will appear on the display. |
| 4. Press Enter : | | | Factory Defaults are restored. |
| 5. Press Menu : | | | Return to upper level and menu. |

NOTE: Restoring factory default settings will not affect previous DMX512 address and display settings.

4.10 ERROR MESSAGES

Error Messages will be displayed in the Error Submenu on the LED display if an error occurs. Encoder messages suggest that the AutoYoke has been knocked. Calibrate errors suggest that an attribute was unable to Calibrate correctly or that the attribute is not present. Contact City Theatrical, Inc. if you are unable to recover from an error following a power down and recalibrate.

- 101 Pan Calibration failure. Can not find home position.
- 102 Pan encoder error. Encoder system has detected position error (and probably corrected it).
- 111 Tilt Calibration failure. Can not find home position.
- 112 Tilt encoder error. Encoder system has detected position error (and probably corrected it).
- 121 Iris Calibration failure. Can not find home position.
- 131 Focus Calibration failure. Can not find home position.
- 202 Bad Serial or DMX - Will occur if unit is powered up with no DMX then DMX is turned on. It may also occur if electrical noise is present in the DMX input e.g. when a cable is connected to the unit which is unconnected at the source end or when unplugging the DMX cables.
- 203 Motor Period and/or Motor Mark NVRAM Parameters are set to illegal values.
- 401 Stack Overflow. Fatal error - Unit needs to be reset.
- 501 NVRAM Failure (Program chip not working properly).
- 900 Unknown Interrupt

To view Error Messages (Error Messages will appear in numerical order, not in chronological order):

- | | | |
|-------------------------|------------------------|--|
| 1. Press Menu : | Addr (Address) | Addr will appear on the display. |
| 2. Press ▲▼ : | ErrS (Errors) | Advance to Errs . |
| 3. Press Enter : | | Error number will appear on the display. |
| 4. Press Enter : | | Number of times error has occurred will appear on display. |
| 5. Press Enter : | CLr (Clear?) | CLr will appear on display. |
| 6. Press Enter : | | This will clear Error record.
To maintain the Error record, press Menu as in the next step instead. |
| 7. Press Menu : | noER (No Error) | Return to the upper level and menu, or repeat steps #3 - #6 using ▲▼ keys to toggle between Error Messages. When all Error Messages have been cleared noER will appear on the display. |

SECTION 5: OPERATION

5.1 DMX CHANNEL ASSIGNMENTS

16-BIT OPERATION

- 1 - Pan Coarse
- 2 - Pan Fine
- 3 - Tilt Coarse
- 4 - Tilt Fine
- 5 - Iris
- 6 - Focus
- 7 - Control

Refer to the Scroller note below for Scroller DMX Channel information.

8-BIT OPERATION

- 1 - Pan
- 2 - Tilt
- 3 - Iris
- 4 - Focus
- 5 - Control

Scroller Note:

The scroller requires an address other than those addresses occupied by the AutoYoke. When using a Wybron CXI scroller, the scroller must be addressed at , and it will occupy 3 control channels - the 8th, 9th, and 10th in the sequence when operating in 16-bit and the 6th, 7th, and 8th when operating in 8-bit. When using a Coloram II scroller, the address at the head is inconsequential, but the scroller will always occupy the 8th channel in the sequence (in 16-bit) and the 6th channel in the sequence (in 8-bit). All other specified scrollers can be set at a user selected DMX address as long as it is not occupied by an AutoYoke attribute.

5.2 PAN AND TILT

- Pan 360°
- Tilt 270°
- To optimize smooth Pan and Tilt travel, select the DMX smoothing setting applicable to your controller.
- See Section 4.5b, DMX Smoothing, for further information.
- The Pan and Tilt travel directions can be inverted for programming convenience. See Section 4.4, Invert, for further information.
- Pan and Tilt range can be limited to optimize smooth travel. See Section 4.6, Limits, for further information.

