

# Eberhard Manufacturing Company



**Power-Up *Plus* Locking System With  
Light Feature and Built-In Alarm  
Operations and Applications Manual**

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**Eberhard Manufacturing Company**  
**POWER-UP Locking System with Built-In Alarm**  
**Supplied Hardware**

**Base System for (7) compartment door locks:**

**16835-U Power Locking System with Dome Light Feature and Alarm Function – Less Alarm Components:**

- **16835-50PK Control Module W/2 Key Fob (Transmitters), Antenna, Dome Light Feature and Built-in Alarm**

**Includes: 16835-4 Control Module W/Dome Light Feature and Built-in Alarm – Qty. (1)**

**16835-21 Antenna – Qty. (1)**

**16835-15 Key Fob (Transmitter) – Qty. (2)**

- **16720-1 Power Actuator – Qty. (7)**
- **16720-2 Power Actuator Mtg. Screws – Phillips Pan Head #8-18 Type “AB” Thread – Qty. (14)**
- **16720-3 Connecting Rod – Qty. (7)**
- **16619-15PK Rod Adapter W/Set Screw – Qty. (7)**
- **1-16720-6 Cab Wire Harness with Dome Light Feature – Qty. (1)**
  - Provides independent power locking for compartment doors
  - Provides optional connection to OEM power locking system using OEM fob (transmitter)
  - Provides optional power for dome light feature
- **2-16720-7 Compartment Wire Harness with Dome Light Feature – Qty. (1)**
  - Provides (3) actuators for road side – (4) actuators for curb side
  - Provides power leads for self-grounding dome lights

**ALM-16835-RTU Add-On Alarm System Components:**

- **16835-1 Power Actuator with Internal Switch – Qty. (1)**
  - Replaces (1) 16720-1 Power Actuator in main compartment
  - Provides a manual key override for all actuators
- **16835-56 Harness Kit, Actuator W/Internal Switch Harness and LED Harness**
  - Includes: 16835-23 Actuator W/Internal Switch Harness – Qty. (1)**
  - 16835-SS24 LED Harness – Qty. (1)**
- **16835-22 Siren – Qty. (1)**
  - Siren Decibels:  $117 \pm 3$  db
  - Has 3 cycles, 30 seconds each with (6) varying audible tones
- **16835-27 Door Jamb Switch – Qty. (7)**
- **2-16720-7X Wire Harness for Door Jamb Switch – Qty. (1)**
  - Provides a negative trigger input for up to (6) door jamb switches to the control module

**These components are to be used in addition to the 16835-U Remote Power Locking System components to add the alarm system function.**

# **Eberhard Manufacturing Company**

## **POWER-UP Locking System with Built-In Alarm**

### **Supplied Hardware**

#### **ALM-16835-U Power Locking System with Alarm and Dome Light Feature:**

- **16835-50PK Control Module W/2 Key Fob (Transmitters), Antenna, Dome Light Feature and Built-in Alarm**
  - Includes: 16835-4 Control Module W/Dome Light Feature and Built-in Alarm – Qty. (1)**
  - 16835-21 Antenna – Qty. (1)**
  - 16835-15 Key Fob (Transmitter) – Qty. (2)**
- **16720-1 Power Actuator – Qty. (6)**
- **16835-1 Power Actuator with Internal Switch – Qty. (1)**
  - Provides a manual key override for all actuators**
- **16720-2 Power Actuator Mtg. Screws – Phillips Pan Head #8-18 Type “AB” Thread – Qty. (14)**
- **16720-3 Connecting Rod – Qty. (7)**
- **16619-15PK Rod Adapter W/Set Screw – Qty. (7)**
- **16835-56 Harness Kit, Actuator W/Internal Switch Harness and LED Harness**
  - Includes: 16835-23 Actuator W/Internal Switch Harness – Qty. (1)**
  - 16835-SS24 LED Harness – Qty. (1)**
- **16835-22 Siren – Qty. (1)**
  - Siren Decibels: 117 ± 3 db**
  - Has 3 cycles, 30 seconds each with (6) varying audible tones**
- **16835-27 Door Jamb Switch – Qty. (7)**
- **1-16720-6 Cab Wire Harness with Dome Light Feature – Qty. (1)**
  - Provides independent power locking for compartment doors**
  - Provides optional connection to OEM power locking system using OEM fob (transmitter)**
  - Provides optional power for dome light feature**
- **2-16720-7 Compartment Wire Harness with Dome Light Feature – Qty. (1)**
  - Provides (3) actuators for road side – (4) actuators for curb side**
  - Provides power leads for self-grounding dome lights**
- **2-16720-7X Wire Harness for Door Jamb Switch – Qty. (1)**
  - Provides a negative trigger input for up to (6) door jamb switches to the control module**

**This is a complete system that provides both power locking with dome light feature and alarm.**

#### **Expansion System for (18) compartment door locks:**

- **2-16720-8 Expansion Relay Harness with Dome Light Feature – Qty. (1)**
- **2-16720-9 Expansion Compartment Wire Harness with Dome Light Feature – Qty. (1)**
  - \* Requires 2-16720-8 Expansion Relay Harness with Dome Light Feature**
  - Adds an additional (6) actuators for road side – (5) actuator for curb side**
  - Provides for a total of (9) actuators for road side – (9) actuator for curb side total**

**Eberhard Manufacturing Company**  
**POWER-UP Locking System with Built-In Alarm**  
**Supplied Hardware**

**Options:**

- **2-16720-10 Expansion Compartment Wire Harness with Dome Light Feature – Qty. (1)**  
Adds (2) actuators per side to 2-16720-7 compartment Wire Harness
  - \* Does not require 2-16720-8 Expansion Relay Harness with Dome Light FeatureProvides for a total of (5) actuators for road side – (6) actuators for curb side total
- **2-16720-10X Wire Harness for Door Jamb Switch – Qty. (1)**  
Provides a negative trigger input for an additional (4) door jamb switches to the control module
  - \* Requires 2-16720-7X Wire Harness for Door Jamb Switch
- **16746-U Power 3 Way Toggle Switch Kit W/Connectors – Qty. (1)**  
Provides a non-illuminated toggle switch for the compartment door locks to a cab without an OEM power locking system
  - Includes: 3 Way Toggle Switch, non-illuminated – Qty. (1)**
  - Trim Plate – Qty. (1)**
  - Wire Harness – Qty. (1)**
  - Butt Splice Connector – Qty. (2)**
  - Insulated Ring Terminal for #10 Stud – Qty. (1)**
- **1-16746-U Power 3 Way Toggle Switch Kit W/Connectors – Qty. (1)**  
Provides an illuminated toggle switch for the compartment door locks to a cab without an OEM power locking system
  - Includes: 3 Way Toggle Switch, illuminated – Qty. (1)**
  - Trim Plate – Qty. (1)**
  - Wire Harness – Qty. (1)**
  - Butt Splice Connector – Qty. (2)**
  - Insulated Ring Terminal for #10 Stud – Qty. (2)**

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## **POWER-UP Locking System with Built-In Alarm**

### **System Protection**

#### **Electrical Protection:**

- **16835-4 Control Module:** Provides over-trigger protection for power actuators
- **1-16720-6 Cab Wire Harness:** In-line fuse protection – 40 amp for output, 5 amp for processor & 15 amp for lights
- **2-16720-8 Expansion Relay Wire Harness:** Individual relay for each side of the vehicle.  
In-line fuse protection – 40 amp for power

#### **System Protection:**

- **16835-4 Control Module W/Dome Light Feature and Built-in Alarm:**
  - ▶ Incorporates a “Lock Pulse Timer” to provide a 0.4 second pulse from the control module to the actuators. If the buttons on the key fob are held down for an extended period, the “Lock Pulse Timer” will prevent the actuators from being damaged by over firing.
  - ▶ Incorporates a “Time Out” feature that prevents damage to the actuators by shutting down the system for 30 seconds if the buttons on the key fob are activated more than 8 times in a 30 second period. After the 30 second “Time Out” period, the system will function as normal.
  - ▶ Can hold up to (4) key fobs with different signals. If any key fobs are lost or damaged and needs to be replaced, the control module can learn/program new and/or additional key fobs.
  - ▶ Can be set-up for use in either positive or negative polarity.
- **16835-4 Control Module – Dome Light Function:**
  - ▶ Incorporates a feature to activate/deactivate dome lights for up to 18 compartments. On the key fob, when Button #2 (Unlock) is depressed, the dome lights will be activated for 10 minutes. When Button #1 (Lock) is depressed, the dome lights will be turned off. Optionally, when Button #1 (Lock) and Button #3 (N/A) are depressed at the same time, the dome lights will be activated for 10 minutes. By depressing Button #1 (Lock) and Button #4 (N/A) at the same time, the dome lights will be turned off.
- **16720-1 Power Actuators:**
  - ▶ Working voltage: 8.8 VDC to 13.7 VDC
  - ▶ Current absorption: 4.5 A (Max.)
  - ▶ Temperature range: -18.4° F to +188.6° F
  - ▶ Power: 7.8 lbf.
- **16835-1 Power Actuator with Internal Switch:**
  - ▶ Same specifications as 16720-1 Power Actuator
  - ▶ Has an internal switch for manual key override for all actuators
- **16835-15 Key Fob (Transmitter):**
  - ▶ Working range of 150 feet. Maximum
  - ▶ Frequency = 433.92 MHz, Rolling Code
  - ▶ Separate “Lock” & “Unlock” Buttons

**Eberhard Manufacturing Company**  
**POWER-UP Locking System with Built-In Alarm**  
**System Protection**

**16835-27 Door Jamb Switch:**

- ▶ **Normally closed SPST door jamb switch operating force: 1.5 kgf [ 14.7N/3.3 lbf]**
- ▶ **Contact rating: 5A, 12VDC (wiping contact)**
- ▶ **Initial voltage drop: <100mV**
- ▶ **Endurance: 50,000 cycles @ 5A, 12.8VDC (lamp load)**
- ▶ **Operating Temperature: -33°C to +62°C**
- ▶ **Salt spray test: 50 hrs. (ASTM-B-117)**
- ▶ **Connector: W-ST1-013**
- ▶ **Terminal: W-ST-710-S**



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## **POWER-UP Locking System with Built-In Alarm**

### **Wiring Breakdown**

Locate and mount 16835-4 Control module in a high position in front drivers' side compartment. Make sure the control module is in a position where it will not be damaged or come into contact with water.

Make wire connections as noted below:

For base system with (7) compartment door locks, connect wire harnesses as follows:

16835-4 Control Module to 1-16720-6 Cab Wire Harness to 2-16720-7 Compartment Wire Harness.

For system with (11) compartment door locks, connect wire harnesses as follows:

16835-4 Control Module to 1-16720-6 Cab Wire Harness to 2-16720-7 Compartment Wire Harness to 2-16720-10 Expansion Compartment Wire Harness.

For system with (8) to (18) compartment door locks, connect wire harnesses as follows:

16835-4 Control Module to 1-16720-6 Cab Wire Harness to 2-16720-8 Expansion Relay Wire Harness to 2-16720-7 Compartment Wire Harness to 2-16720-9 Expansion Compartment Wire Harness.

**16835-4 Control Module and 16835-21 Antenna:**

3 Pin JST Style Connector (male) to interface with the 3 Pin JST Style Connector (female) on the side of the control module

**16835-4 Control Module and 16835-22 Siren:**

2 Pin Connector (male) to interface with the 2 Pin Connector (female) on the side of the control module

**16835-4 Control Module and 16835-23 Actuator with Internal Switch Harness:**

4 Pin Connector (male) to interface with the 4 Pin Connector (female) on the side of the control module

**16835-4 Control Module and 16835-SS24 LED Harness:**

2 Pin JST Style Connector (male) to interface with the 2 Pin JST Style Connector (female) on the side of the control module

**16835-4 Control Module and 1-16720-6 Cab Wire Harness with Dome Light Feature:**

Terminal connections from outer terminal towards the center on control module:

- Terminal #1: Blue Wire – Motor connection for actuators – 12 ga. wire
- Terminal #2: Green Wire – Motor connection for actuators – 12 ga. wire
- Terminal #3: Red Wire – Wire connection for power from cab – 14 ga. Wire
- Terminal #4: Black Wire – Wire connection for chassis ground (actuators) – 14 ga. wire
- Terminal #5: Black Wire – Wire connection for chassis ground (actuators) – 14 ga. wire

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## **POWER-UP Locking System with Built-In Alarm**

### **Wiring Breakdown**

#### **10 Pin Connector:**

- **Position #1: Black Wire** – Ground – 18 ga. wire
- **Position #2: Blue/White Wire** – Wire connection to OEM actuator, unlock circuit – 18 ga. Wire  
Wire length = 15 feet, non terminated end  
– Optional wire connection to the 16746-U or 1-16746-U unlock circuit (Brown Wire) – 20 ga. Wire
- **Position #3: Dark Green** – Wire connection to optional dome light control circuit – 18 ga. Wire
- **Position #6: Red Wire** – Power – 18 ga. Wire
- **Position #8: Green/White Wire** – Wire connection to OEM actuator, lock circuit – 18 ga. Wire  
Wire length = 15 feet, non terminated end  
– Optional wire connection to the 16746-U or 1-16746-U lock circuit (Purple Wire) – 20 ga. Wire
  
- **Position #4, #5, #7, #9 & #10 are not used.**

**NOTE: Blue/White wire & Green/White wire are for optional connection to OEM power locking system. These wires can be run along with the Red power wire listed below to the cab. Run the wires along the factory wire harness using wire harness holders in the frame rails. Drill and grommet all holes in vehicle as required to prevent accidental grounding.**

#### **1-16720-6 Cab Wire Harness with Dome Light Feature:**

- **Red Wire** – Wire connection to auxiliary OEM power source in cab – 10 ga. wire  
– Wire length = 16 feet
- **Black Wire** – Wire connection for chassis ground – 10 ga. Wire  
– Wire length = 2 feet
- **End Connector** – Connector (female) on end of cab wire harness to plug into mating connector (male) on 2-16720-7 Compartment Wire Harness or optional 2-16720-8 Expansion Relay Wire Harness.

**NOTE: Red power wire can be run along with the optional Blue/White & Green/White OEM power locking connection wires to the cab. Run the wires along the factory wire harness using wire harness holders in the frame rails. Drill and grommet all holes in vehicle as required to prevent accidental grounding.**

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## **POWER-UP Locking System with Built-In Alarm**

### **Wiring Breakdown**

#### **2-16720-7 Compartment Wire Harness with Dome Light feature: Base System for (7) compartment door locks:**

- **Main trunk wires for both road side & curb side are 14 ga.**
- **Branch wires for connection to the actuators are 18 ga.**
- **Branch wires for connection to the dome lights are 14 ga.**

#### **Harness branch wire/power actuator wire connections – Retracting actuator to lock:**

- **Green harness wire connects to Blue power actuator wire**
- **Blue harness wire connects to Red power actuator wire**

#### **Harness branch wire/power actuator wire connections – Extending actuator to lock:**

- **Green harness wire connects to Red power actuator wire**
- **Blue harness wire connects to blue power actuator wire**
  
- **End Connector – Connector (male) on end of compartment wire harness to plug into mating connector (female) on 1-16720-6 Cab Wire Harness or optional 2-16720-8 Expansion Relay Wire Harness.**
- **End Connectors – Connectors (female) on end of compartment wire harness to plug into mating connectors (male) on 2-16720-9 Expansion Compartment Wire Harness or optional 2-16720-10 Expansion Compartment Wire Harness.**

**NOTE: Drill and grommet all holes in vehicle as required to prevent accidental grounding.**

#### **2-16720-8 Expansion Relay Wire Harness with Dome Light Feature: Expansion onto 2-16720-7 Compartment Wire Harness for (8) to (18) compartment door locks: Required for 2-16720-9 Expansion Compartment Wire Harness.**

- **Red Wire – Wire connection to auxiliary OEM power source in cab – 10 ga. wire  
– Wire length = 18 feet 2 in.**
- **Black Wire – Wire connection for chassis ground – 10 ga. Wire  
– Wire length = 4 feet**
  
- **End Connector – Connector (male) on end of expansion relay wire harness to plug into mating connector (female) on 1-16720-6 Cab Wire Harness.**
- **End Connectors – Connector (female) on end of expansion relay wire harness to plug into mating connector (male) on 2-16720-7 Compartment Wire Harness.**

**NOTES: 1) Drill and grommet all holes in vehicle as required to prevent accidental grounding.  
2) Locate and mount relay blocks in a high position in front drivers' side compartment.  
Make sure the relays are in a position where they can be accessed for replacement if necessary and where they will not be damaged or come into contact with water.**

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## **POWER-UP Locking System with Built-In Alarm**

### **Wiring Breakdown**

#### **2-16720-9 Expansion Compartment Wire Harness with Dome Light Feature:**

**Expansion onto 2-16720-7 Compartment Wire Harness for (8) to (18) compartment door locks:  
Requires 2-16720-8 Expansion Relay Wire Harness.**

- **Main trunk wires for both road side & curb side are 14 ga.**
- **Branch wires for connection to the actuators are 18 ga.**
- **Branch wires for connection to the dome lights are 14 ga.**

**Harness branch wire/power actuator wire connections – Retracting actuator to lock:**

- **Green harness wire connects to Blue power actuator wire**
- **Blue harness wire connects to Red power actuator wire**

**Harness branch wire/power actuator wire connections – Extending actuator to lock:**

- **Green harness wire connects to Red power actuator wire**
- **Blue harness wire connects to Blue power actuator wire**
  
- **End Connectors – Connectors (male) on end of expansion compartment wire harness to plug into mating connectors (female) on 2-16720-7 Compartment Wire Harness.**

**NOTE: Drill and grommet all holes in vehicle as required to prevent accidental grounding.**

#### **2-16720-10 Expansion Compartment Wire Harness with Dome Light Feature:**

**Expansion onto 2-16720-7 Compartment Wire Harness for (11) compartment door locks:**

- **Main trunk wires for both road side & curb side are 14 ga.**
- **Branch wires for connection to the actuators are 18 ga.**
- **Branch wires for connection to the dome lights are 14 ga.**

**Harness branch wire/power actuator wire connections – Retracting actuator to lock:**

- **Green harness wire connects to Blue power actuator wire**
- **Blue harness wire connects to Red power actuator wire**

**Harness branch wire/power actuator wire connections – Extending actuator to lock:**

- **Green harness wire connects to Red power actuator wire**
- **Blue harness wire connects to Blue power actuator wire**
  
- **End Connectors – Connectors (male) on end of expansion compartment wire harness to plug into mating connectors (female) on 2-16720-7 Compartment Wire Harness.**

**NOTE: Drill and grommet all holes in vehicle as required to prevent accidental grounding.**

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## **POWER-UP Locking System with Built-In Alarm**

### **Wiring Breakdown**

#### **2-16720-7X Wire Harness for Door Jamb Switch:**

- **Main trunk wires for both road side & curb side are 16 ga.**
- **Branch wires for connection to the door jamb switches are 16 ga.**
- **End Connectors – Connectors (female) on ends of branch wires to plug into mating connectors (male) on the 16835-27 Door Jamb Switch.**
- **Butt Connector – Connects wire ends for both road side & curb side to the orange wire (negative input) on the 16835-23 Actuator with Internal Switch Harness.**

#### **2-16720-10X Wire Harness for Door Jamb Switch:**

- **Main trunk wires for both road side & curb side are 16 ga.**
- **Branch wires for connection to the door jamb switches are 16 ga.**
- **End Connectors – Connectors (female) on ends of branch wires to plug into mating connectors (male) on the 16835-27 Door Jamb Switch.**
- **End Connectors – Connectors (male) on ends of main trunk to plug into mating connectors (female) on the 2-16720-7X Wire Harness for Door Jamb Switches.**

#### **16720-1 Power Actuator:**

- **Actuator wires are 18 ga.**

#### **Harness branch wire/power actuator wire connections – Retracting actuator to lock:**

- **Green harness wire connects to Blue power actuator wire**
- **Blue harness wire connects to Red power actuator wire**

#### **Harness branch wire/power actuator wire connections – Extending actuator to lock:**

- **Green harness wire connects to Red power actuator wire**
- **Blue harness wire connects to Blue power actuator wire**

**NOTES:** 1) Drill and grommet all holes in vehicle as required to prevent accidental grounding.  
2) Power actuators to be mounted with the protruding motor housing in an upward position to prevent condensation from pooling around the internal motor.

