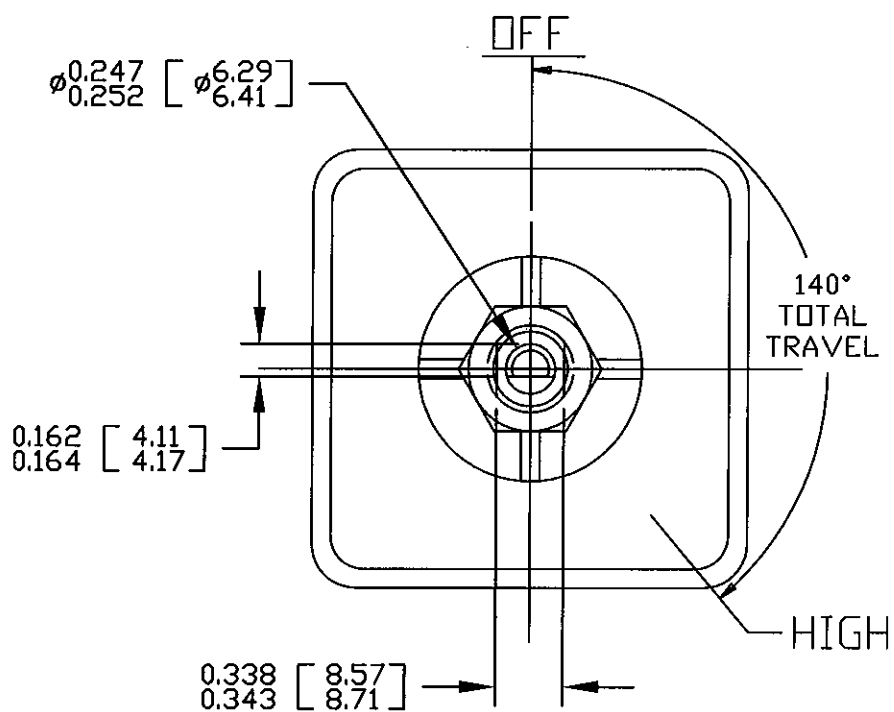
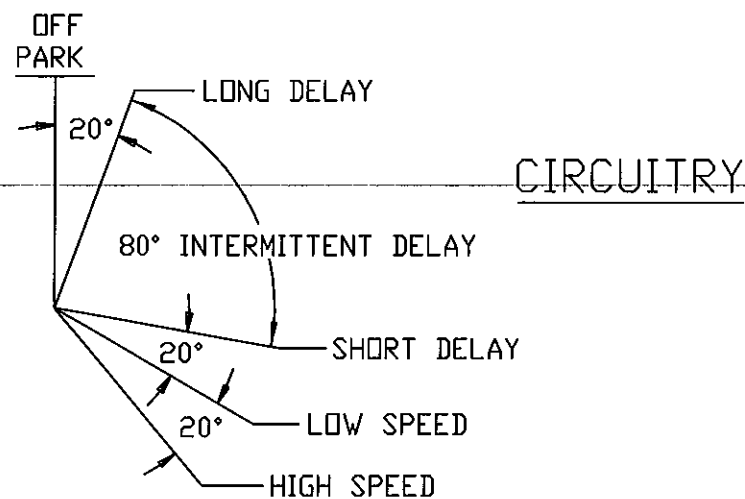
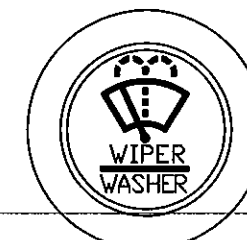
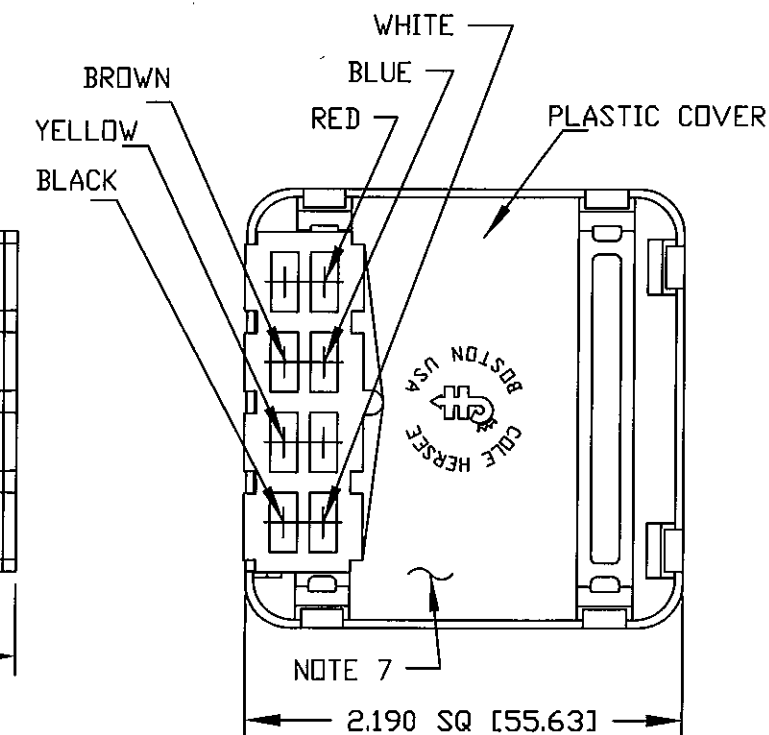
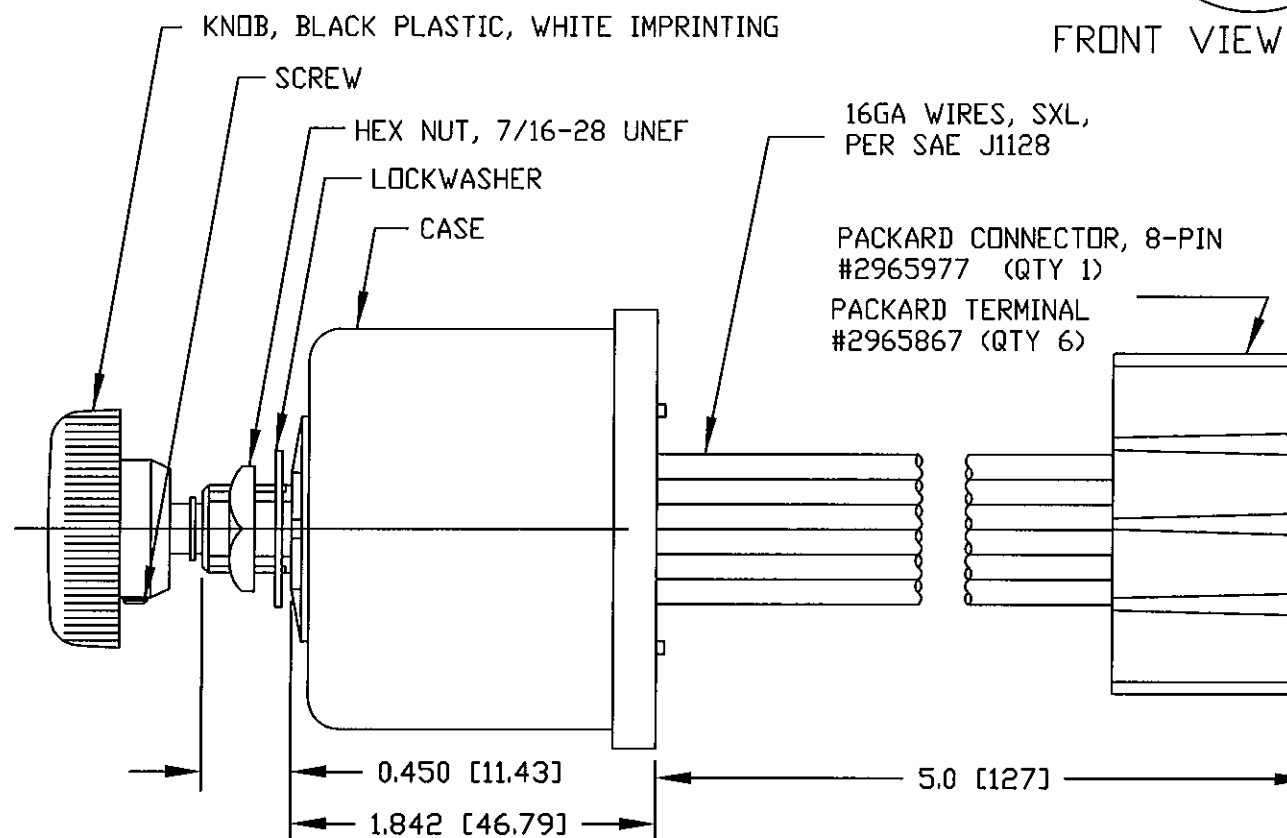