5.3 DEFAULT SETTINGS

The AutoYoke ships from City Theatrical with the following default settings:

- DMX address is 1
- DMX resolution is 16 bit
- Smooth Setting 1 (Strand and ETC consoles)
- AutoCalibrate all attributes at power up.
- Pan direction is CLOCKWISE from 0% to 100% when the AutoYoke is hanging
- Power Supply up and when the operator below is facing the Front Panel.
- Tilt is at 0% when the gel frame holder side (front) of the lighting fixture is tilted towards the rear of the power supply [the rear of the power supply is the long side without the label, the front of the power supply is the long side with the label]; Tilt is at 100% when the front of the lighting fixture is tilted towards the front of the power supply.

Iris direction: Closed - 0% Open - 100%
Focus direction: Tube out - 0% Tube in - 100%

- Pan, Tilt, Iris and Focus have a full range of travel.
- LED timeout system is engaged.
- LED brightness is at 68. Refer to Section 4.9, Restoring Factory Defaults, for further instructions.

5.4 PERSONALITY SETTINGS AND MAINTENANCE LIGHT CUES

The AutoYoke will be controlled differently on different consoles. Refer to the console manufacturer for instructions on writing a personality.

When writing the AutoYoke personality, take into consideration the desired default levels for each attribute. Each attribute will go to its default level when the console is cleared. City Theatrical suggests writing the Pan / Tilt default levels at 50/50 (50/50 is the middle of the travel). The AutoYoke goes to a 50/50 position following calibration unless it is receiving a DMX value.

In addition, it is recommended that the AutoYoke be moved to a position prior to power down that prevents an out of balance fixture from slamming the end stop on the tilt axis.

5.5 CONTROL CHANNEL

The Control Channel allows the operator to calibrate and set limits (any parameter) and configure the scroller via the console. The Control Channel must remain stable at the appropriate level for 2 seconds to engage function.

CONTROL CHANNEL VALUES

WHEN USING DIRECT DMX SCROLLERS	WHEN USING WYBRON COLORAM II	WHEN USING WYBRON CXI
0% Operation	0% Operation	0% Operation
5% unused	5% Calibrate scroller*	5% Calibrate scroller*
10% Calibrate All Attributes	10% Calibrate All Attributes	10% Calibrate All Attributes
15% unused	15% Motor slow	15% unused
20% Calibrate Pan	20% Calibrate Pan	20% Calibrate Pan
25% unused	25% Motor normal	25% unused
30% Calibrate Tilt	30% Calibrate Tilt	30% Calibrate Tilt
35% unused	35% Fan slow	35% Fan slow
40% Calibrate Iris	40% Calibrate Iris	40% Calibrate Iris
45% unused	45% Fan normal	45% Fan normal
50% Calibrate Focus	50% Calibrate Focus	50% Calibrate Focus
55% Cut Power to scroller*	55% Fan off	55% Fan off
60% Set Pan Low Limit	60% Set Pan Low Limit	60% Set Pan Low Limit
65% Set Pan High Limit	65% Set Pan High Limit	65% Set Pan High Limit
70% Set Tilt Low Limit	70% Set Tilt Low Limit	70% Set Tilt Low Limit
75% Set Tilt High Limit	75% Set Tilt High Limit	75% Set Tilt High Limit
80% Set Iris Low Limit	80% Set Iris Low Limit	80% Set Iris Low Limit
85% Set Iris High Limit	85% Set Iris High Limit	85% Set Iris High Limit
90% Set Focus Low Limit	90% Set Focus Low Limit	90% Set Focus Low Limit
95% Set Focus High Limit	95% Set Focus High Limit	95% Set Focus High Limit
100% unused	100% unused	100% unused

***NOTE:** 55% (when using direct DMX scrollers) and 5% (when using Wybron Coloram II and CXI) allow the operator to remotely recalibrate the scroller. Direct DMX scrollers (using control channel 55%) will recalibrate once the control channel reverts to operation mode; Wybron Coloram II and CXI (using control channel 5%) will not and does not need to recalibrate if their power is cut off from the time of initial power up of the AutoYoke.

SETTING LIMITS WITH THE CONTROL CHANNEL

1. Bring the Control Channel to the appropriate level.
2. Bring the channel that operates the attribute to the desired level.

NOTE: The attribute channel level must change once before the desired level can be selected. If the attribute channel is already at the desired level move it off of the desired level and then back to the desired level -This is to prevent inadvertent limit selection during programming.