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## **POWER-UP Locking System with Built-In Alarm**

### **Wiring Breakdown**

#### **16835-1 Power Actuator with Internal Switch:**

- Actuator wires are 18 ga.
- Internal switch (Lock) wire - Brown is 18 ga.
- Internal switch (Unlock) wire - Purple is 18 ga.
- Ground wire - Black is 18 ga.

#### **16835-1 Power Actuator with Internal Switch and 16835-23 Actuator with Internal Switch Harness:**

- Brown harness wire connects to Brown actuator wire
- Purple harness wire connects to Purple actuator wire
- Black harness wire connects to Black actuator wire

#### **Compartment harness branch wire/power actuator wire connections - Retracting actuator to lock:**

- Green harness wire connects to Blue power actuator wire
- Blue harness wire connects to Red power actuator wire

#### **Compartment harness branch wire/power actuator wire connections - Extending actuator to lock:**

- Green harness wire connects to Red power actuator wire
- Blue harness wire connects to Blue power actuator wire

**NOTES:** 1) Drill and grommet all holes in vehicle as required to prevent accidental grounding.  
2) Power actuators to be mounted with the protruding motor housing in an upward position to prevent condensation from pooling around the internal motor.

#### **16835-27 Door Jamb Switch:**

- Self grounding through mounting screw hole
- Terminal (male) connects to 2-16720-7X Wire Harness for Door Jamb Switch

#### **16746-U Power 3 Way Toggle Switch Kit W/Connectors:**

**Non-illuminated toggle switch for the compartment door locks to a cab without an OEM power locking system.**

**Locate a position for mounting and cut a .93" wide x 1.74" tall opening to receive the trim plate and toggle switch. Trim plate will fit a panel of .08" to .16" thick.**

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## **POWER-UP Locking System with Built-In Alarm**

### **Wiring Breakdown**

Make wire connections as noted below:

- **Purple Wire** – Wire connection to the Green/White lock circuit from the 1-16720-6 Cab Wire Harness – 20 ga. wire  
Wire length = 3 feet 2-1/2 in.  
Use supplied butt splice connector to make wire connection.
- **Brown Wire** – Wire connection to the Blue/White unlock circuit from the 1-16720-6 Cab Wire Harness – 20 ga. Wire  
Wire length = 3 feet 2-1/2 in.  
Use supplied butt splice connector to make wire connection.
- **Black Wire** – Wire connection for chassis ground – 20 ga. Wire  
Wire length = 3 feet 2-1/2 in.  
Use supplied insulated ring terminal to make wire connection.

**NOTES:** 1) Drill and grommet all holes in vehicle as required to prevent accidental grounding.  
2) Plastic connector on the end of the wire harness is not required. Customer to cut off and discard. Use the supplied butt splice connectors and insulated ring terminal to make the wire connections.  
3) Jumpers on the 16835-4 Control Module need to be changed to the negative polarity settings. Position the jumpers located on the bottom end of the control module on the bottom two pins.

#### **1-16746-U Power 3 Way Toggle Switch Kit W/Connectors:**

Illuminated toggle switch for the compartment door locks to a cab without an OEM power locking system.

Locate a position for mounting and cut a .93" wide x 1.74" tall opening to receive the trim plate and toggle switch. Trim plate will fit a panel of .08" to .16" thick.

Make wire connections as noted below:

- **Purple Wire** – Wire connection to the Green/White lock circuit from the 1-16720-6 Cab Wire Harness – 20 ga. wire  
Wire length = 3 feet 2-1/2 in.  
Use supplied butt splice connector to make wire connection.
- **Brown Wire** – Wire connection to the Blue/White unlock circuit from the 1-16720-6 Cab Wire Harness – 20 ga. Wire  
Wire length = 3 feet 2-1/2 in.  
Use supplied butt splice connector to make wire connection.
- **Black Wire** – Wire connection for chassis ground – 20 ga. Wire  
Wire length = 3 feet 2-1/2 in.  
Use supplied insulated ring terminal to make wire connection.

**Eberhard Manufacturing Company**  
**POWER-UP Locking System with Built-In Alarm**  
**Wiring Breakdown**

- **Black Wire** – Wire connection for chassis ground – 20 ga. Wire  
Wire length = 3 feet 2-1/2 in.  
Use supplied insulated ring terminal to make wire connection.
- **Gray Wire** – Wire connection to the parking light circuit on the vehicle – 20 ga. Wire  
Wire length = 3 feet 2-1/2 in.

**NOTES:** 1) Drill and grommet all holes in vehicle as required to prevent accidental grounding.  
2) Plastic connector on the end of the wire harness is not required. Customer to cut off and discard. Use the supplied butt splice connectors and insulated ring terminals to make the wire connections.  
3) Jumpers on the 16835-4 Control Module need to be changed to the negative polarity settings. Position the jumpers located on the bottom end of the control module on the bottom two pins.



# **Eberhard Manufacturing Company**

## **POWER-UP Locking System with Built-In Alarm**

### **Miscellaneous**

#### **Setting for positive or negative polarity:**

**For positive polarity – Standard setting:** Position the jumpers located on the bottom end of the control module on the top two pins.

**For negative polarity:** Position the jumpers located on the bottom end of the control module on the bottom two pins.

#### **Programming the key fobs:**

**Make sure the system is unlocked and then disconnect the actuator with internal switch wire harness from the control module prior to programming.**

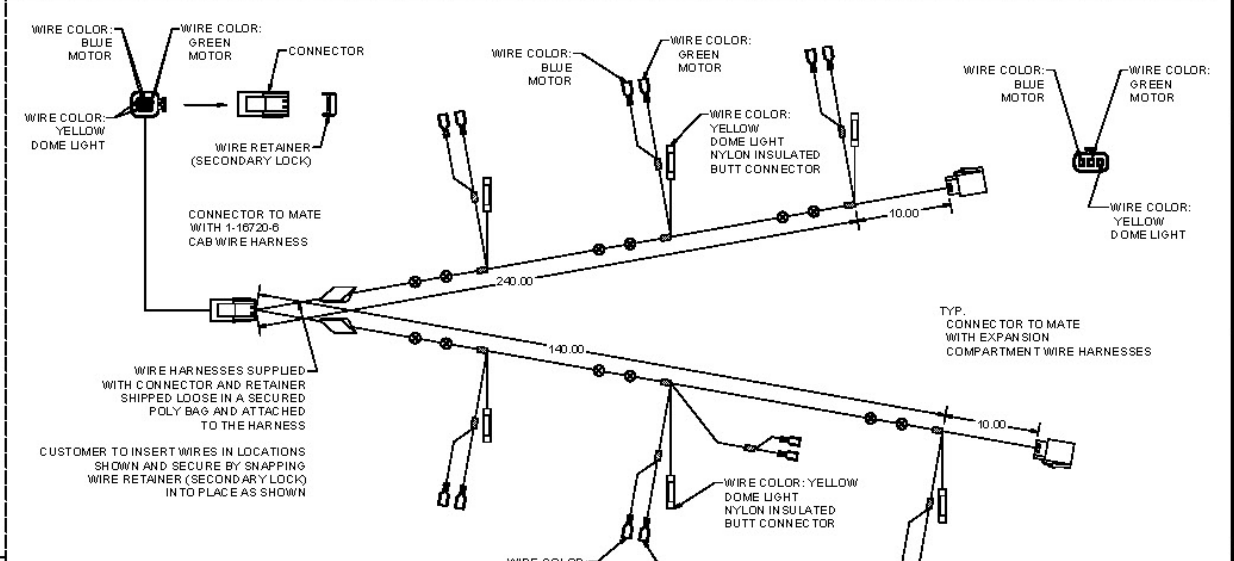
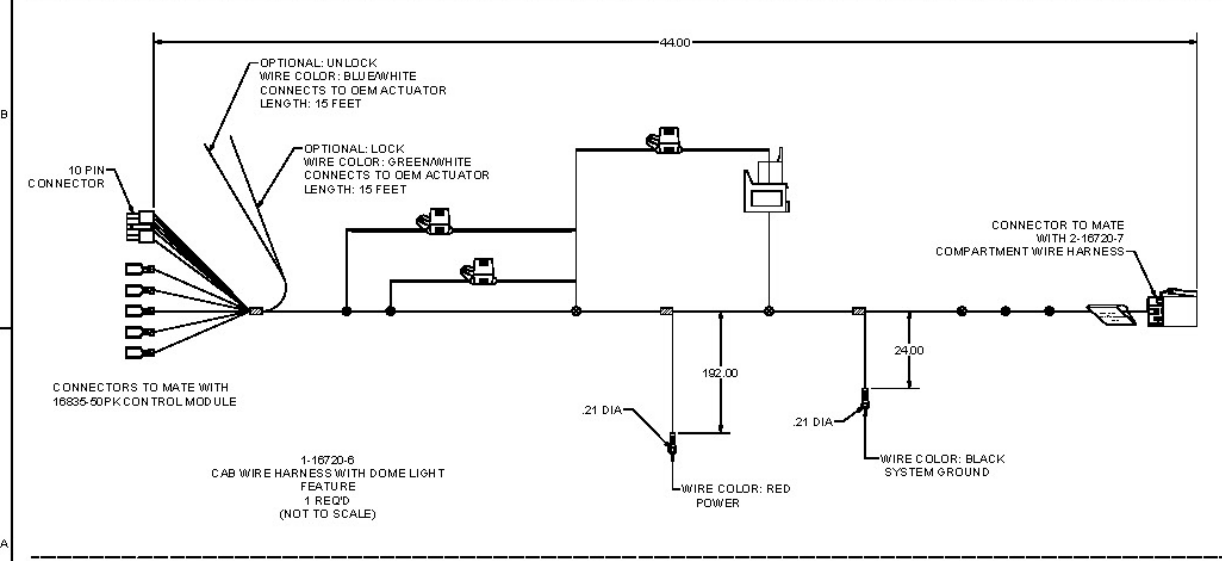
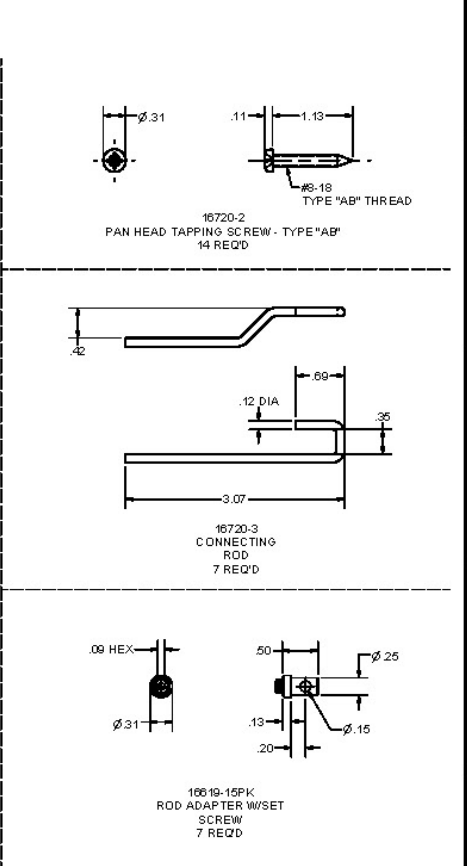
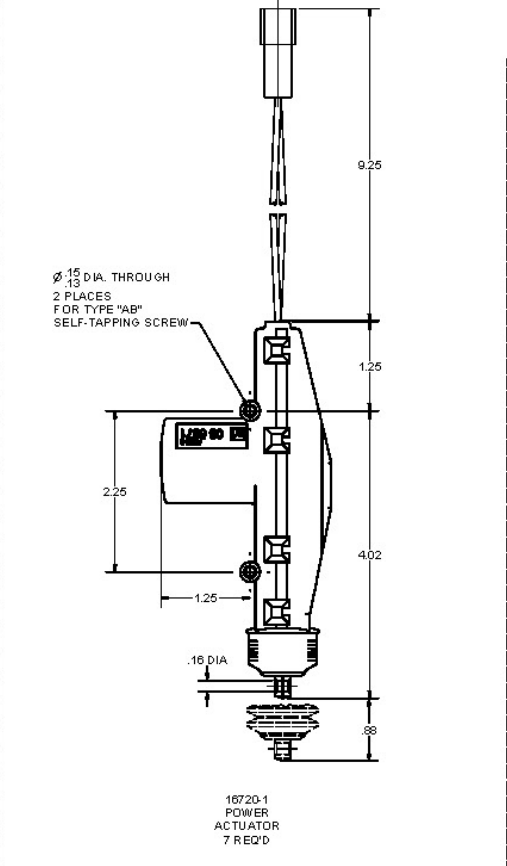
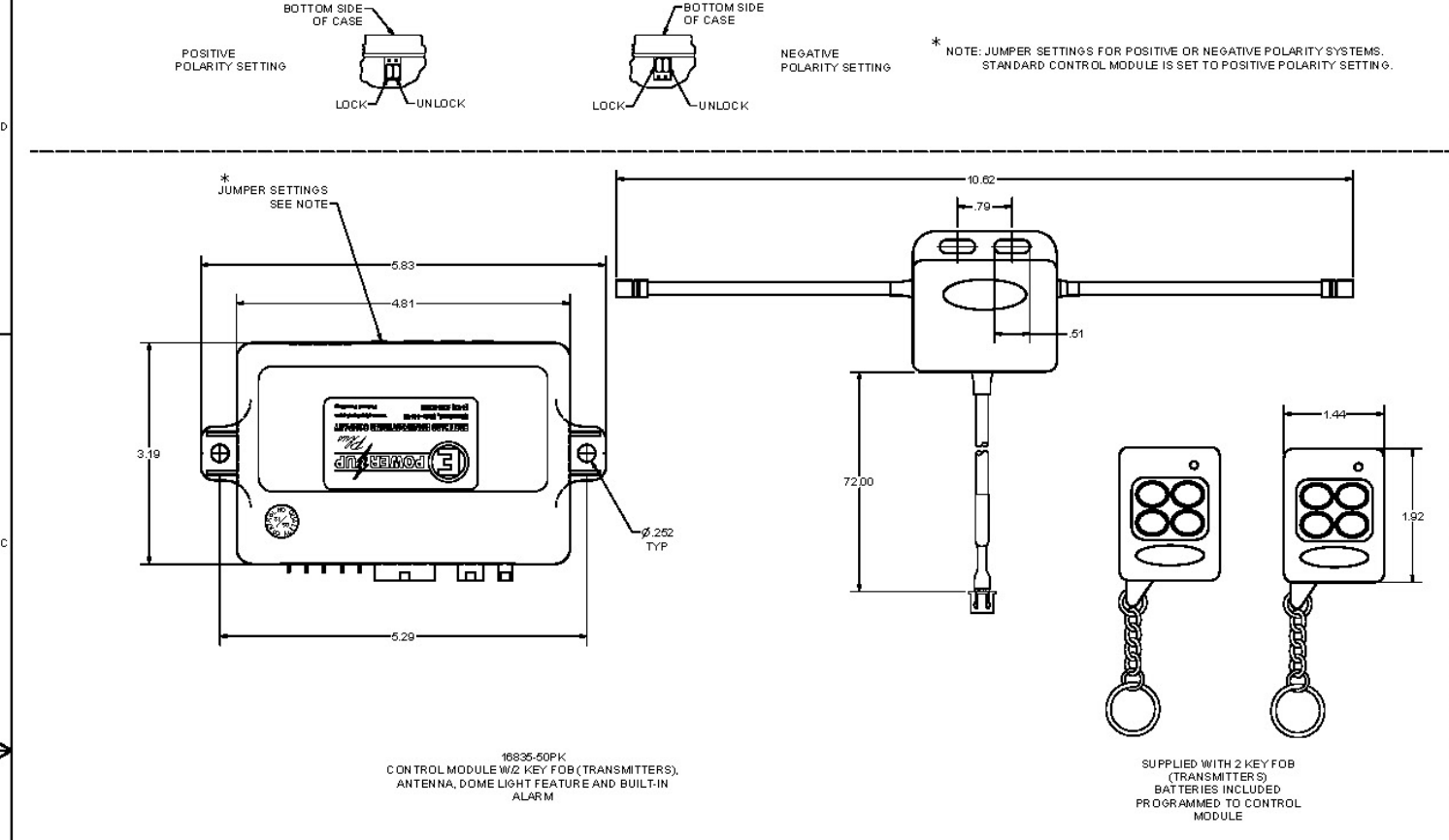
**Press the program button on the side of the control module (3) times; the red LED will then light up. Press button #1 on all of the key fobs that will be associated with the vehicle, (up to 4 key fobs), within 10 seconds of the red LED lighting up. When the LED light goes off, the key fobs are then programmed to the control module. Then, reconnect the actuator with internal switch wire harness to the control module. Test each key fob by locking and unlocking the system to ensure proper operation. NOTE: All key fobs must be programmed at the same time using this procedure. Programming one key fob at a time will erase the previous programmed key fob.**

#### **Replacement Components:**

- **1-16720-6 Cab Wire Harness: In-line fuse:**
  - Power: 40-Amp fuse – ATC style fuse or equivalent**
  - Signal: 5-Amp fuse – ATC style fuse or equivalent**
  - Lights: 15-Amp fuse – ATC style fuse or equivalent**
  - Dome Light Relay: 30-Amp - Replacement relay p/n: Hella Relay p/n: 49400B or equivalent**
- **2-16720-8 Expansion Relay Wire Harness: Individual relay for each side of the vehicle.**
  - Relay: 30-Amp - Replacement relay p/n: Hella Relay p/n: 49400B or equivalent**
  - Power: 40-Amp fuse – ATC style fuse or equivalent**
- **16835-15 Key Fob (Transmitter) Battery: 23AP (12V Alkaline), 23-279 (12V Alkaline) or equivalent**

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REVISION HISTORY				
REV	DESCRIPTION	EN	DATE	REV BY
1	CONVERTED TO 3D	EN	4-17-16	FLP
				MR



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REVISIONS		DATE		BY	
1	ISSUED FOR PRODUCTION	4-17-16	FLP	MR	
2	REVISED				
3	REVISED				
4	REVISED				
5	REVISED				