Revision Control Record

| Rev. | Description of Change | ECN No. | Date |
|------|-----------------------|---------|----------|
| E | REVISED DRAWING, SSR | 07035 | 1/25/07 |
| F | BOM CHANGE | 09588 | 01/15/10 |



FRONT VIEW OF KNOB



NOTES:

- DESIGNED FOR 12V SYSTEM, SINGLE MOTOR, DYNAMIC AND NON-DYNAMIC PARK. TO BE USED WITH PERMANENT MAGNET MOTOR, NEGATIVE GROUND ONLY.
- PUSH TO WASH FUNCTION: RESULTS IN 2 TO 3 WIPES AFTER RELEASE OF PUSH SWITCH.
- RATING: VOLTAGE OPERATING RANGE 9VDC TO 16VDC
 ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
 MOTOR DRIVE: 15 AMPS CONTINUOUS. START-UP/STALL/LOCKED-ROTOR 50 AMPS. SHORT-CIRCUIT PROOF.
 WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
- MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
- CONFORMS TO SAE J1455:
 - GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
 - STEADY-STATE ELECTRICAL CHARACTERISTICS.
 - TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
 - ENVIRONMENTAL EXTREMES BY LOCATION.
 - INTERIOR-FORWARD.
- ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
- COLE HERSEE PART NUMBER, REVISION, & DATE CODE STAMPED IN WHITE.