3. Bring the Control Channel to 0.
4. Bring the attribute channel to 0 to complete the setting of limits.

5.6 ENCODERS

The AutoYoke is designed to return to its recorded position if it has been knocked or obstructed. If it has been knocked, the motors will lose power to prevent damage to the AutoYoke or the obstruction. The AutoYoke will then attempt to return to its recorded position after approximately 2 seconds. In the event that the obstruction is not removed before the AutoYoke attempts to return to its recorded position and the AutoYoke again hits the obstruction, the AutoYoke will again lose power to the motors and double the waiting period before again attempting to return to its recorded position. The AutoYoke will make 7 attempts before the motor shuts down. Recalibration is required for motor to work again after obstruction has been cleared.

SECTION 6: BEAM SIZE, SHAPE, AND COLOR CONTROL

Beam size, beam shape, and color are controlled with the following optional accessories:

Autolris

The Autolris controls the size of the beam. It is inserted into the lighting fixture Drop-In Iris slot. It is extremely important to prevent damage to the Autolris with the lens tube while inside of the lighting fixture. Damage will occur while focusing the lighting fixture by forcing the lens tube into the Autolris plate.

AutoFocus

The AutoFocus runs the lens tube of the lighting fixture. It changes the beam edge from soft to sharp. Refer to Section 3.6 for further instructions.

Scrollers

THE AUTOYOKES SUPPORTS WYBRON FORERUNNER, 4"- CXI, COLORAM II; RAINBOW PRO SERIES; CHROMA-Q SERIES; APOLLO SPECTRA-Q SERIES; AND WYBRON IT SERIES COLOR SCROLLERS. Other Manufacturers scrollers MAY NOT be electrically compatible. Always consult the color scroller manufacturer and/or City Theatrical for signal cable requirements before connecting a scroller to the AutoYoke.

When using a **Wybron CXI** or a **Coloram II**, the scroller cable must be wired in the following way:

Male pin 1 to Female pin 4
Male pin 2 to Female pin 2
Male pin 3 to Female pin 3
Male pin 4 to Female pin 1.

The scroller requires an address other than those addresses occupied by the AutoYoke. When using a Wybron CXI scroller, the head must be addressed at **001**, and it will occupy 3 control channels - the 8th, 9th, and 10th in the sequence when operating in 16-bit and the 6th, 7th, and 8th when operating in 8-bit. When using a Coloram scroller, the address at the head is inconsequential, but the scroller will always occupy the 8th channel in the sequence (in 16-bit) and the 6th channel (in 8-bit). All other specified scrollers can be set at a user selected DMX address as long as it is not occupied by an AutoYoke attribute. It is only necessary to select the first DMX address for the AutoYoke. Refer to Sections 3.4 and 4.2 for further instructions.

SECTION 7: MAINTENANCE

Software Revisions

To find the current software release, either visit the City Theatrical, Inc. website www.citytheatrical.com or contact City Theatrical, Inc. directly. To find out which release of software your AutoYoke is operating on, go to the Release submenu on the control panel. See Section 4.7, Software Release, for further instructions.

Spare Parts

Contact City Theatrical or your dealer for AutoYoke spare parts information.

Lighting Fixture

Refer to lighting fixture user manual for all information regarding lighting fixture maintenance.

SECTION 8: WARRANTY

Limited Warranty

The AutoYoke is covered by a one year parts and labor limited warranty from the date of purchase by the original owner. It is the original owner's responsibility to provide documentation of the purchase date and dealer. In the event that this documentation can not be provided, City Theatrical Inc. will begin the warranty period on the manufacturing date. During the warranty period, AutoYokes will be repaired or replaced at the discretion of City Theatrical, Inc. Any lighting fixtures or devices that are connected with the AutoYoke other than those clearly authorized by City Theatrical Inc. will void the AutoYoke warranty. City Theatrical Inc. will not be responsible for any authorized lighting fixtures or devices that are incorrectly connected to the AutoYoke.

Procedure

Contact City Theatrical Inc. to obtain a Returned Goods Authorization number prior to shipping. All products that are returned to City Theatrical, Inc. must be clearly marked with the Returned Goods Authorization (RGA) number on the exterior of the shipping container. City Theatrical Inc. will refuse any product/s that are returned without a Returned Goods Authorization number. A detailed explanation of the alleged failure or malfunction must be included inside the shipping container.