16835-50PK CONTROL MODULE WITH 2 KEY FOB (TRANSMITTERS), ANTENNA, DOME LIGHT FEATURE AND BUILT-IN ALARM

16720-1 POWER ACTUATOR 7 REQ'D

16720-2 PAN HEAD TAPPING SCREW - TYPE "AB" 14 REQ'D

16720-3 CONNECTING ROD 7 REQ'D

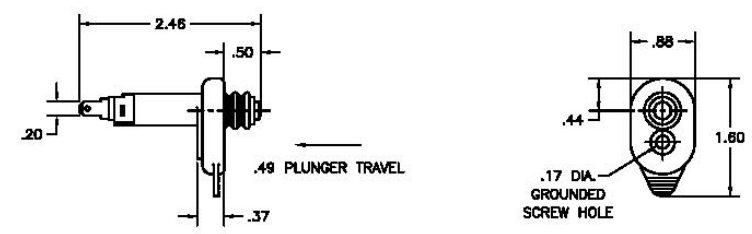
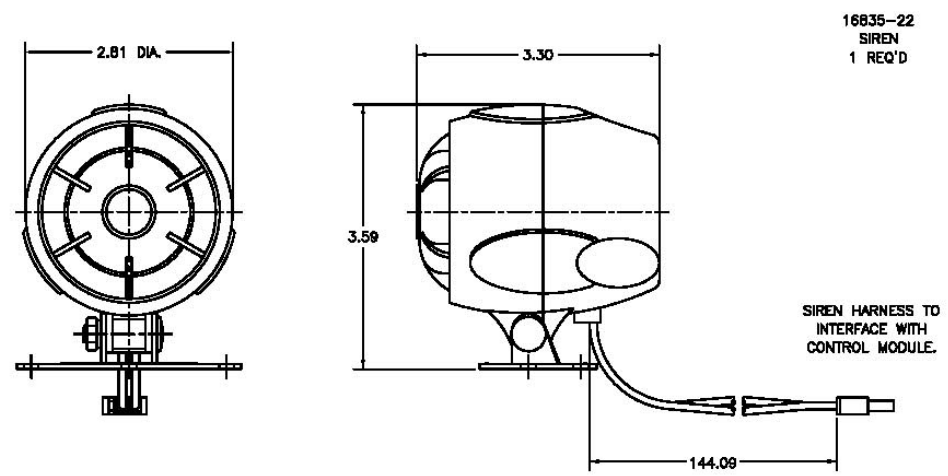
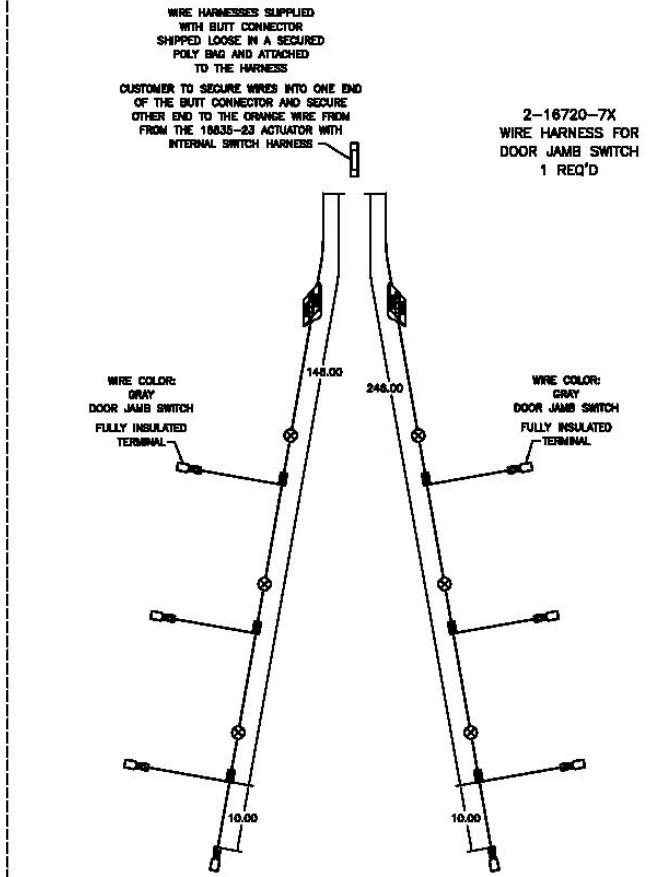
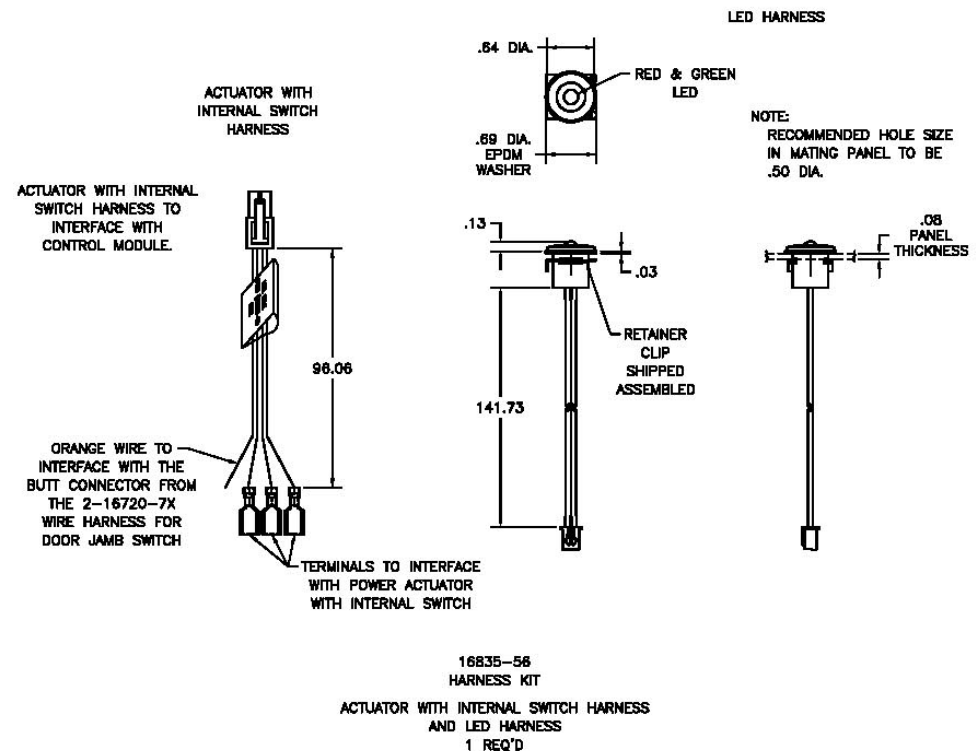
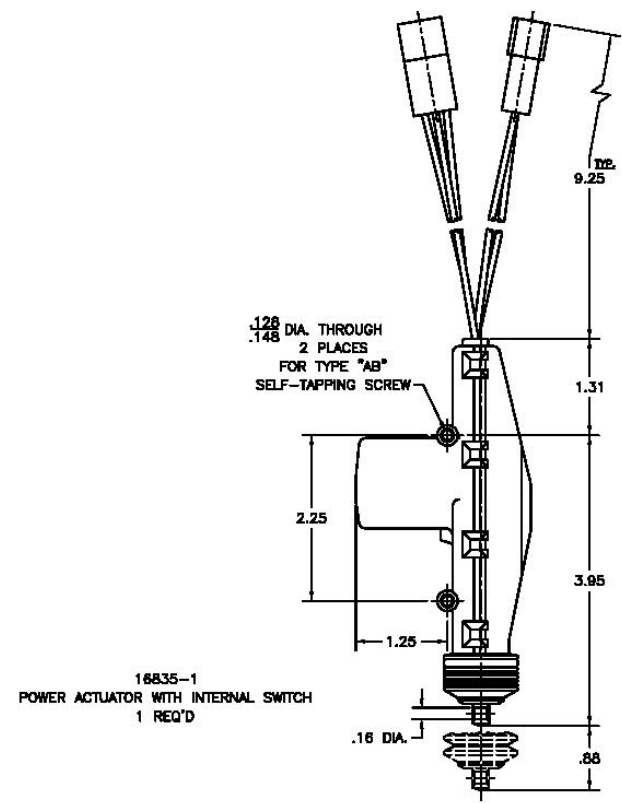
16819-15PK ROD ADAPTER W/SET SCREW 7 REQ'D

1-16720-6 CAB WIRE HARNESS WITH DOME LIGHT FEATURE 1 REQ'D (NOT TO SCALE)

2-16720-7 COMPARTMENT WIRE HARNESS WITH DOME LIGHT FEATURE 1 REQ'D (NOT TO SCALE)

16835-ALMU

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NOTE: THESE COMPONENTS ARE TO BE USED IN ADDITION TO THE 16835-U REMOTE POWER LOCKING SYSTEM COMPONENTS TO ADD THE ALARM SYSTEM FUNCTIONS.

SUPERSEDES DRAWING ALM-16835-RTU DATED 12-12-05

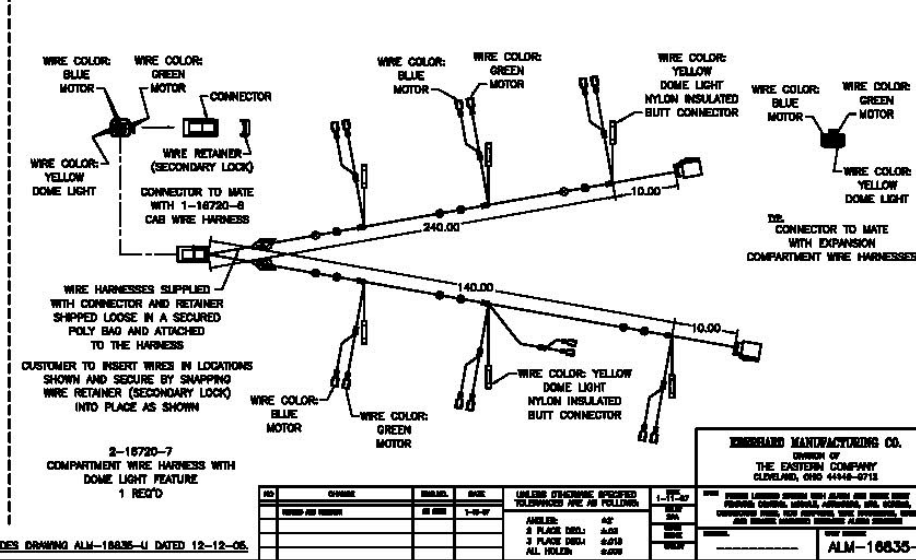
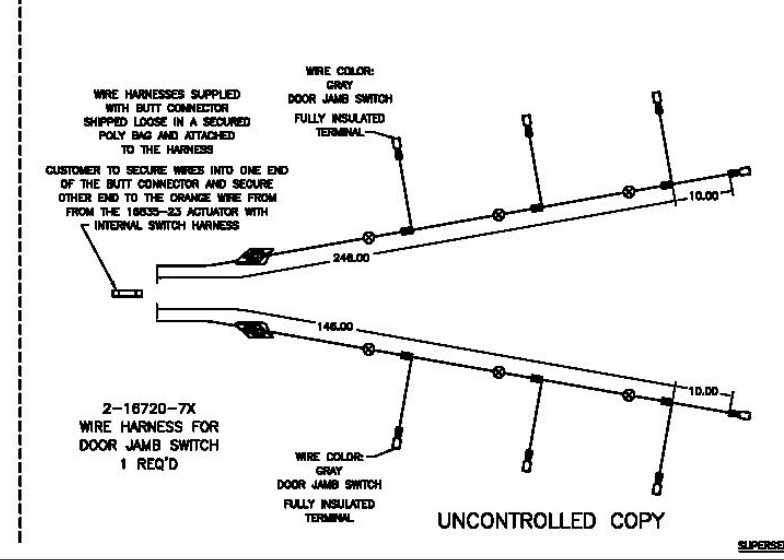
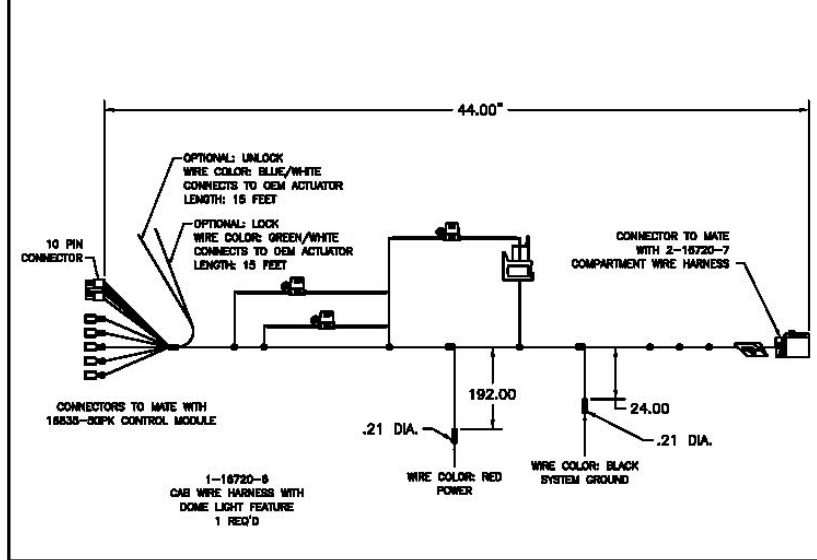
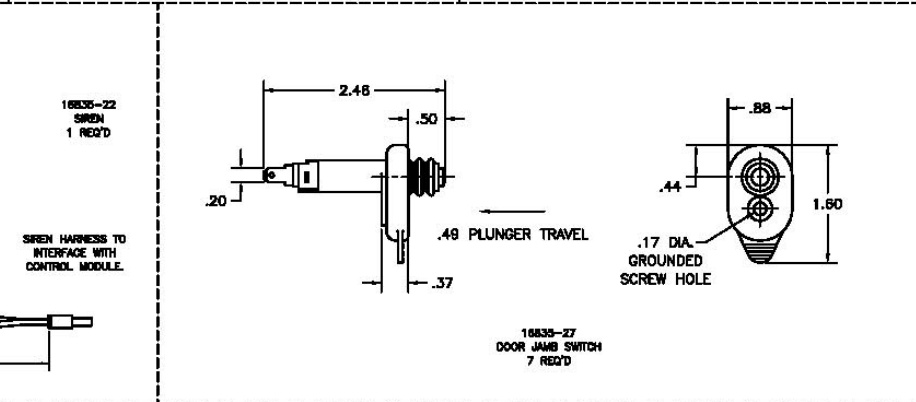
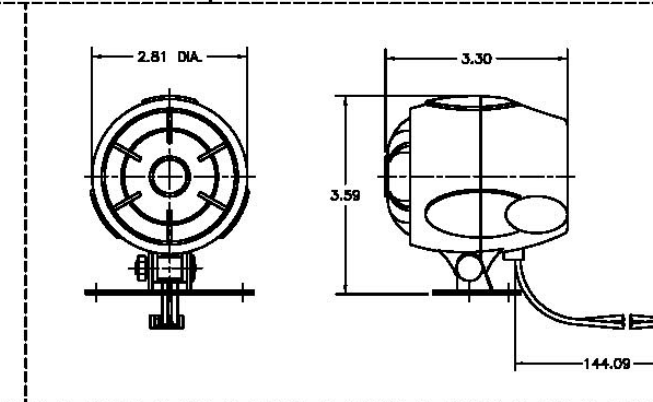
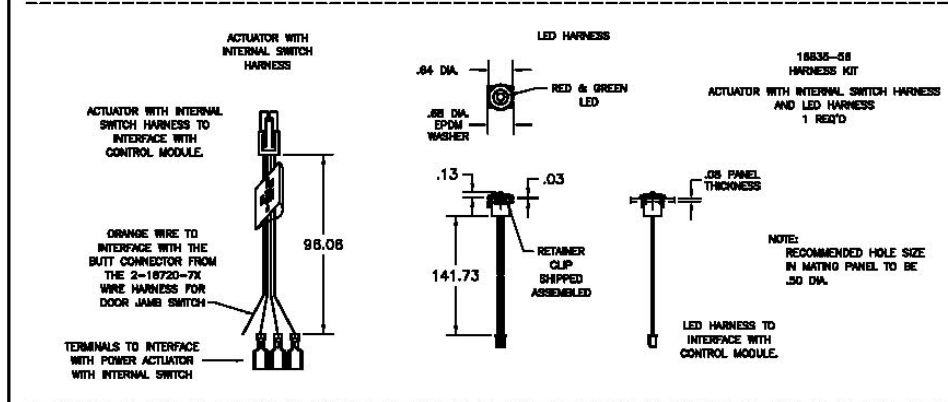
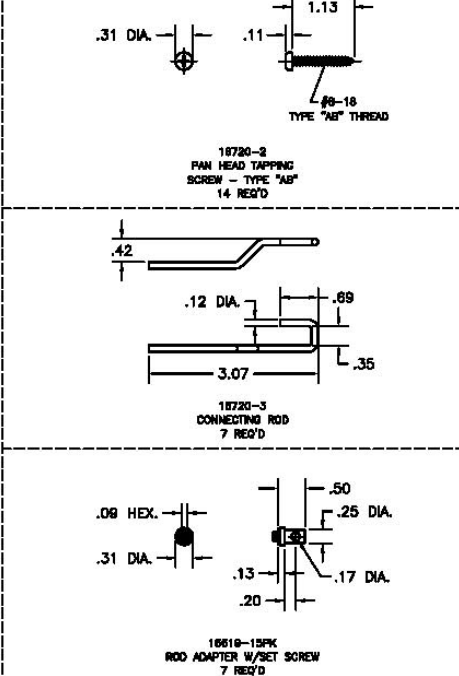
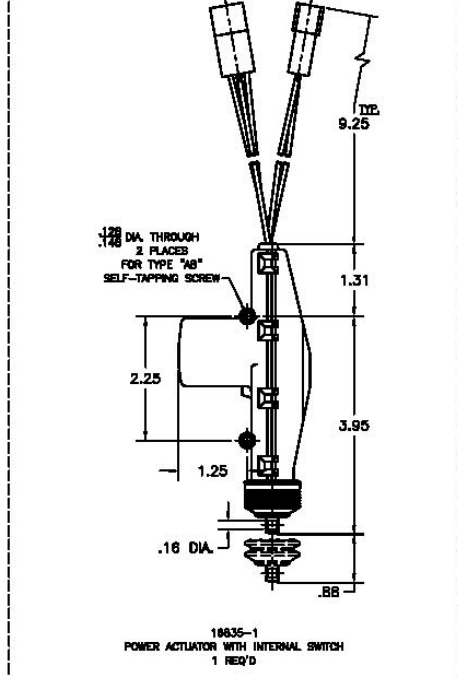
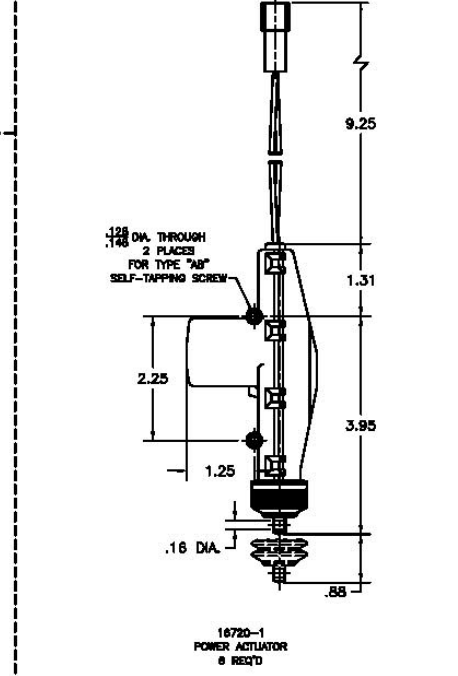
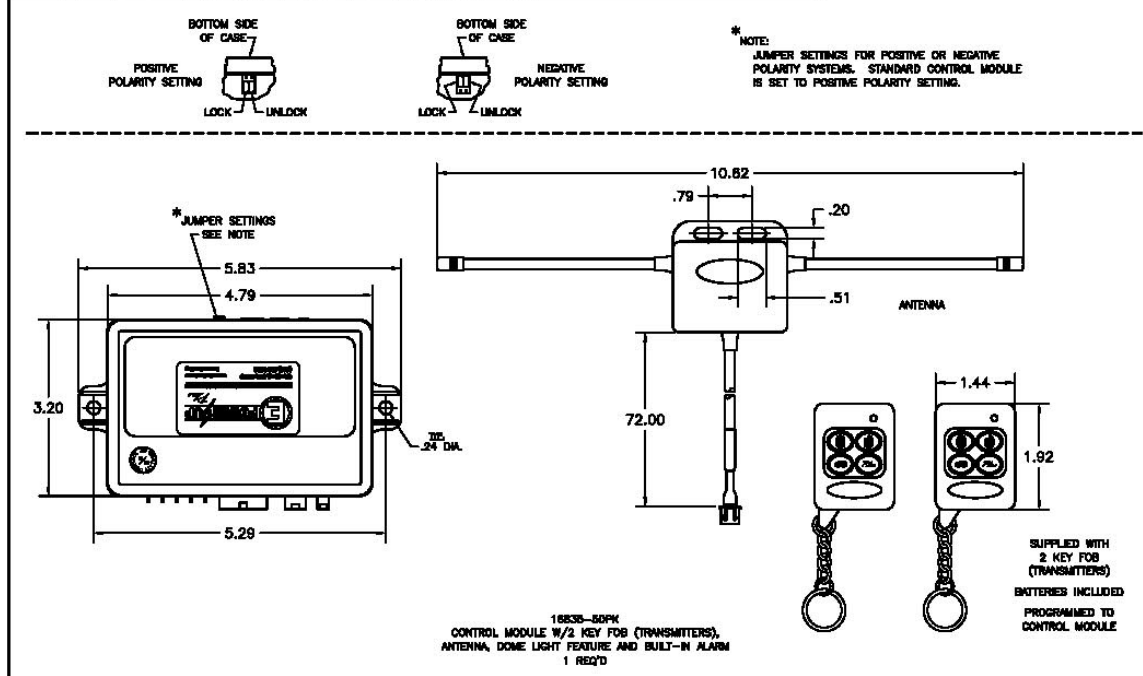
QTY	DESCRIPTION	UNIT	DATE	UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS:	1-17-07	ADD-ON ALARM SYSTEM COMPONENTS
				FRACTIONAL: .005	AS SHOWN	SHOWN SET POINTS SHOWN WITH MINIMUM, MAXIMUM, RANGE AND RANGE UNITS UNLESS ALARM CHANGES
				DECIMAL: .005	AS SHOWN	
				ANGLE: .005	AS SHOWN	
				3 PLACE DEC: .005	AS SHOWN	
				ALL HOLE: .005	AS SHOWN	

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DIVISION OF  
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CLEVELAND, OHIO 44148-0712

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ALM-16835-RTU

ALM-1886-U  
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NO.	QTY	DESCRIPTION	DATE	BY	REVISION

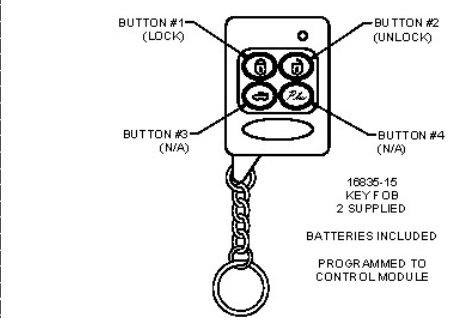
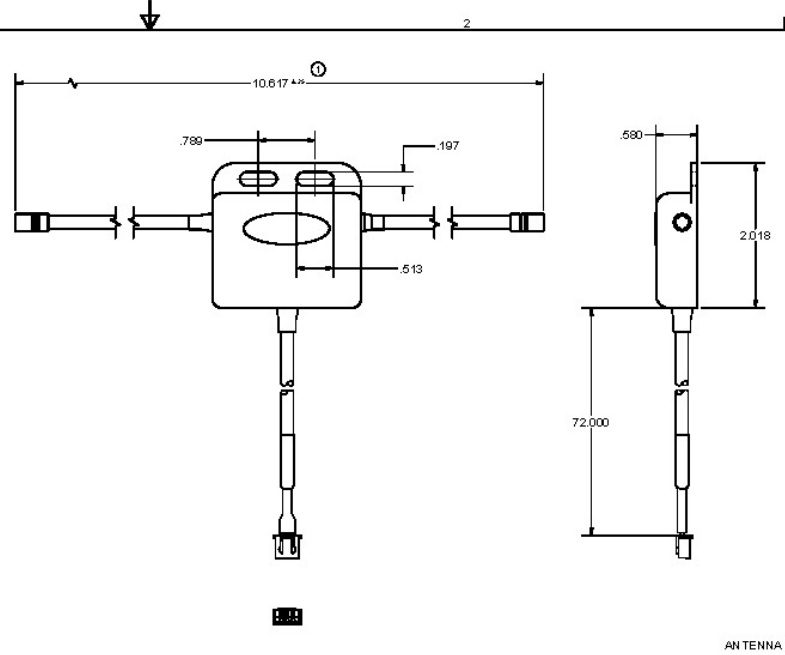
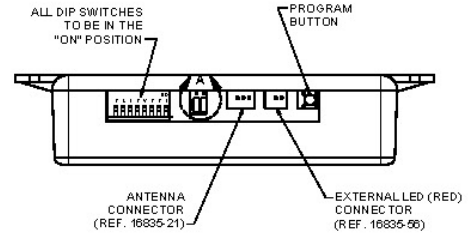
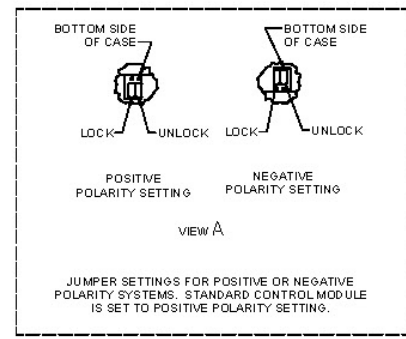
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1-17-07  
 2 PLACE DIM: A.S.  
 3 PLACE DIM: S.S.  
 ALL DIMS: S.S.

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 DIVISION OF  
 THE EASTERN COMPANY  
 CLEVELAND, OHIO 44148-0713

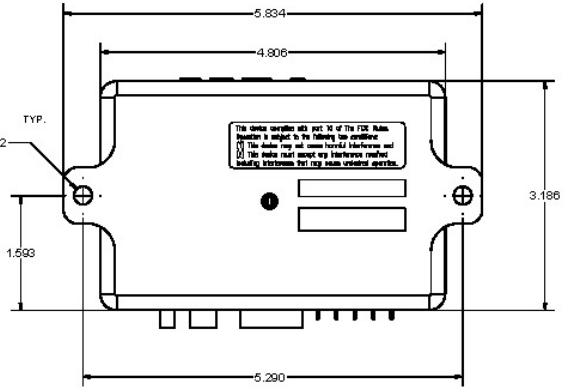
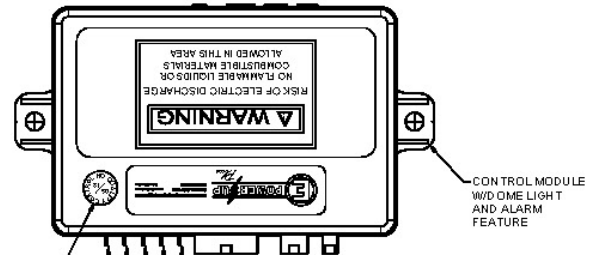
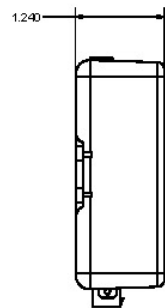
ALM-16835-U

TO BE IDENTICAL TO THE ORIGINAL DRAWING. ANY CHANGES TO THE ORIGINAL DRAWING SHALL BE MADE BY THE ORIGINAL DRAWING ENGINEER OR HIS DESIGNATED REPRESENTATIVE. ANY CHANGES TO THE ORIGINAL DRAWING SHALL BE MADE BY THE ORIGINAL DRAWING ENGINEER OR HIS DESIGNATED REPRESENTATIVE. ANY CHANGES TO THE ORIGINAL DRAWING SHALL BE MADE BY THE ORIGINAL DRAWING ENGINEER OR HIS DESIGNATED REPRESENTATIVE.



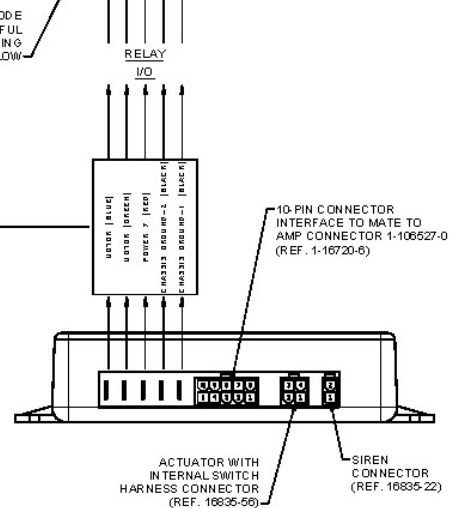
**PROGRAMMING THE KEY FOBBS:**  
 MAKE SURE THE SYSTEM IS UNLOCKED AND THEN DISCONNECT THE ACTUATOR WITH INTERNAL SWITCH WIRE HARNESS FROM THE CONTROL MODULE PRIOR TO PROGRAMMING.

TO PROGRAM THE CONTROL MODULE TO ADDITIONAL KEY FOB (TRANSMITTERS), PRESS THE PROGRAM BUTTON ON CONTROL MODULE (3) TIMES, LED WILL LIGHT UP, THEN PRESS BUTTON #1 ON ALL OF THE KEY FOBBS THAT WILL BE ASSOCIATED WITH THE VEHICLE, (UP TO 4 KEY FOBBS), WITHIN 10 SECONDS OF THE LED LIGHTING UP. THEN RECONNECT THE ACTUATOR WITH INTERNAL SWITCH WIRE HARNESS TO THE CONTROL MODULE. TEST EACH KEY FOB BY LOCKING AND UNLOCKING THE SYSTEM TO ENSURE PROPER OPERATION. NOTE: ALL KEY FOBBS MUST BE PROGRAMMED AT THE SAME TIME USING THIS PROCEDURE. PROGRAMMING ONE KEY FOB AT A TIME WILL ERASE THE PREVIOUS PROGRAMMED KEY FOB.



**REFERENCE - WIRE CONNECTIONS WITH 1-16720-6 CAB WIRE HARNESS:**

- MOTOR (BLUE): WIRE CONNECTION FOR ACTUATORS.
- MOTOR (GREEN): WIRE CONNECTION FOR ACTUATORS.
- POWER 7 (RED): WIRE CONNECTION FOR POWER FROM CAB.
- CHASSIS GROUND-2 (BLACK): WIRE CONNECTION FOR CHASSIS GROUND FOR ACTUATORS.
- CHASSIS GROUND-1 (BLACK): WIRE CONNECTION FOR CHASSIS GROUND FOR ACTUATORS.



- FEATURES:**
- CONTROL MODULE CAN HOLD UP TO (4) KEY FOBBS (TRANSMITTERS) WITH DIFFERENT SIGNALS.
  - CONTROL MODULE INCORPORATES A LOCK PULSE TIMER THAT PROVIDES A 4 SECOND PULSE FROM THE CONTROL MODULE TO THE ACTUATORS. IF THE BUTTONS ON THE KEY FOB (TRANSMITTER) ARE HELD DOWN FOR AN EXTENDED PERIOD, THE LOCK PULSE TIMER WILL PREVENT THE ACTUATORS FROM BEING DAMAGED.
  - CONTROL MODULE INCORPORATES A TIME-OUT FEATURE THAT ELIMINATES DAMAGE TO THE ACTUATORS BY SHUTTING DOWN THE SYSTEM FOR 30 SECONDS IF THE BUTTONS ON THE KEY FOB (TRANSMITTER) ARE ACTIVATED MORE THAN 8 TIMES IN A 30 SECOND PERIOD. AFTER THE 30 SECOND TIME-OUT PERIOD, THE SYSTEM WILL FUNCTION AS NORMAL.
  - CONTROL MODULE INCORPORATES A FEATURE TO ACTIVATED/EACTIVATE DOME LIGHTS. WHEN BUTTON #2 (UNLOCK) IS ACTIVATED, THE DOME LIGHTS WILL BE ACTIVATED FOR 10 MINUTES. WHEN BUTTON #1 (LOCK) IS ACTIVATED, THE DOME LIGHTS WILL BE TURNED OFF. OPTIONALLY, WHEN BUTTON #1 (LOCK) AND BUTTON #3 (N/A) ARE PRESSED AT THE SAME TIME, THE DOME LIGHTS WILL BE ACTIVATED FOR 10 MINUTES. BY PRESSING BUTTON #1 (LOCK) AND BUTTON #4 (N/A) AT THE SAME TIME, THE DOME LIGHTS WILL BE TURNED OFF.
  - KEY FOB (TRANSMITTER) HAS A RANGE OF 160 FEET MAXIMUM.
  - OPERATING FREQUENCY: 433.92 MHz.
  - ALL COMPONENTS TO BE SHIPPED LOOSE IN A SECURED POLY BAG.

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SUPERSEDES DRAWING 16835-50PK SHEET 1 OF 2 DATED 5-14-09.

REV	DESCRIPTION	EN	DATE
CO	CONVERTED TO 3D	SSJ	3-29-13
1	10.02.4.25.03.10.55	SSJ	3-19-14

**EBERHARD MANUFACTURING CO.**  
 THE EASTERN COMPANY  
 CLEAR AND OND 447 4887 12

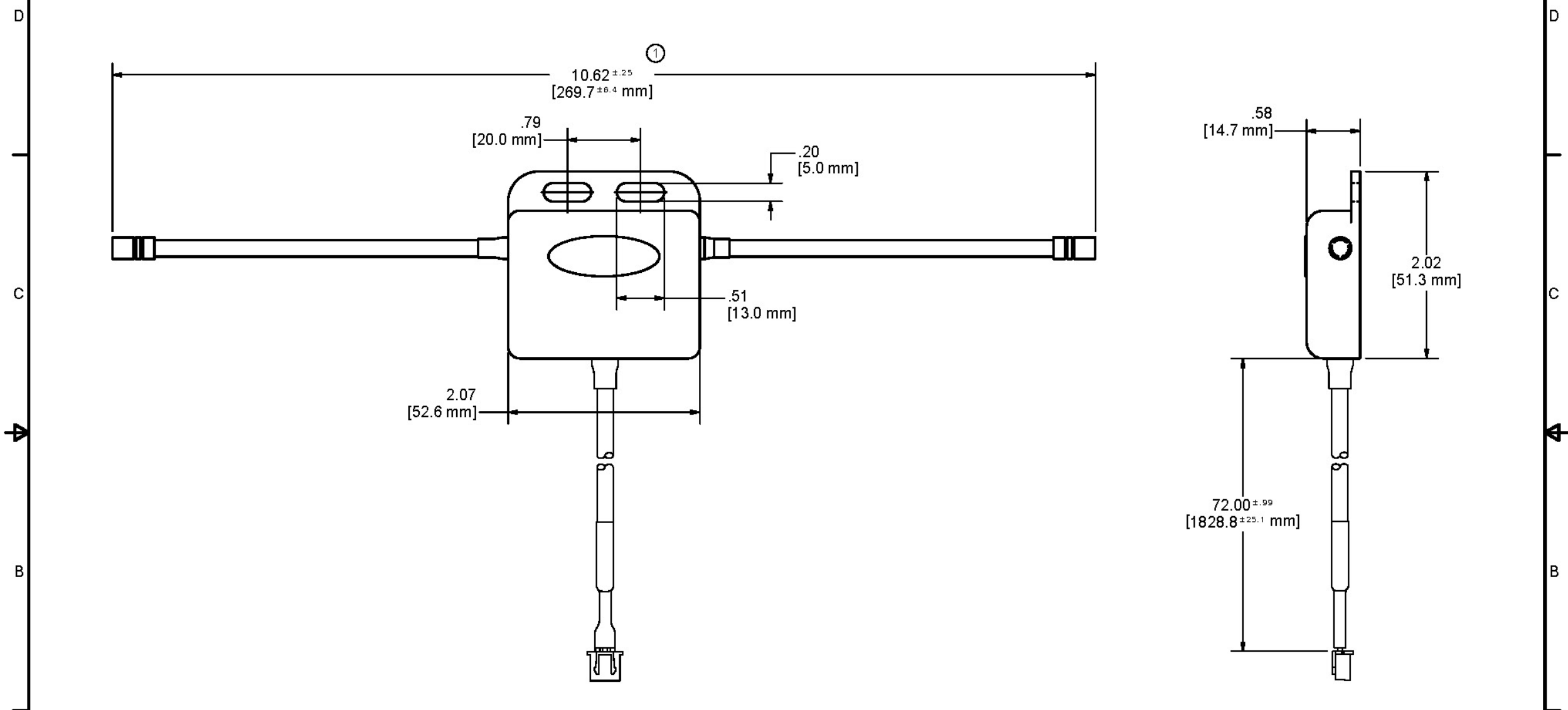
CONTROL MODULE W/2 KEY FOB BS (TRANSMITTERS), ANTENNA, DOME LIGHT FEATURE AND ULT-ALARM

16835-50PK



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REVISION HISTORY			
REV	DESCRIPTION	EN	DATE
1	REVISED, REDRAWN AND CONVERTED TO 3D	5697	3-29-13
1	10.62 +/- .25 was 10.58	5672	9-19-14



- NOTES:
1. 16835-21 ANTENNA TO INTERFACE WITH 16835-4 CONTROL MODULE.
  2. ANTENNA TO BE COIL WRAPPED IN A DIAMETER NO LARGER THAN 10 INCHES AND SHIPPED IN A SEALED POLY BAG.



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SUPERSEDES DRAWING 16835-21 SHEET 1 OF 2 DATED 12-9-05.

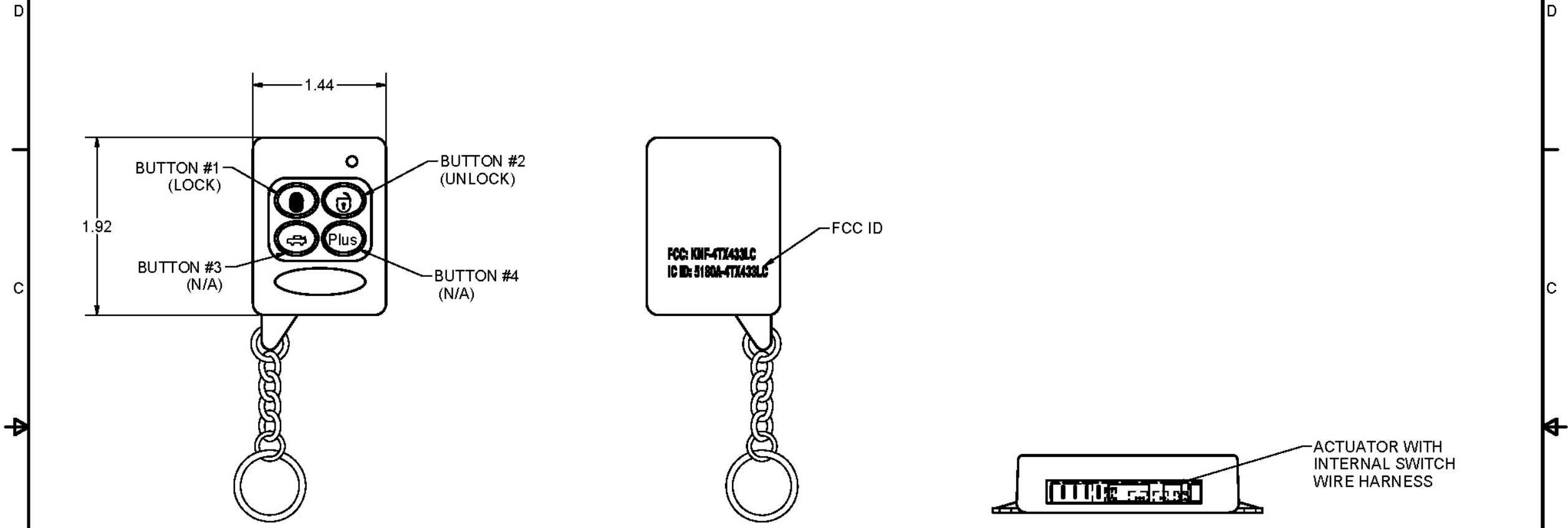
CUSTOMER PRINT SHEET 1 OF 2

<b>EBERHARD MANUFACTURING CO.</b> DIVISION OF THE EASTERN COMPANY CLEVELAND, OHIO 44149-9712	
NAME: ANTENNA	
MATERIAL: -----	PART NUMBER: 16835-21

THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.15-2009	
LINEAR MEASURE: INCH	DATE: 3/29/2013
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS:	DR. BY: FLP
ANGLES: ± 2° ± 2'	SCALE: FULL
2 PLACE DEC.: ± .03 ± .76	CHK. BY:
3 PLACE DEC.: ± .015 ± .38	
ALL HOLES: ± .005 ± .13	

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REVISION HISTORY					
REV	DESCRIPTION	EN	DATE	REV BY	APVD BY
1	CONVERTED TO 3D	5999	4-17-15	FLP	MR



**PROGRAMMING THE KEY FOBBS:**  
 MAKE SURE THE SYSTEM IS UNLOCKED AND THEN DISCONNECT THE ACTUATOR WITH INTERNAL SWITCH WIRE HARNESS FROM THE CONTROL MODULE PRIOR TO PROGRAMMING.