The purchaser of the product will pay all shipping expenses. City Theatrical Inc. will pay for return shipping of products under warranty in the continental United States, excluding overnight, rush or expedited shipping. All products returned to City Theatrical Inc. must be packaged in a shipping container that adequately protects the contents. City Theatrical Inc. will not be responsible for any damage incurred during shipping.

Weight Chart

All units **without AutoFocus** have lens tube at mid position
 All units **with AutoFocus** have lens tube traveling
 All units with AutoIris

*****THIS TABLE SHOULD BE USED AS A REFERENCE - ACTUAL CONDITIONS OF USE CAN AND WILL CHANGE THE QUANTITY OF WEIGHT REQUIRED. ALWAYS BALANCE AUTOYOKE WITH ALL ACCESSORIES IN PLACE AND LENS TUBE IN MOST OFTEN USED POSITION.**

SOURCE FOUR II LENS TUBE

4" Coloram		4" Forerunner		4" CXI		Chroma Q Broadway		7.5" Coloram		7.5" Forerunner		7.5" Chroma Q		7.5" CXI	
LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL
1	3	1	2	2	4	0	2	3	3**	2	2	4	2	6**	2
1	2	1	0	2	2	0	1	0	0	0	1	0	4	2	2
1	1	0	4	2	2	0	0	0	2	0	0	0	2	1	4
1	1	0	4	2	2	0	0	0	3	0	1	0	4	2	2
1	1	0	4	2	2	0	0	0	2	0	0	0	2	1	4

WITHOUT AUTOFOCUS
 14° Source Four*
 19° Source Four
 26° Source Four
 36° Source Four
 50° Source Four
 70° Source Four
 90° Source Four

4" Coloram		4" Forerunner		4" CXI		Chroma Q Broadway		7.5" Coloram		7.5" Forerunner		7.5" Chroma Q		7.5" CXI	
LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL
1	4	1	3	2	4	0	4	3	4**	2	4**	4	2	7**	2
1	3	1	1	2	3	0	3	0	0	0	3	0	3	0	2
1	3	1	1	2	3	0	2	0	0	0	2	0	3	0	2
1	3	1	1	2	3	0	2	0	0	0	2	0	3	0	2

*Needs a 10° halo
 **Requires additional materials not included in Kit 5072

SOURCE FOUR I LENS TUBE

4" Coloram		4" Forerunner		4" CXI		Chroma Q Broadway	
LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL
1	4	1	2	4	4	0	2
1	0	0	4	2	2	0	0
1	1	0	4	2	2	0	0
1	1	0	4	2	2	0	0

4" Coloram		4" Forerunner		4" CXI		Chroma Q Broadway	
LEAD	STEEL	LEAD	STEEL	LEAD	STEEL	LEAD	STEEL
1	4	1	3	4	4	0	3
1	3	1	1	2	3	0	2
1	3	1	1	2	3	0	2
1	3	1	1	2	3	0	2

Trouble Shooting Guide

Scan the list of problems for the item that best describes what you are (or are not observing) with your AutoYoke. Follow the steps in order until the problem is resolved.