TO PROGRAM THE CONTROL MODULE TO ADDITIONAL KEY FOB (TRANSMITTERS), PRESS THE PROGRAM BUTTON ON CONTROL MODULE (3) TIMES, LED WILL LIGHT UP, THEN PRESS BUTTON #1 ON ALL OF THE KEY FOBBS THAT WILL BE ASSOCIATED WITH THE VEHICLE, (UP TO 4 KEY FOBBS), WITHIN 10 SECONDS OF THE LED LIGHTING UP. THEN RECONNECT THE ACTUATOR WITH INTERNAL SWITCH WIRE HARNESS TO THE CONTROL MODULE. TEST EACH KEY FOB BY LOCKING AND UNLOCKING THE SYSTEM TO ENSURE PROPER OPERATION.  
 NOTE: ALL KEY FOBBS MUST BE PROGRAMMED AT THE SAME TIME USING THIS PROCEDURE. PROGRAMMING ONE KEY FOB AT A TIME WILL ERASE THE PREVIOUS PROGRAMMED KEY FOB.

- NOTES:**
1. FOR USE WITH 16835-4 CONTROL MODULE ONLY.
  2. BATTERY INCLUDED WITH KEY FOB (TRANSMITTER).
  3. REPLACEMENT BATTERY: 23AP (12V ALKALINE) OR 23-279 (12V ALKALINE)

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CUSTOMER PRINT  
 SHEET 1 OF 2

**EBERHARD MANUFACTURING CO.**  
 DIVISION OF  
 THE EASTERN COMPANY  
 CLEVELAND, OHIO 44149-9712

**KEY FOB (TRANSMITTER) FOR POWER LOCKING/ALARM SYSTEM**

THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.15-2009		DATE	4/17/2015
LINEAR MEASURE: INCH		DR BY	FLP
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS:		SCALE	FULL
ANGLES:	±2° ±2'	CHK BY	
2 PLACE DEC.:	±.03 ±.76		
3 PLACE DEC.:	±.015 ±.38		
ALL HOLES:	±.005 ±.13		

MATERIAL	PART NUMBER
---	16835-15

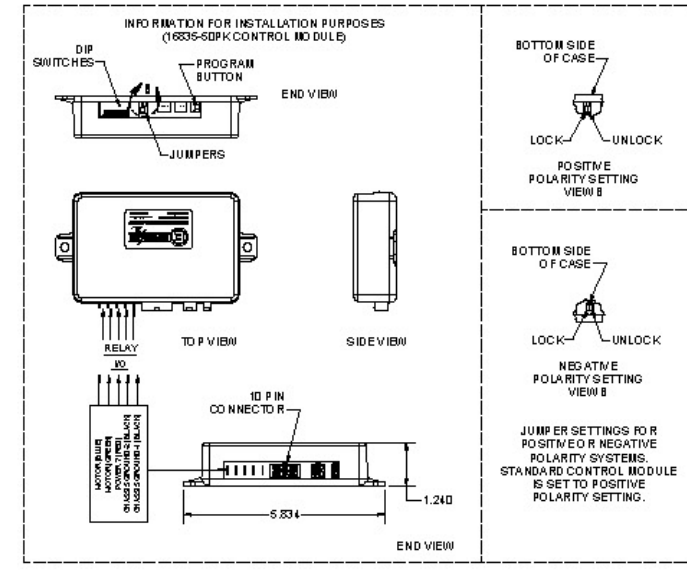
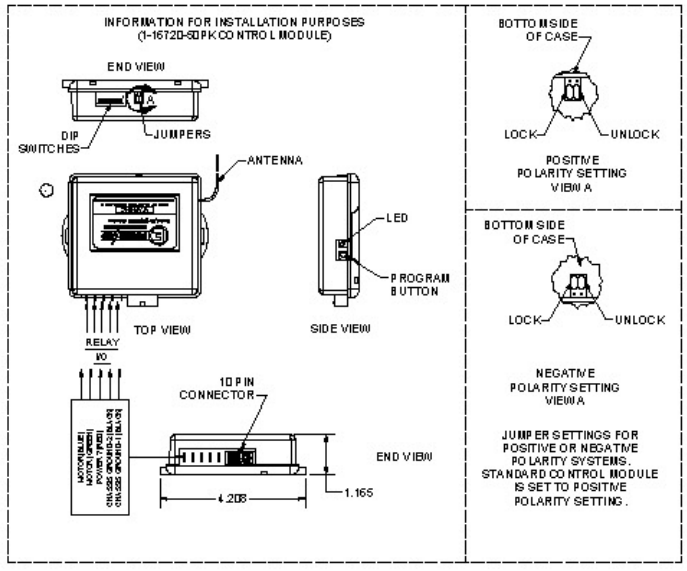
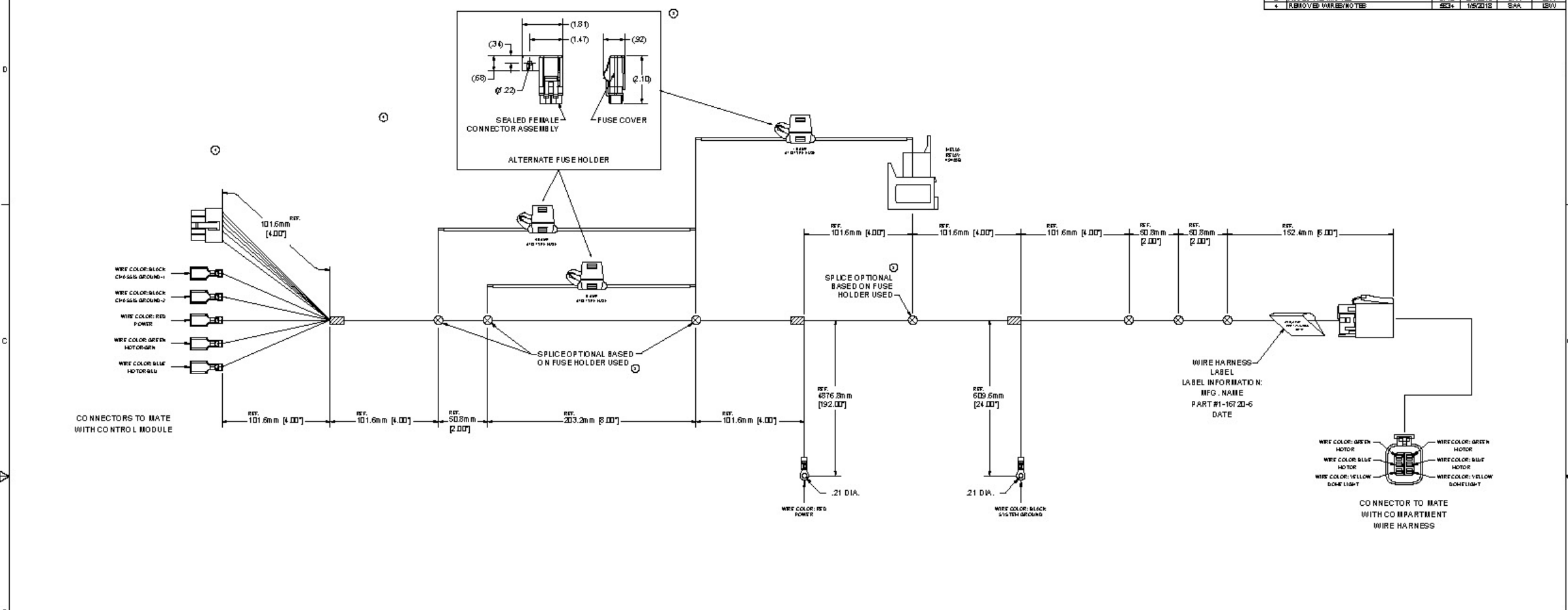
SUPERSEDES DRAWING 16835-15 SHEET 1 OF 2 DATED 1-10-07.





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REVISION HISTORY					
REV.	DESCRIPTION	BY	DATE	REV. BY	APPROV. BY
1	CONVERTED TO 3D	SEB	3/25/13		
2	UPDATED VIEW	SEB	10/3/14		
3	REVISED TITLE	SEB	10/9/15		
4	ADDED WIRING TABLE	SEB	3/4/2016	SAK	LSM
5	REMOVED WIRING TABLE	SEB	1/26/2018	SAK	LSM



NOTES:  
 1. DIMENSIONS ARE MEASURED FROM BACK OF CONNECTOR TO CENTER OF BREAKOUTS OR SPLICES.  
 2. HARNESS IS COIL-WRAPPED IN DIAMETER NO LARGER THAN 10 INCHES AND SHIP PEGGED IN A SEALED POLY BAG.  
 3. HARNESS IS 100% CONTINUITY CHECKED.

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**METRIC**

DIMENSIONS ARE IN MILLIMETERS	
DIMENSION	TOLERANCE
ALL DIMENSIONS	±.25 (0.010)
	(±.99)

DIMENSIONS SHOWN IN [ ] ARE IN INCHES

CUSTOMER PRINT SHEET 1 OF 2

**DEWIND MANUFACTURING CO.**  
 DIVISION OF  
 THE CLAYTON COMPANY  
 CLEVELAND, OH 44115-1212

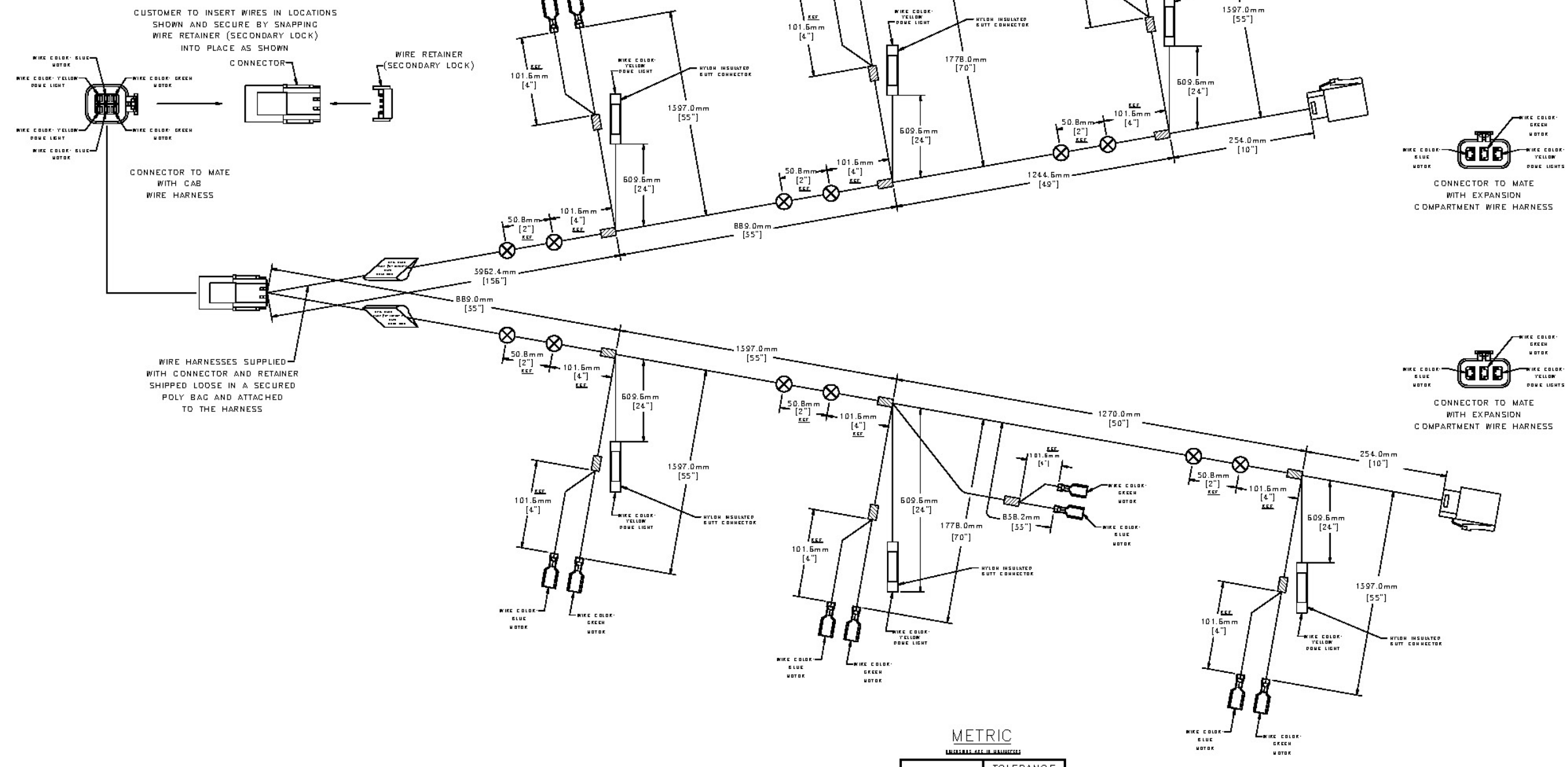
CAB WIRE HARNESS WITH DOME LIGHT FEATURE

1-16720-6

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REV	DESCRIPTION	EN	DATE
1	CONVERTED TO A	WJ	7/2/11

NOTE - CONNECTION TO 16720-1 POWER ACTUATOR:  
 RETRACT ACTUATOR TO LOCK:  
 GREEN HARNESS WIRE CONNECTS TO BLUE POWER ACTUATOR WIRE  
 BLUE HARNESS WIRE CONNECTS TO RED POWER ACTUATOR WIRE  
 EXTEND ACTUATOR TO LOCK:  
 GREEN HARNESS WIRE CONNECTS TO RED POWER ACTUATOR WIRE  
 BLUE HARNESS WIRE CONNECTS TO BLUE POWER ACTUATOR WIRE



- NOTES:
1. DIMENSIONS ARE MEASURED FROM BACK OF CONNECTORS, TO CENTER OF BREAKOUTS OR SPLICES, AND TO THE END OF TERMINALS.
  2. HARNESSES ARE INDIVIDUALLY COIL-WRAPPED IN DIAMETER NO LARGER THAN 10 INCHES AND SHIPPED IN A SEALED POLY BAG.
  3. HARNESSES ARE 100% CONTINUITY CHECKED.

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METRIC  
 DIMENSIONS ARE IN MILLIMETERS

DIMENSION	TOLERANCE
ALL DIMENSIONS	±25.0 mm [±.99"]

DIMENSIONS SHOWN IN [ ] ARE IN INCHES

CUSTOMER PRINT SHEET 1 OF 2

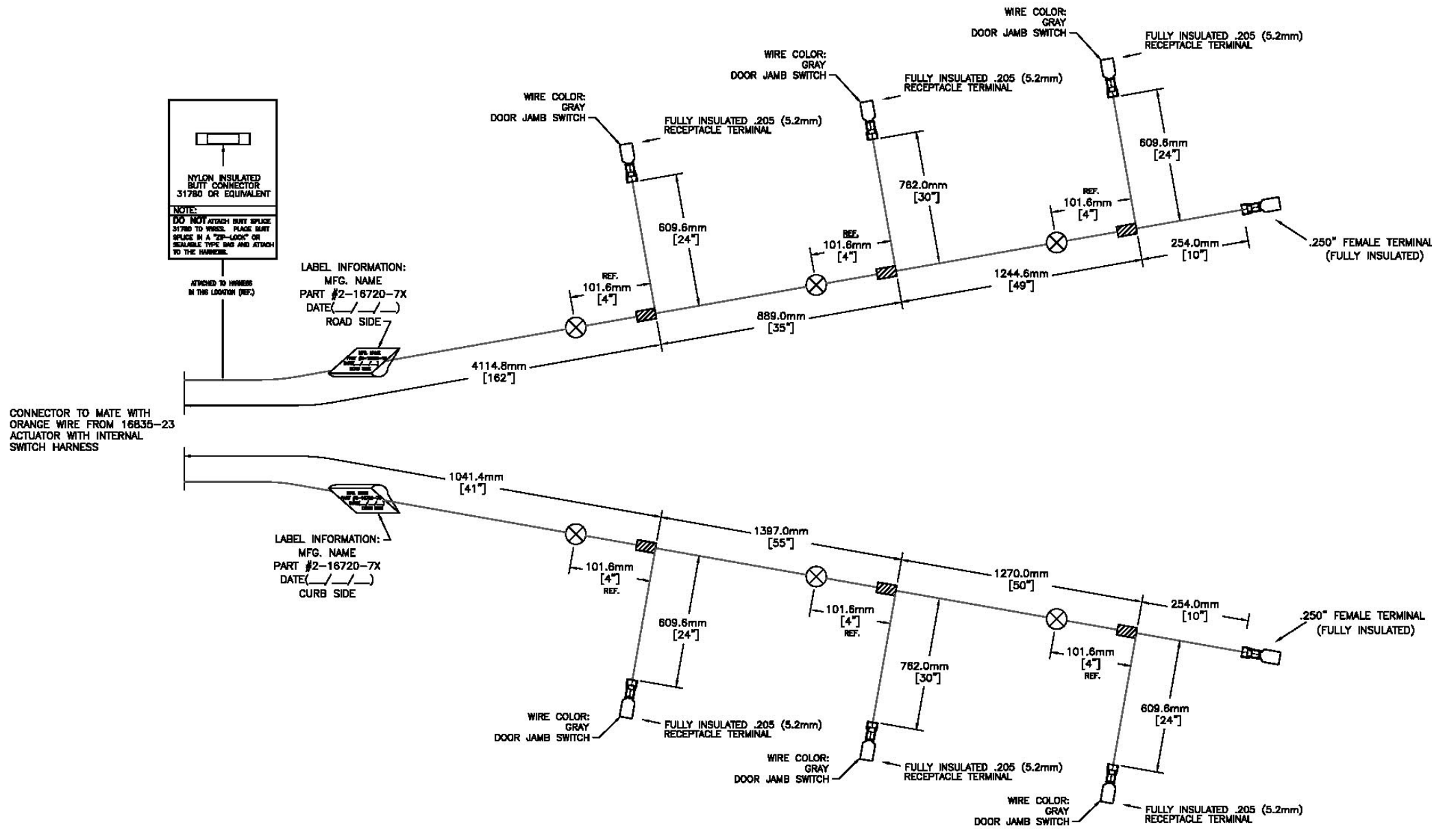
**EBERHARD MANUFACTURING CO.**  
 DIVISION OF THE EASTERN COMPANY  
 CLEVELAND, OHIO 44149-0715

DATE: 11/11/11	REV: 1	REVISED BY: WJ	REVISED DATE: 7/2/11
DESIGNED BY: WJ	DRAWN BY: WJ	CHECKED BY: WJ	APPROVED BY: WJ
2 PAGE REC: 481 414	3 PAGE REC: 481 414	4 PAGE REC: 481 414	5 PAGE REC: 481 414
6 PAGE REC: 481 414	7 PAGE REC: 481 414	8 PAGE REC: 481 414	9 PAGE REC: 481 414

COMPARTMENT WIRE HARNESS WITH DOME LIGHT FEATURE

2-16720-7

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NYLON INSULATED BUTT CONNECTOR 31780 OR EQUIVALENT  
NOTE:  
DO NOT ATTACH BUTT SPLICE 31780 TO WIRE. PLACE BUTT SPLICE IN A "TIE-LOCK" OR SEALABLE TYPE BAG AND ATTACH TO THE HARNESS.

LABEL INFORMATION:  
MFG. NAME  
PART #2-16720-7X  
DATE ( / / )  
ROAD SIDE

LABEL INFORMATION:  
MFG. NAME  
PART #2-16720-7X  
DATE ( / / )  
CURB SIDE

- NOTES:
- 1) DIMENSIONS ARE MEASURED FROM BACK OF CONNECTORS, TO CENTER OF BREAKOUTS OR SPLICES, AND TO THE END OF TERMINALS.
  - 2) HARNESSES ARE INDIVIDUALLY COIL-WRAPPED IN DIAMETER NO LARGER THAN 10 INCHES AND SHIPPED IN A SEALED POLY BAG.
  - 3) HARNESSES ARE 100% CONTINUITY CHECKED.
  - 4) TERMINALS TO FIT THROUGH A .50" DIAMETER PANEL HOLE.

METRIC  
DIMENSIONS ARE IN MILLIMETERS

DIMENSION	TOLERANCE
ALL DIMENSIONS	±25.0 mm [±.99"]

DIMENSIONS SHOWN IN [ ] ARE IN INCHES

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CUSTOMER PRINT  
SHEET 1 OF 2

REINHOLD MANUFACTURING CO.  
DIVISION OF  
THE EASTERN COMPANY  
CLEVELAND, OHIO 44148-0712

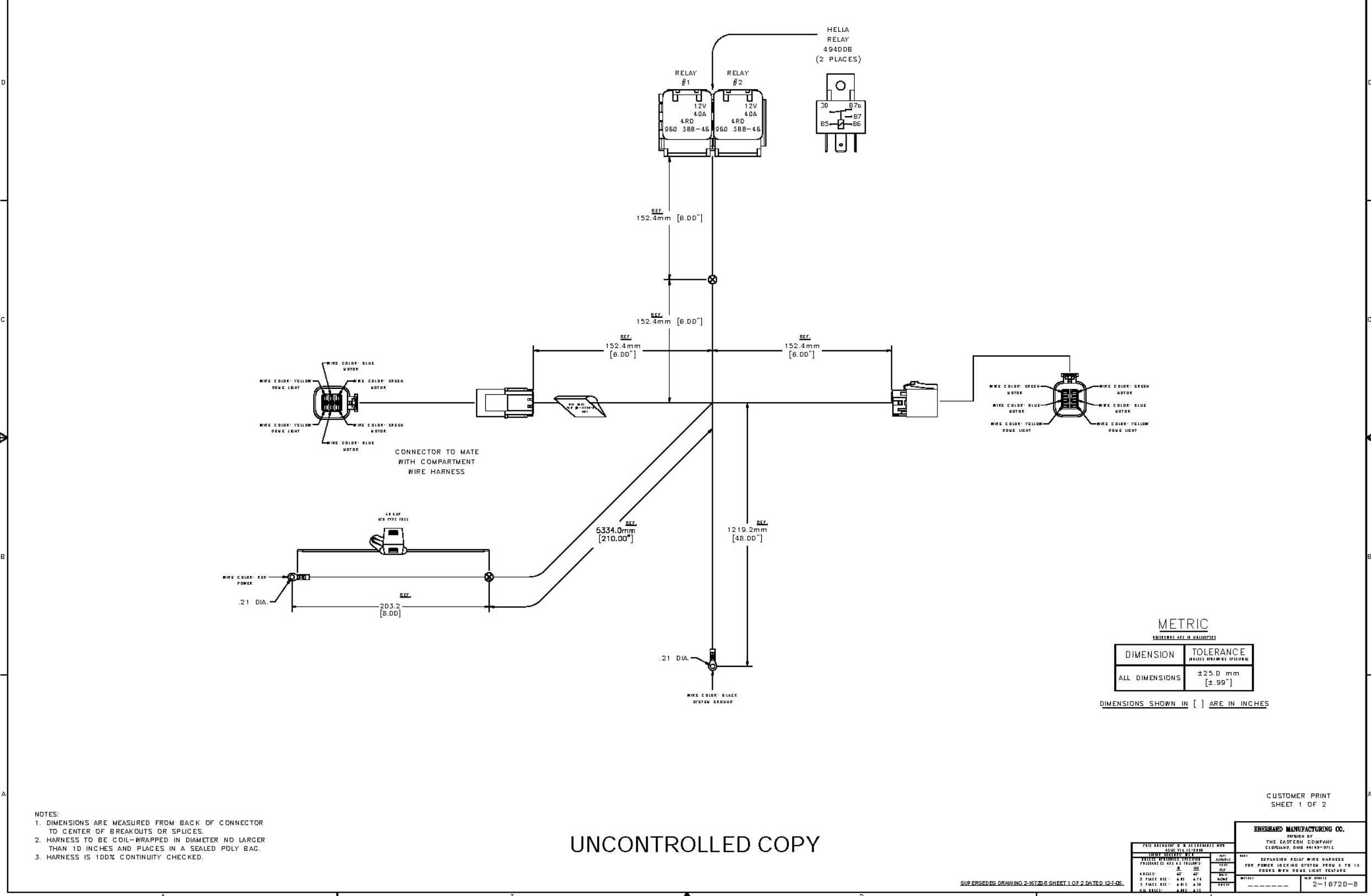
WIRE HARNESS FOR  
DOOR JAMB SWITCHES

2-16720-7X

REV	DATE	BY	CHKD	DESCRIPTION

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REV.	DESCRIPTION	BY	DATE
1	ISSUED FOR B	SP	12-15-06



- NOTES:
1. DIMENSIONS ARE MEASURED FROM BACK OF CONNECTOR TO CENTER OF BREAKOUTS OR SPLICES.
  2. HARNESS TO BE COIL-WRAPPED IN DIAMETER NO LARGER THAN 10 INCHES AND PLACES IN A SEALED POLY BAG.
  3. HARNESS IS 100% CONTINUITY CHECKED.

UNCONTROLLED COPY

METRIC  
DIMENSIONS ARE IN MILLIMETERS

DIMENSION	TOLERANCE
ALL DIMENSIONS	±25.0 mm [±.99"]

DIMENSIONS SHOWN IN [ ] ARE IN INCHES

CUSTOMER PRINT  
SHEET 1 OF 2

THE EASTERN COMPANY DIVISION OF THE EASTERN COMPANY CLEVELAND, OHIO 44115-9712		SEPARATION RELAY WIRE HARNESS FOR POWER LOCKING SYSTEM FROM 3 TO 10 PODS WITH POWER LIGHT FEATURES	
REV. 1	DATE 12-15-06	BY SP	CHK SP
2	12-15-06	BY SP	CHK SP
3	12-15-06	BY SP	CHK SP
4	12-15-06	BY SP	CHK SP

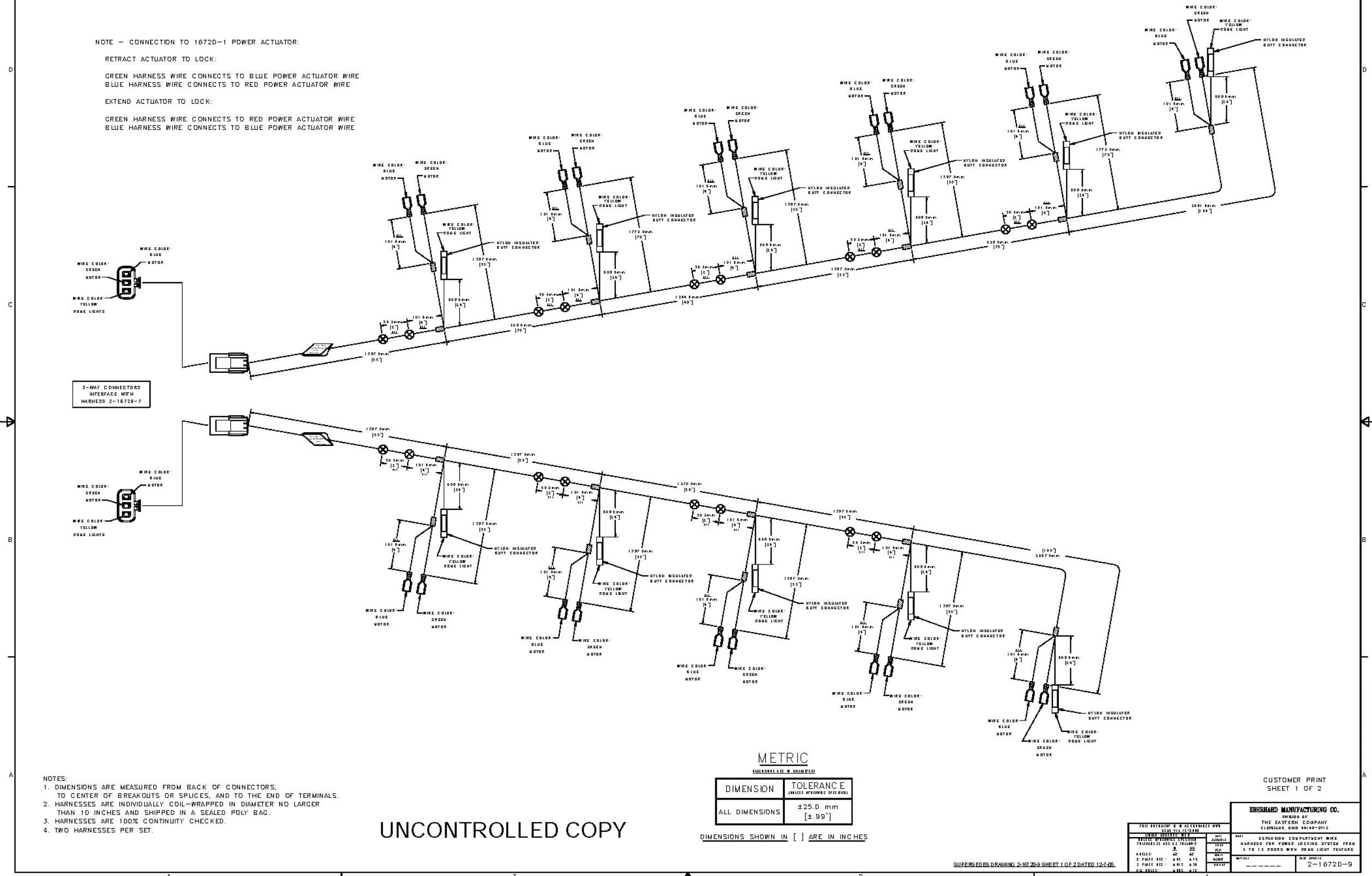
SUP ERG0002 DRAWING 2-16720-S SHEET 1 OF 2 DATED 12-15-06

C:\working\p001\p001\16720\16720-00-16720S-01.DWG

FOR WIRE COLOR: GREEN, YELLOW, BLUE, RED, WHITE, BLACK, BROWN, GREY, PURPLE, PINK, ORANGE, SILVER, COPPER, ALUMINUM, STEEL, BRASS, INCHES, METRIC, DIMENSIONS, TOLERANCES, AND MATERIALS. THIS DRAWING IS THE PROPERTY OF THE EASTERN COMPANY AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THE EASTERN COMPANY ASSUMES NO LIABILITY FOR ANY DAMAGE TO PERSONS OR PROPERTY ARISING FROM THE USE OF THIS DRAWING.

REV	DESCRIPTION	EN	DATE
1	COMPLETE TO B	---	---

NOTE - CONNECTION TO 1672D-1 POWER ACTUATOR:  
 RETRACT ACTUATOR TO LOCK:  
 GREEN HARNESS WIRE CONNECTS TO BLUE POWER ACTUATOR WIRE  
 BLUE HARNESS WIRE CONNECTS TO RED POWER ACTUATOR WIRE  
 EXTEND ACTUATOR TO LOCK:  
 GREEN HARNESS WIRE CONNECTS TO RED POWER ACTUATOR WIRE  
 BLUE HARNESS WIRE CONNECTS TO BLUE POWER ACTUATOR WIRE



- NOTES:
1. DIMENSIONS ARE MEASURED FROM BACK OF CONNECTORS, TO CENTER OF BREAKOUTS OR SPLICES, AND TO THE END OF TERMINALS.
  2. HARNESSES ARE INDIVIDUALLY COIL-WRAPPED IN DIAMETER NO LARGER THAN 10 INCHES AND SHIPPED IN A SEALED POLY BAG.
  3. HARNESSES ARE 100% CONTINUITY CHECKED.
  4. TWO HARNESSES PER SET.

UNCONTROLLED COPY

METRIC  
 DIMENSIONS ARE IN MILLIMETERS

DIMENSION	TOLERANCE
ALL DIMENSIONS	±25.0 mm [±.99"]

DIMENSIONS SHOWN IN [ ] ARE IN INCHES

CUSTOMER PRINT  
 SHEET 1 OF 2

THE EASTERN COMPANY CLEVELAND, OHIO 44115-9912		EBSERHARD MANUFACTURING CO. DIVISION OF THE EASTERN COMPANY CLEVELAND, OHIO 44115-9912	
DATE: 12/15/10	BY: JMM	DATE: 12/15/10	BY: JMM
2. PAGES REC. - 4.01	4.16	2. PAGES REC. - 4.01	4.16
4.01	4.16	4.01	4.16
4.16	4.16	4.16	4.16

SUPERSEDES DRAWING 2-1672D-9 SHEET 1 OF 2 DATED 12-7-10

C:\WORK\2010\1672D\1672D-9\1672D-9-1.DWG

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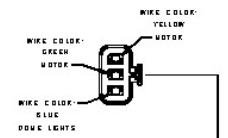
REV	DESCRIPTION	EN	DATE
1	COMPLETE TO 2	SP	03/11

NOTE - CONNECTION TO 16720-1 POWER ACTUATOR:

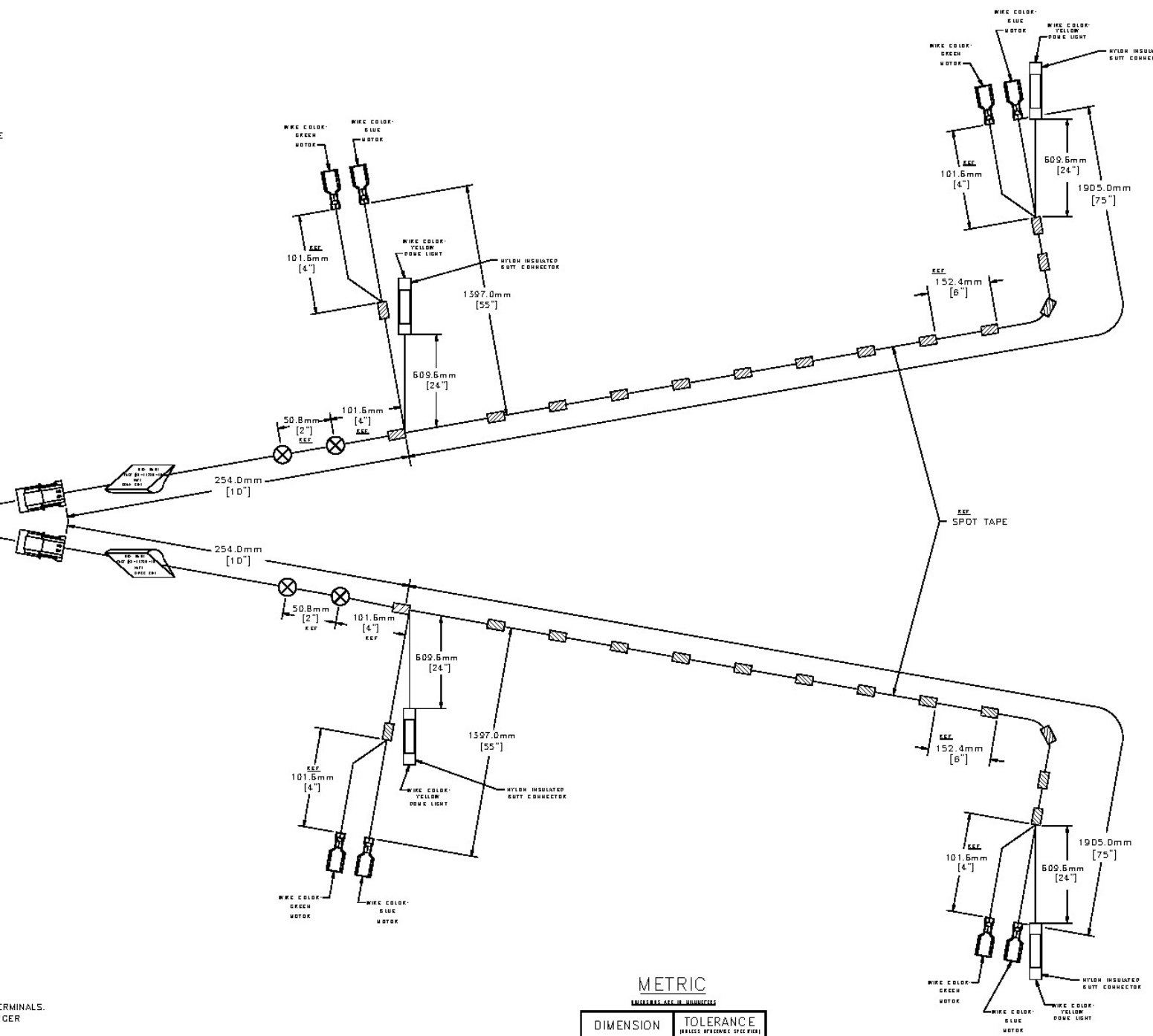
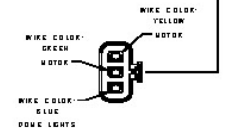
RETRACT ACTUATOR TO LOCK:  
 GREEN HARNESS WIRE CONNECTS TO BLUE POWER ACTUATOR WIRE  
 BLUE HARNESS WIRE CONNECTS TO RED POWER ACTUATOR WIRE

EXTEND ACTUATOR TO LOCK:  
 GREEN HARNESS WIRE CONNECTS TO RED POWER ACTUATOR WIRE  
 BLUE HARNESS WIRE CONNECTS TO BLUE POWER ACTUATOR WIRE

CONNECTOR TO MATE COMPARTMENT WIRE HARNESS



3-WAY CONNECTORS INTERFACE WITH HARNESS 2-16720-7



- NOTES:
1. DIMENSIONS ARE MEASURED FROM BACK OF CONNECTORS, TO CENTER OF BREAKOUTS OR SPLICES, AND TO THE END OF TERMINALS.
  2. HARNESSES ARE INDIVIDUALLY COIL-WRAPPED IN DIAMETER NO LARGER THAN 10 INCHES AND SHIPPED IN A SEALED POLY BAG.
  3. HARNESSES ARE 100% CONTINUITY CHECKED.
  4. TWO HARNESSES PER SET.