PROBLEM	STEP 1	STEP 2	STEP 3	STEP 4
AutoYoke does not turn on	Is the power switch turned on	Is the NonDim or hot circuit that supplies the AutoYoke turned on		
AutoYoke calibrates but does not move	Is the AutoYoke receiving DMX YES -reset defaults	Is the address on the AutoYoke correctly patched	Is the personality on the console correct for the AutoYoke	Is there a DMX terminator on the last AutoYoke in the chain
AutoYoke does not calibrate	Is the AutoYoke in balance	Is there something obstructing an attribute	Is the AutoYoke set to ACAL at power up	
Attribute does not move	Recalibrate attribute	Is the control channel on the console @ Zero	Has the control channel set limits in error. If so - reset dflts	
AutoYoke position is not repeatable	Is the AutoYoke clamped securely to a stiffened hanging position	Are all of the fasteners on the Source Four and accessories very tight	Is the Source Four securely attached to the AutoYoke and the Scroller firmly secured in the gel frame holder	AutoYoke has not been recalibrated following an irrecoverable trauma
AutoYoke is loud	The whirring noise is coming from the fan on the scroller, if possible cue the fan out on the scroller	The squeaking sound is coming from the Source Four casting, all Source Four fasteners needs to be tightened.		
AutoYoke does not move smoothly	Is the AutoYoke being operated with a 16bit console	Is the AutoYoke set for 16bit	Is the scroller securely attached to the gel frame holder	
AutoYokes are moving at random	Is the DMX chain too long	Is the last AutoYoke on the chain terminated	Is the control channel on the console @ Zero	Has the control channel set limits in error. If so - reset dflts
AutoYoke Pan or tilt Axis fails when the AutoYoke moves quickly	Is the AutoYoke in balance	Is there something obstructing an attribute.		
AutoFocus is not moving smoothly	Consult the AutoYoke users manual for AutoFocus maintenance guidelines			
LED screen flashes Go-- at power up continuously	Is the scroller cable the correct cable for the type of scroller in use.			
Scroller does not work	Is the scroller compliant with the Source Four Power Supply	Is the scroller cable the correct cable for the type of scroller in use.	Is the display on the scroller lit. If YES , the AutoYoke is functioning correctly, check the scroller address and patch. If NO , the scroller is malfunctioning check the scroller manual	Coloram II scrollers - Are the 4 DIP Switches set correctly. Refer to Section 4.2 of the User's Manual for DIP switch settings.
Iris Does not work	Recalibrate iris	Has the chain fallen off. If YES , slide the chain around the iris and check the chain tension	If the chain is slack -1.check to make sure the Iris plate is not bent 2. push the motor towards the top of Iris cover by pressing on the spring steel	Has the Iris jammed shut. If YES , manually open the Iris and recalibrate

AUTOYOKE QUICK SETUP INSTRUCTIONS

These instructions are intended to provide the information required to hang and wire the AutoYoke quickly. They are not intended to replace the AutoYoke Users Manual. Read the manual prior to operating the AutoYoke for complete operating instructions.

SECTION 1: SAFE OPERATION OF THE AUTOYOKE

- Follow all applicable safety procedures as recommended by the lighting fixture manufacturer.
- Always ground the power supply electrically.
- Do not operate the AutoYoke when the fixture and yoke are not properly balanced. See Section 2
- Only use accessories that are authorized by City Theatrical due to possible electrical incompatibility or out of balance hazard. See Section 4.
- Loose hardware on both the AutoYoke and the lighting fixture is hazardous and will result in a lack of repeatability and noise.
- Do not lift the AutoYoke by the lighting fixture, use the handles on the power supply or the hanging clamps.
- Follow all DMX protocol requirements when cabling the AutoYoke DMX chain.

SECTION 2: BALANCE AND ACCESSORIES

It is critical to the operation of the AutoYoke to balance the lighting fixture when using a Color Scroller or any other gel frame accessory. The lighting fixture will be in balance when it freely drifts to a horizontal position.

1. Place all accessories on the lighting fixture.
2. Place the Counterweight Halo on the Autoyoke Cradle 1/4x20x3/4" socket head screws.
See Figure 1.
3. Add or remove counterweight rings and secure in place with the 1/4x20x1-3/4 or 1/4x20x2" socket head screws.