METRIC

DIMENSION	TOLERANCE
ALL DIMENSIONS	±25.0 mm [±.99"]

DIMENSIONS SHOWN IN [ ] ARE IN INCHES

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CUSTOMER PRINT SHEET 1 OF 2

EBERHARD MANUFACTURING CO.  
 DIVISION OF THE EASTERN COMPANY  
 CLACKAMAS, OREGON 97141-1011

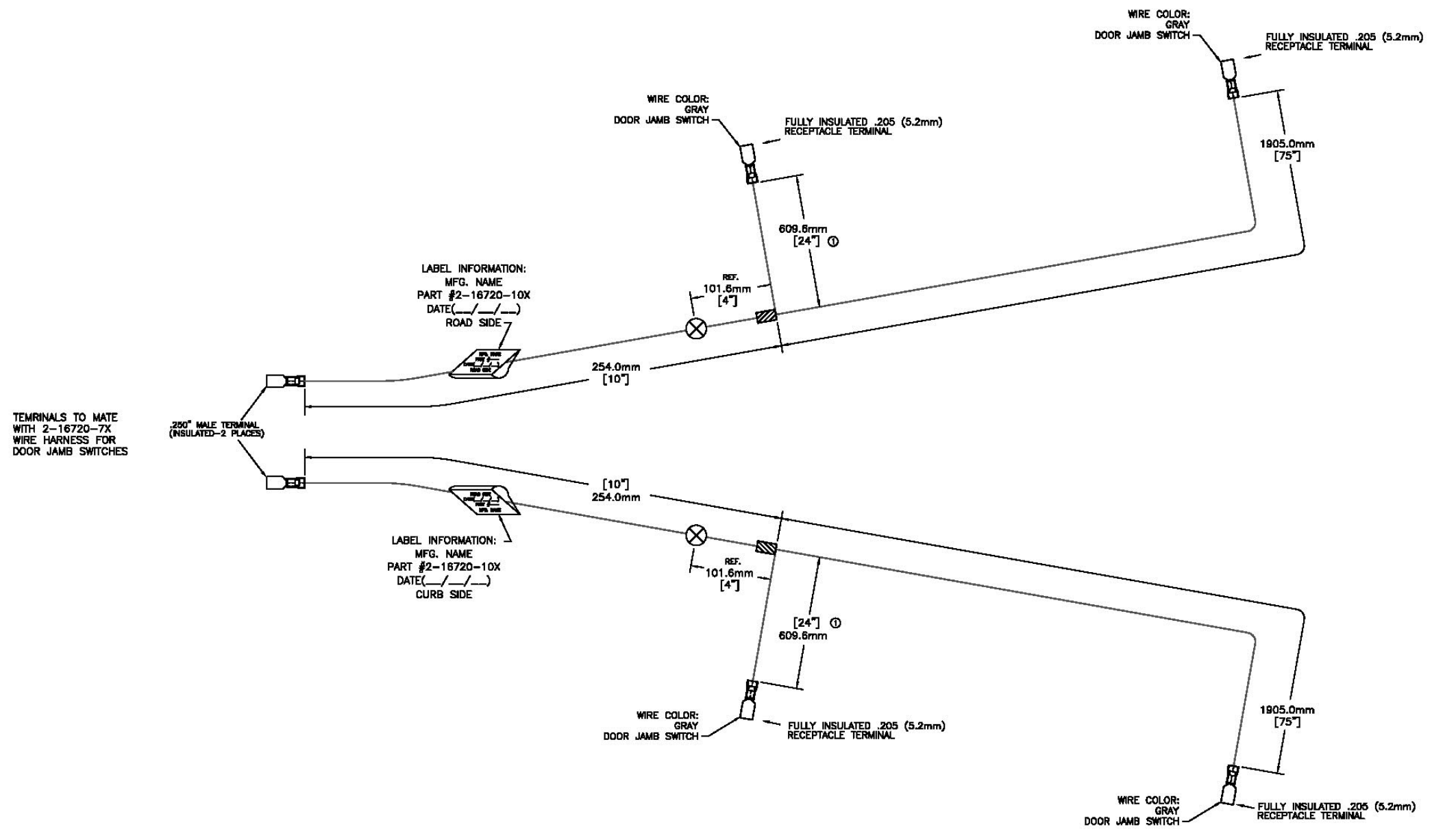
THIS DRAWING IS A REVISION OF DRAWING 2-16720-10 SHEET 1 OF 2 DATED 9-22-05.	DATE: 11-15-2011	BY: JMM/BJ	CHK: JMM/BJ
RELEASED TO: ASSEMBLY	DATE: 11-15-2011	BY: JMM/BJ	CHK: JMM/BJ
3 PAGES: 40, 41, 42	DATE: 11-15-2011	BY: JMM/BJ	CHK: JMM/BJ
1 PAGE: 43, 44, 45	DATE: 11-15-2011	BY: JMM/BJ	CHK: JMM/BJ
43, 44, 45	DATE: 11-15-2011	BY: JMM/BJ	CHK: JMM/BJ

EXPANSION COMPARTMENT WIRE HARNESS, TWO ACTUATOR CONNECTIONS PER SIDE WITH DOOR LIGHT FEATURE

REV: 00011

2-16720-10

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- NOTES:
- 1) DIMENSIONS ARE MEASURED FROM BACK OF CONNECTORS, TO CENTER OF BREAKOUTS OR SPLICES, AND TO THE END OF TERMINALS.
  - 2) HARNESSES ARE INDIVIDUALLY COIL-WRAPPED IN DIAMETER NO LARGER THAN 10 INCHES AND SHIPPED IN A SEALED POLY BAG.
  - 3) HARNESSES ARE 100% CONTINUITY CHECKED.
  - 4) TERMINALS TO FIT THROUGH A .50" DIAMETER PANEL HOLE.

**METRIC**  
DIMENSIONS ARE IN MILLIMETERS

DIMENSION	TOLERANCE (UNLESS OTHERWISE SPECIFIED)
ALL DIMENSIONS	±25.0 mm [±.99"]

DIMENSIONS SHOWN IN [ ] ARE IN INCHES

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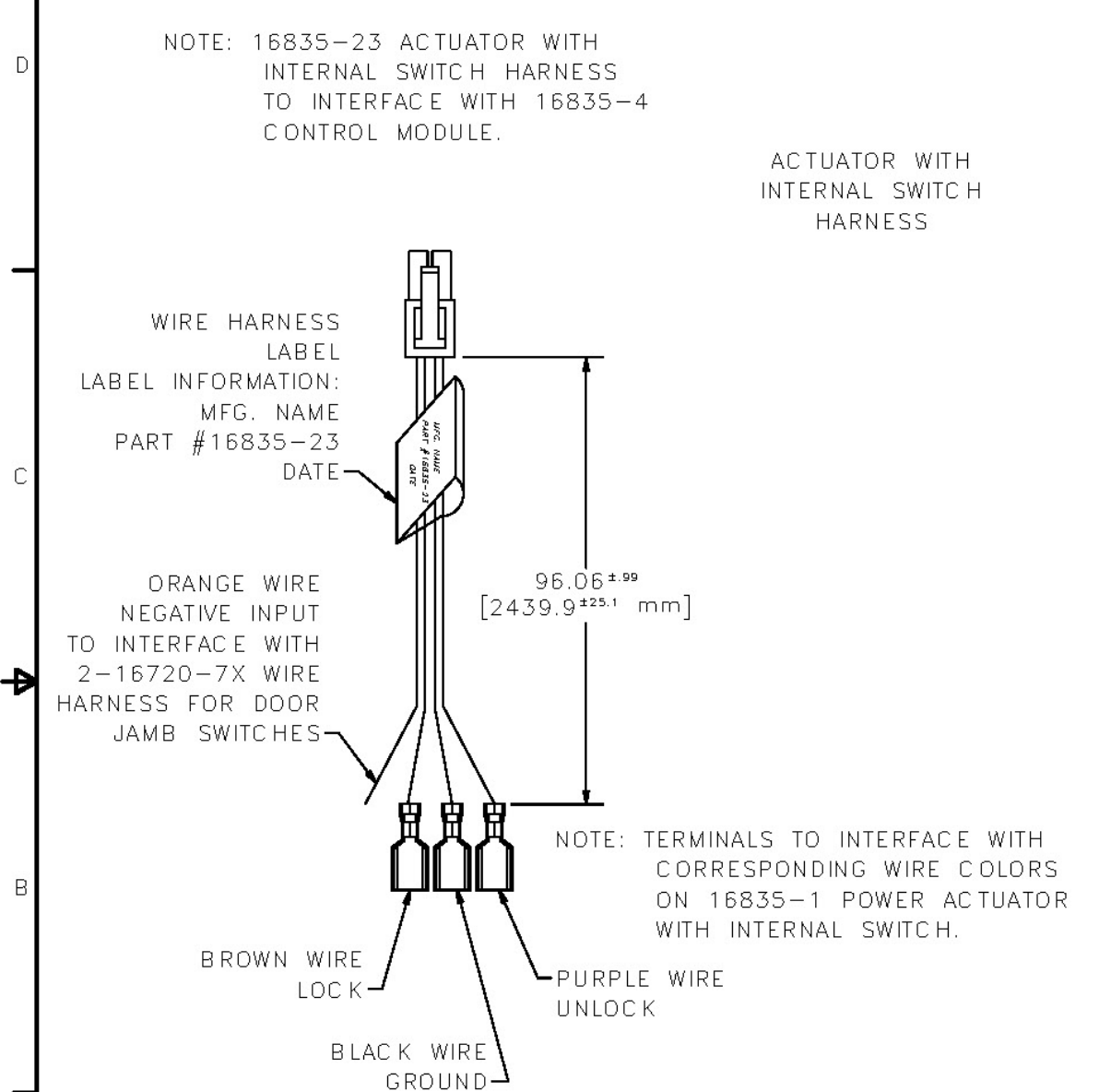
CUSTOMER PRINT SHEET 1 OF 2	
ROCKWELL MANUFACTURING CO. DIVISION OF THE EASTERN COMPANY CLEVELAND, OHIO 44116-0712	
<b>WIRE HARNESS FOR DOOR JAMB SWITCHES</b>	
2-16720-10X	

REV	DATE	DESCRIPTION	BY	CHKD
1	08-01-09	ISSUED FOR PRODUCTION		

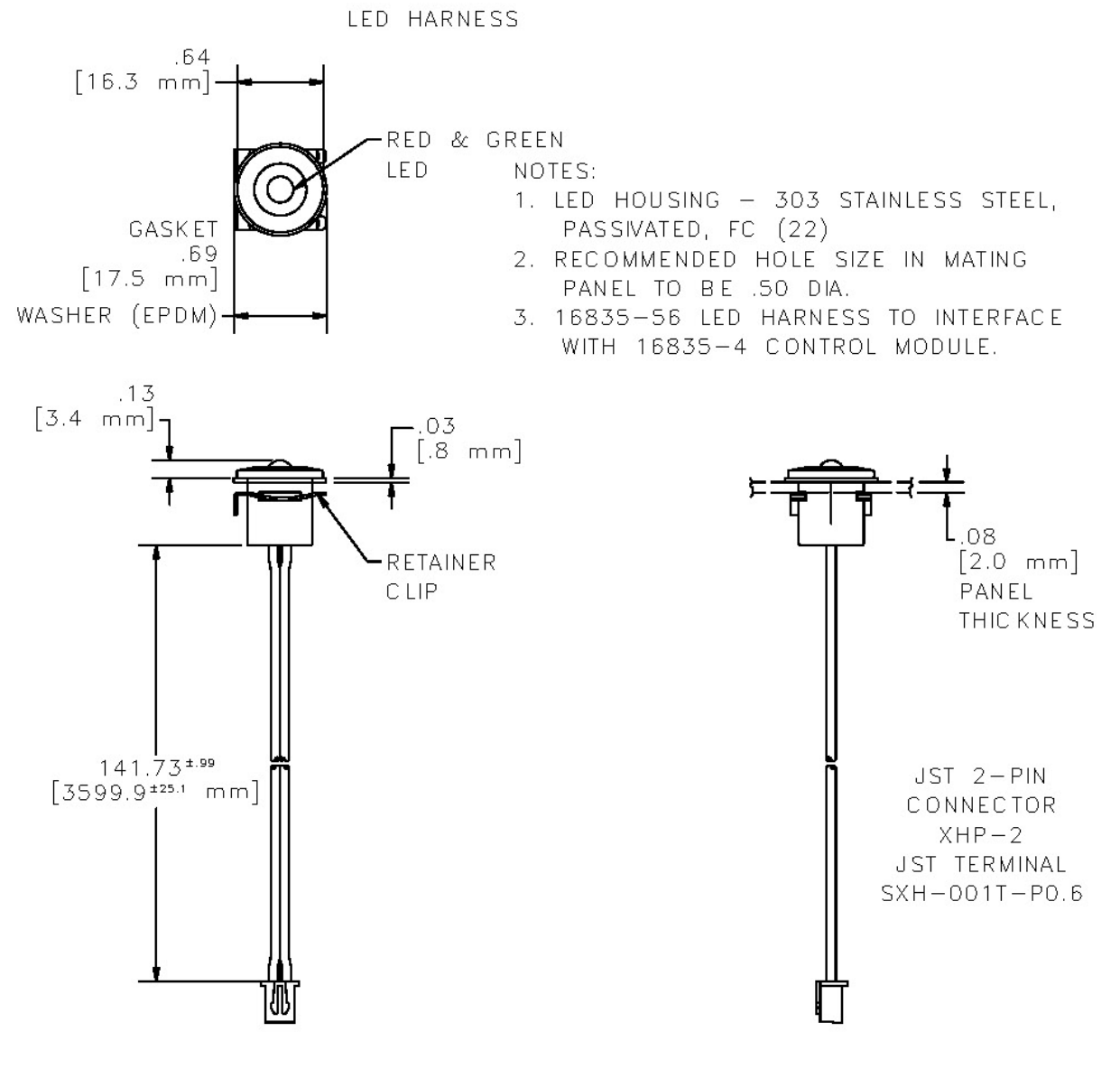


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REVISION HISTORY			
REV	DESCRIPTION	EN	DATE
1	REVISED, REDRAN AND CONVERTED TO 3D	5597	3-29-13



- NOTES:
1. HARNESSES TO BE COIL-WRAPPED SEPARATELY IN DIAMETERS NO LARGER THAN 10 INCHES.
  2. RETAINER CLIP AND GASKET TO BE PLACED IN SEALED POLY BAG.
  3. BOTH COIL-WRAPPED HARNESSES AND RETAINER CLIP/GASKET PACKAGE TO BE PLACED TOGETHER IN A SEALED POLY BAG.
  4. HARNESSES ARE 100% CONTINUITY CHECKED.



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SUPERSEDES DRAWING 16835-56 SHEET 1 OF 2 DATED 12-9-05

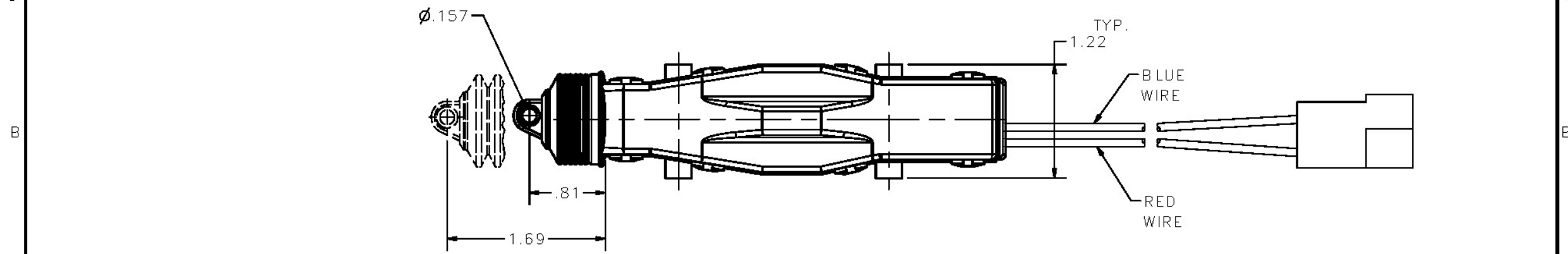
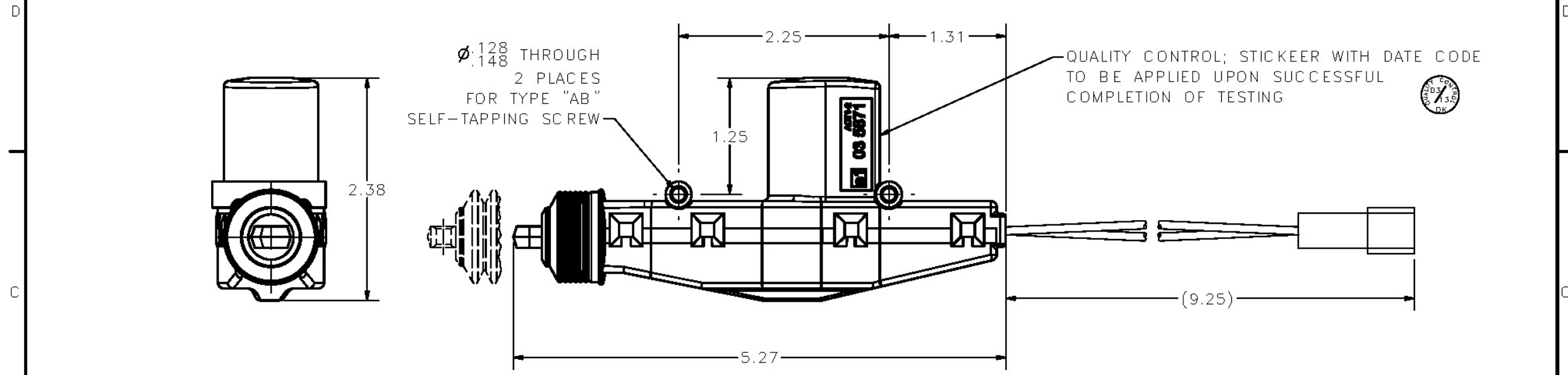
CUSTOMER PRINT SHEET 1 OF 2

THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.15-2009	
LINEAR MEASURE: INCH	DATE: 3/29/2013
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS:	DR. BY: FLP
ALL HOLES: ±.005 ±.13	SCALE: NONE
2 PLACE DEC.: ±.03 ±.76	C.HK. BY:
3 PLACE DEC.: ±.015 ±.38	

<b>EBERHARD MANUFACTURING CO.</b> DIVISION OF THE EASTERN COMPANY CLEVELAND, OHIO 44149-9712	
NAME: HARNESS KIT	
ACTUATOR WITH INTERNAL SWITCH HARNESS AND LED HARNESS	
MATERIAL: -----	PART NUMBER: 16835-56

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REVISION HISTORY			
REV	DESCRIPTION	EN	DATE
1	REVISED, REDRAWN AND CONVERTED TO 3D	EE697	3-28-13



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CUSTOMER PRINT  
SHEET 1 OF 2

TECHNICAL DATA:  
 WORKING VOLTAGE: 8.8 VDC TO 13.7 VDC  
 CURRENT ABSORPTION: 4.5 A (MAX.)  
 TEMPERATURE RANGE: -18.4° F TO +188.6° F  
 POWER: 7.868 lbf.

SUPERSEDES DRAWING 16720-1 SHEET 1 OF 2 DATED 3-14-03.

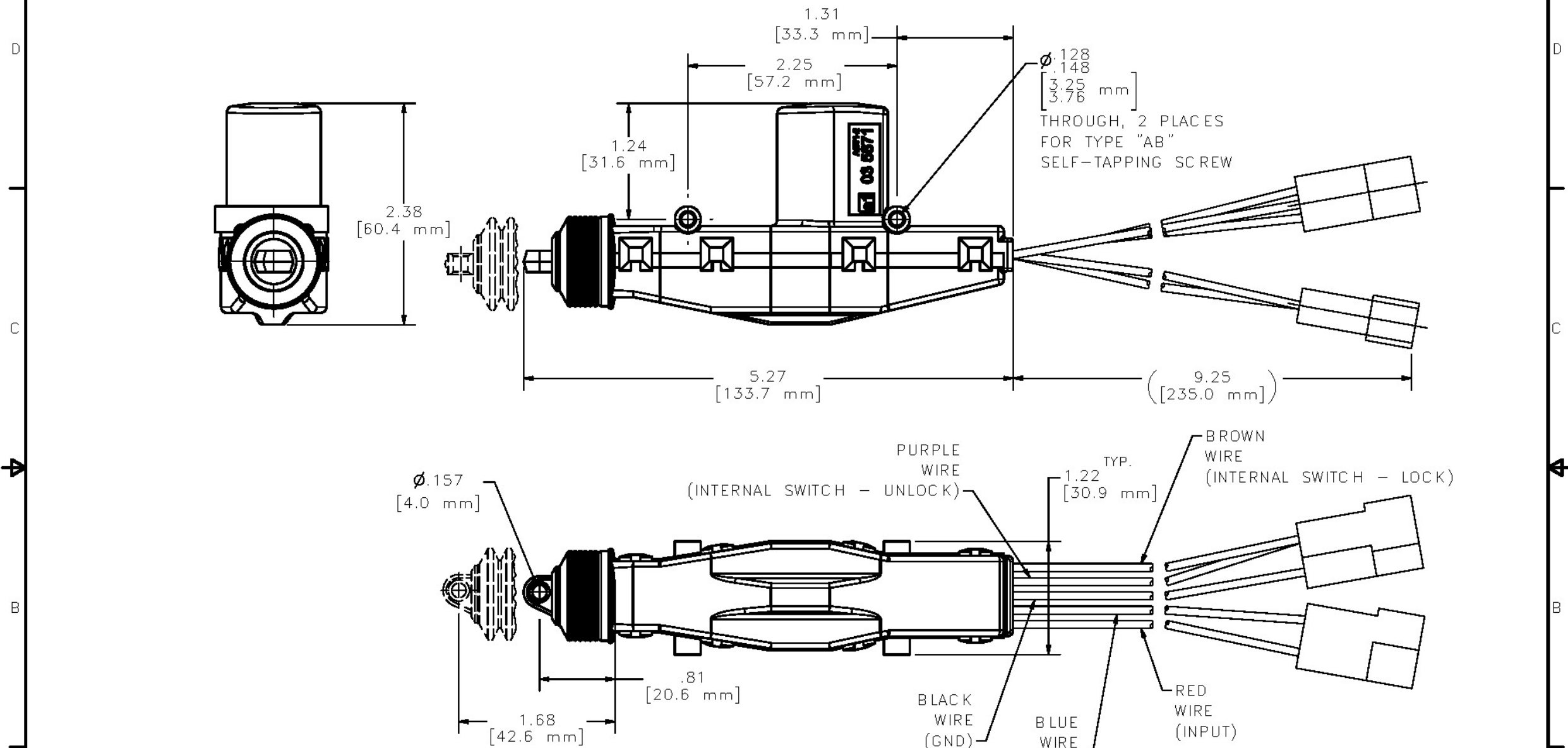
THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.15-2009		DATE 3/29/2013
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS:		DR BY FLP
LINEAR MEASURE: INCH		SCALE FULL
ANGLES:	$\pm 2'$ $\pm 2'$	CHK BY
2 PLACE DEC.:	$\pm .05$ $\pm .76$	
3 PLACE DEC.:	$\pm .015$ $\pm .38$	
ALL HOLES:	$\pm .005$ $\pm .13$	

<b>EBERHARD MANUFACTURING CO.</b> DIVISION OF <b>THE EASTERN COMPANY</b> CLEVELAND, OHIO 44149-9712	
<b>POWER ACTUATOR</b>	
MATERIAL *	PART NUMBER 16720-1

C:\Manufacturing\External\Drawings\16720-1\16720-1-01.dwg

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REVISION HISTORY			
REV	DESCRIPTION	EN	DATE
1	REVISED, REDRAWN AND CONVERTED TO 3D	5697	3-29-13



TECHNICAL DATA:  
 WORKING VOLTAGE: 8.8 VDC TO 13.7 VDC  
 CURRENT ABSORPTION: 4.5 A (MAX.)  
 TEMPERATURE RANGE: -18.4° F TO +188.6° F  
 POWER: 7.868 lbf.