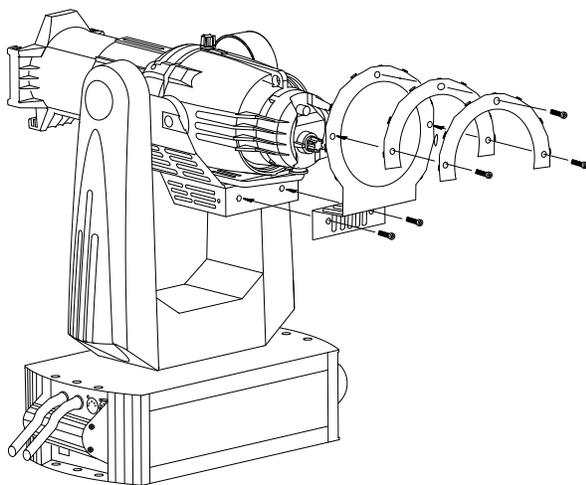


FIGURE 1: Adding Counterweights

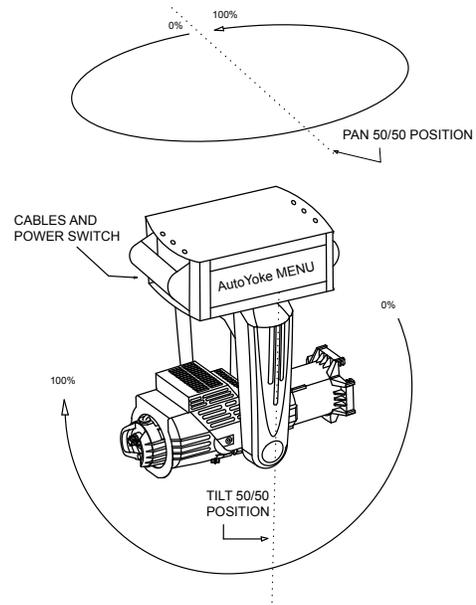


FIGURE 2: AutoYoke Orientation

SECTION 3: HANGING THE AUTOYOKE

It is important to consider the orientation of the power supply when hanging the AutoYoke so that the optimal range of travel is available. See *Figure 2*.

1. Attach hanging clamps to the center holes on the top of the power supply.
2. Hang AutoYoke's on minimum 2'3" centers.
3. Plug the cable with the Edison connector (AutoYoke power) to a non dim power supply. This supply must either be a dimmer configured for a switching power supply or it must not be provided by a dimmer.
4. Plug the cable with the stage connector (Fixture lamp power) to a dimmer.
5. Plug a 5 pin DMX cable to the Autoyoke Power Supply. Terminate the last AutoYoke in the DMX chain.
6. Plug AutoIris cable to 7 pin XLR connector on Cradle.
7. Plug the Color Scroller cable to 4 pin XLR connector on Cradle. See Section 4 for important Color scroller information PRIOR TO TURNING ON THE POWER TO THE AUTOYOKE.

SECTION 4: USING A COLOR SCROLLER

THE AUTOYOKE SUPPORTS THE WYBRON FORERUNNER, 4" CXI , COLORAM II(See cable note below); RAINBOW PRO SERIES; CHROMA Q SERIES; WYBRON IT; AND APOLLO SPECTRA Q SCROLLERS. THE AUTOYOKE SUPPLIES POWER TO THE SCROLLER. OTHER MANUFACTURERS' SCROLLERS MAY NOT BE ELECTRICALLY COMPATIBLE. CONSULT WITH THE MANUFACTURER AND/OR CITY THEATRICAL BEFORE USING SCROLLERS OTHER THAN THOSE LISTED ABOVE TO AVOID ANY DAMAGES EITHER TO THE SCROLLER OR TO THE AUTOYOKE.

CABLE NOTE: When using a Wybron CXI or a Coloram II, the scroller cable must be wired as shown to the right:

Male pin 1 to Female pin 4
Male pin 2 to Female pin 2
Male pin 3 to Female pin 3
Male pin 4 to Female pin 1

City Theatrical does not recommend using a cable that is longer than 15". Using a scroller cable that is longer than 15" runs the significant risk of interfering with the AutoYoke's range of motion.

SECTION 5: SETTING THE DMX ADDRESS

The AutoYoke requires 7 channels (16-bit) or 5 channels (8-bit) to operate. The scroller requires an address other than those addresses occupied by the AutoYoke. See AutoYoke User Manual Section 4.2 for Color Scroller addressing and DIP switch settings (Coloram II).

DMX CHANNEL ASSIGNMENTS

16-bit

- 1 - Pan Course
- 2 - Pan Fine
- 3 - Tilt Course
- 4 - Tilt Fine
- 5 - Iris (occupied if not used)
- 6 - Focus (occupied if not used)
- 7 - Control Channel

**Address scroller independently

8-bit

- 1 - Pan
- 2 - Tilt
- 3 - Iris (occupied if not used)
- 4 - Focus (occupied if not used)
- 5 - Control Channel

**Address scroller independently

1. Turn on the AutoYoke.
2. Press the MENU button on the front panel of the AutoYoke Power Supply.
3. Press the ENTER button then select DMX Address via the ▲▼ buttons.
4. Press ENTER to confirm selected address.