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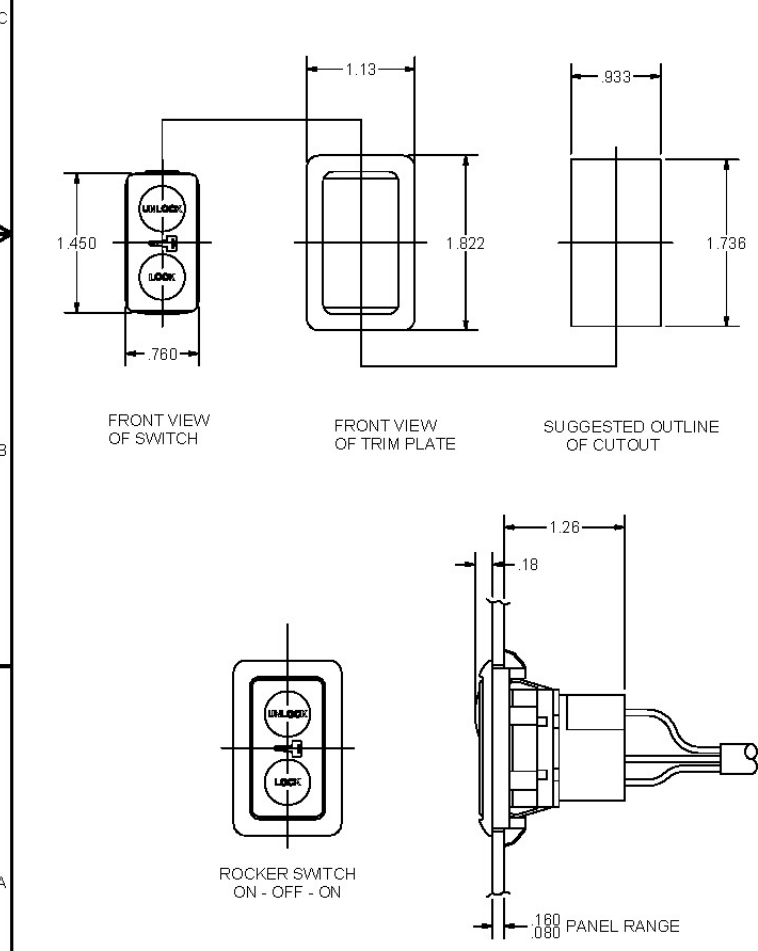
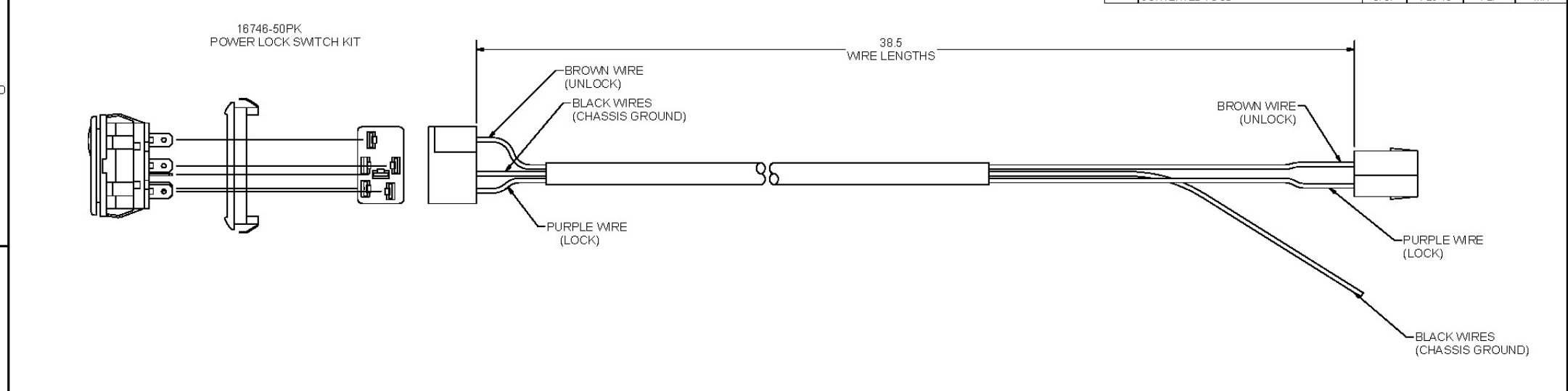
SUPERSEDES DRAWING 16835-1 SHEET 1 OF 2 DATED 12-7-05.

CUSTOMER PRINT  
 SHEET 1 OF 2

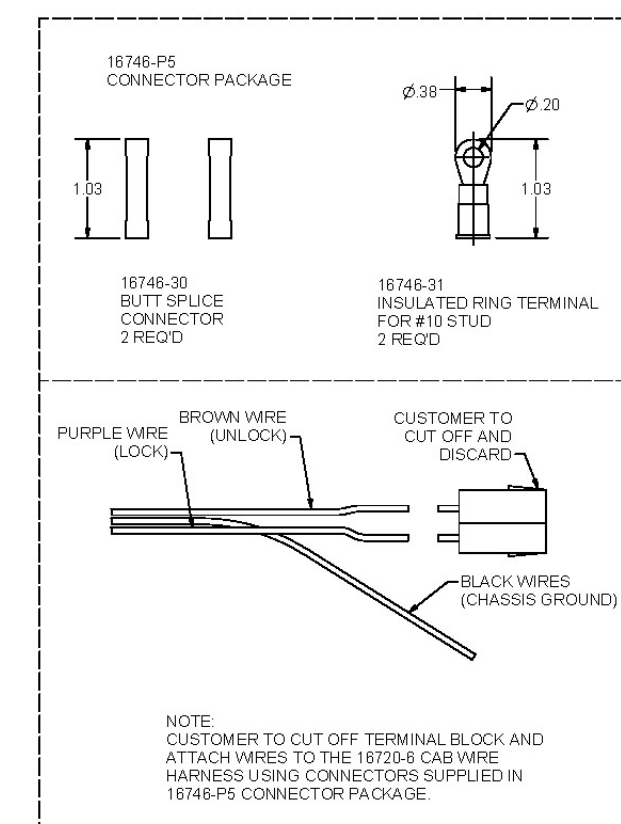
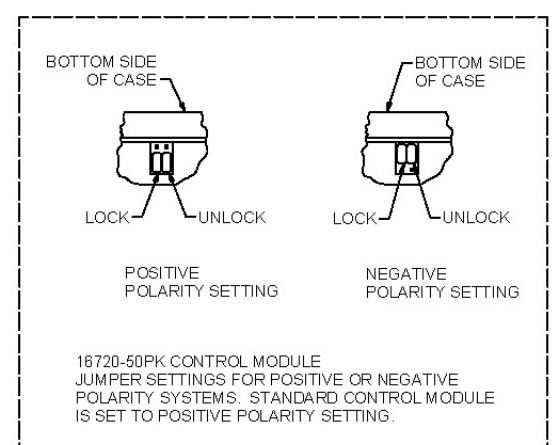
THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.15-2009	
LINEAR MEASURE: INCH	DATE: 3/29/2013
UNLESS OTHERWISE SPECIFIED: TOLERANCES ARE AS FOLLOWS:	DR. BY: FLP
ANGLES: ±2° ±2°	SCALE: FULL
2 PLACE DEC.: ±.03 ±.06	C.H.K. BY:
3 PLACE DEC.: ±.015 ±.038	
ALL HOLES: ±.005 ±.13	

<b>EBERHARD MANUFACTURING CO.</b> DIVISION OF THE EASTERN COMPANY CLEVELAND, OHIO 44149-9712	
NAME:	POWER ACTUATOR WITH INTERNAL SWITCH
MATERIAL:	-----
PART NUMBER:	16835-1





- NOTES:
1. BROWN WIRE (UNLOCK) - CONNECTS TO THE BLUE/WHITE WIRE IN THE 16720-8 CAB WIRE HARNESS.  
PURPLE WIRE (LOCK) - CONNECTS TO THE GREEN/WHITE WIRE IN THE 16720-8 CAB WIRE HARNESS.  
BLACK WIRES (CHASSIS GROUND)  
GRAY WIRE (ILLUMINATION) - CONNECTS TO THE PARKING LIGHT CIRCUIT ON THE VEHICLE.
  2. JUMPERS ON THE 16720-50PK CONTROL MODULE WILL NEED TO BE CHANGED TO NEGATIVE POLARITY.
  3. 1-16746-50PK POWER LOCK SWITCH KIT AND 1-16746-P5 CONNECTOR PACKAGE TO BE SHIPPED LOOSE, BULK PACKED.



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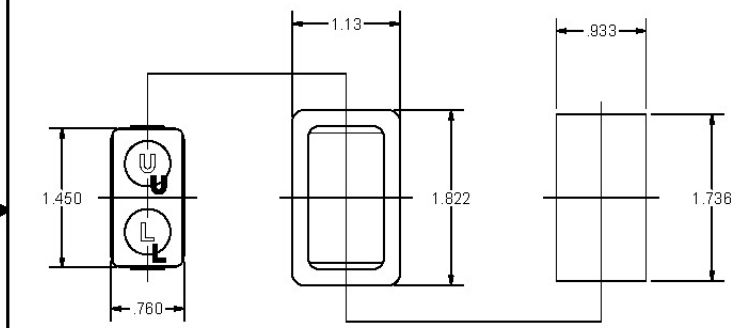
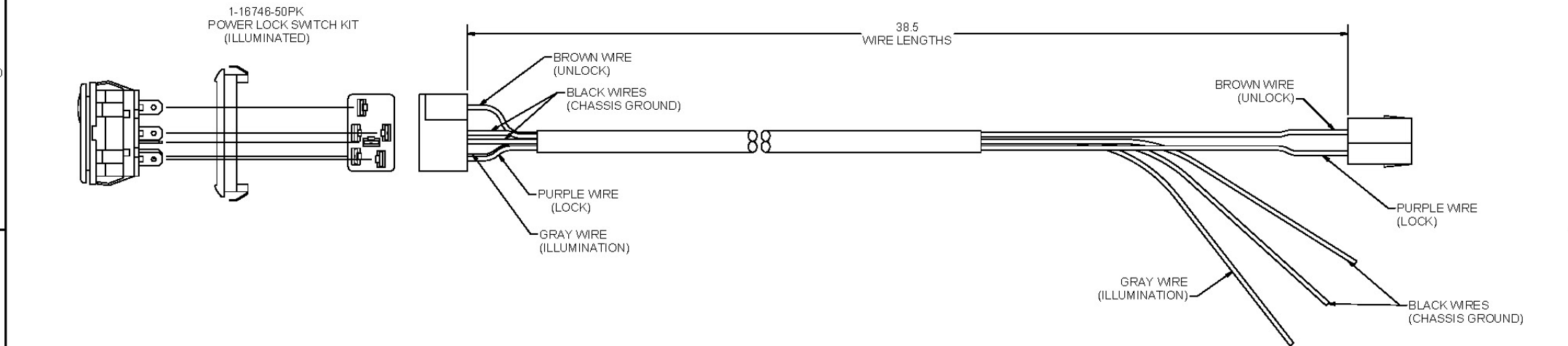
SUPERSEDES DRAWING 16746-U DATED 12-17-03

THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.15-2012		<b>EBERHARD MANUFACTURING CO.</b> DIVISION OF THE EASTERN COMPANY CLEVELAND, OHIO 44149-9712	
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS: IN MM ANG LES: .02 .02 2 PLACE DEC.: .003 .003 3 PLACE DEC.: .001 .001 ALL HOLES: .015 .015	DATE: 1/29/2016 DR: FLP CHECKED: FLP SCALE: FULL CHK: FLP	<b>POWER LOCK SWITCH KIT WITH CONNECTORS</b> MATERIAL: _____ PART NUMBER: 16746-U	

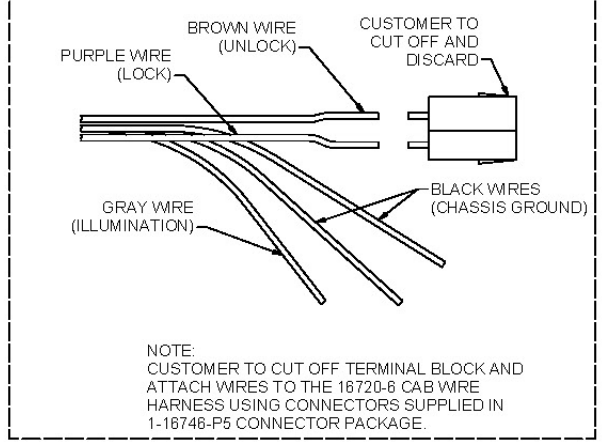
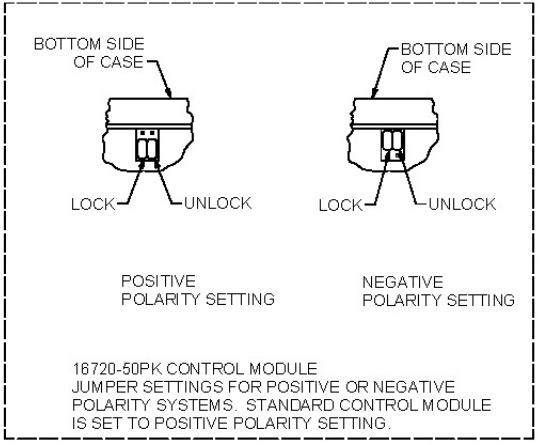
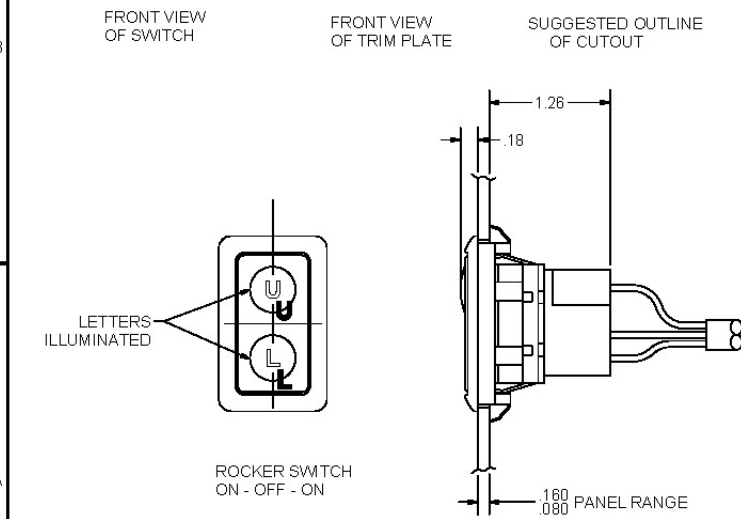
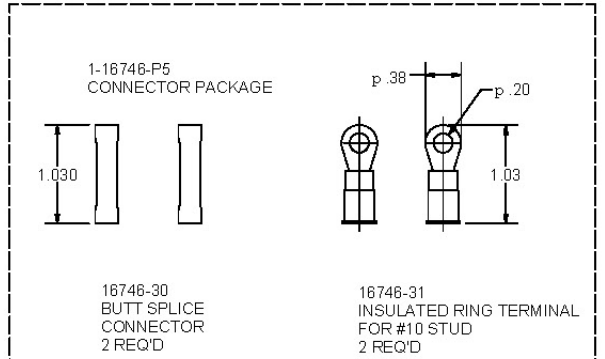
C:\Working Folder\Archive\Proj11633\16746\16746-50PK.dwg

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REVISION HISTORY					
REV	DESCRIPTION	EN	DATE	REV BY	APVD BY
1	CONVERTED TO 3D	5737	1-29-16	FLP	MR



- NOTES:
1. BROWN WIRE (UNLOCK) - CONNECTS TO THE BLUE/WHITE WIRE IN THE 16720-8 CAB WIRE HARNESS.
  - PURPLE WIRE (LOCK) - CONNECTS TO THE GREEN/WHITE WIRE IN THE 16720-8 CAB WIRE HARNESS.
  - BLACK WIRES (CHASSIS GROUND)
  - GRAY WIRE (ILLUMINATION) - CONNECTS TO THE PARKING LIGHT CIRCUIT ON THE VEHICLE.
  2. JUMPERS ON THE 16720-50PK CONTROL MODULE WILL NEED TO BE CHANGED TO NEGATIVE POLARITY.
  3. 1-16746-50PK POWER LOCK SWITCH KIT AND 1-16746-P5 CONNECTOR PACKAGE TO BE SHIPPED LOOSE, BULK PACKED.



UNCONTROLLED COPY

SUPERSEDES DRAWING 1-16746-U DATED 12-17-03

THIS DOCUMENT IS IN ACCORDANCE WITH ASME Y14.15-2003		DATE: 1/29/2016		NAME: POWER LOCK SWITCH KIT (ILLUMINATED) WITH CONNECTORS	
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS:	FR: .005	MM: .005	YD: .005	FULL: .005	PART NUMBER: 1-16746-U
ANGLES:	2 PLACED DEC: .005	3 PLACED DEC: .005	ALL OTHERS: .005	CHECK:	

EBERHARD MANUFACTURING CO.  
DIVISION OF  
THE EASTERN COMPANY  
CLEVELAND, OHIO 44149-9712

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# Eberhard Manufacturing Company

## POWER-UP Locking System with Built-In Alarm

### Key Cylinder

Typical assembly of a power locking key cylinder:

Configuration of power locking key cylinders will vary depending on the application. The ability to make various handle configurations power locking will need to be reviewed and verified on a product by product basis.

For reference only, the components are to be assembled as shown to enable proper function with the power actuators. After assembly, the key cylinder and remote locking cam are to be able to rotate 90° clockwise and counterclockwise independently. The key is to be removable in one position only. This will enable the power actuator to operate the cam when the key is not installed.