| COLOR | FUNCTION |
|--------|------------------|
| WHITE | MOTOR HIGH SPEED |
| YELLOW | MOTOR LOW SPEED |
| BLACK | GROUND (0V) |
| BROWN | WASHER PUMP |
| RED | VBB (12V) |
| BLUE | MOTOR PARK |

Tolerances Unless otherwise specifically noted, the following are default tolerances:
 * 2-place Decimal Dimensions +/- .02"
 * 3-place Decimal Dimensions +/- .005"
 * Angular Dimensions +/- 1.0 Deg.
 * Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Special Characteristics:

- CC Critical Characteristic, relating to Safety and/or Regulatory Compliance
- X Significant Characteristic relating to Process Control (SPC)
- KC Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

(Note that the identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

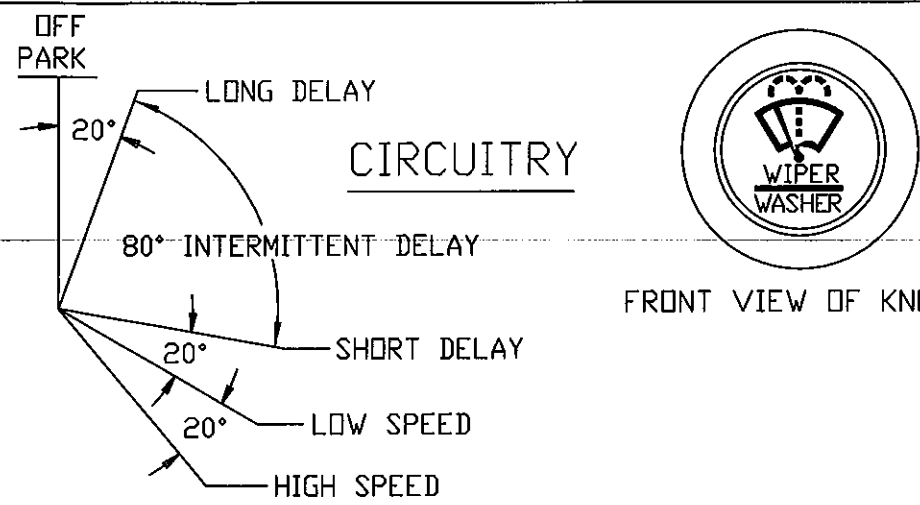
Description: WINDSHIELD WIPER CONTROLLER, UNIVERSAL, 12V

Drawing / Part No.: 75600

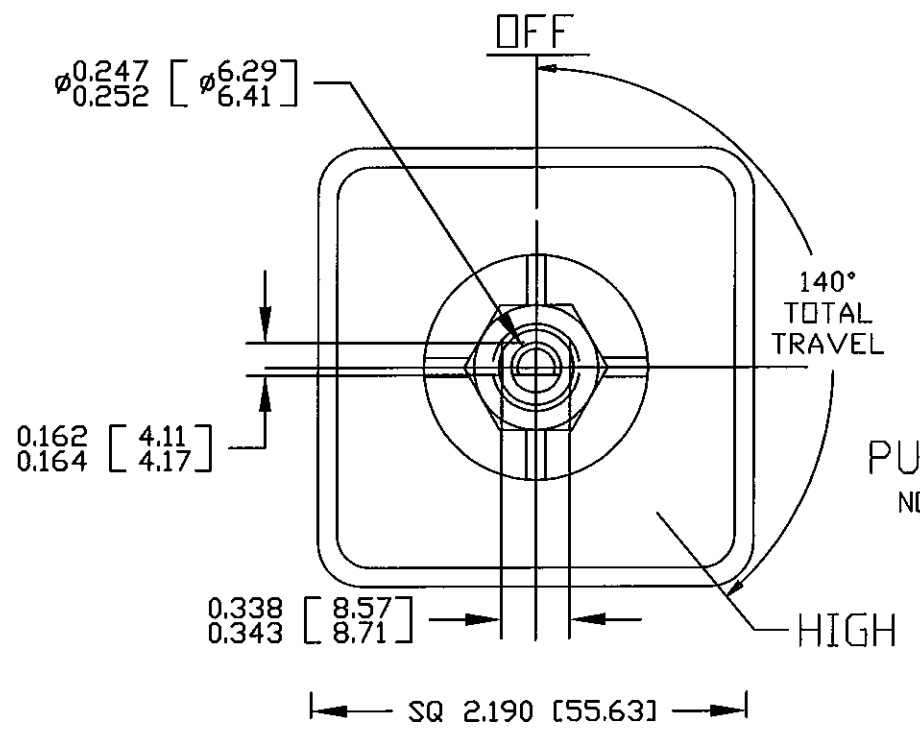
Current Rev.: F

Revision Control Record

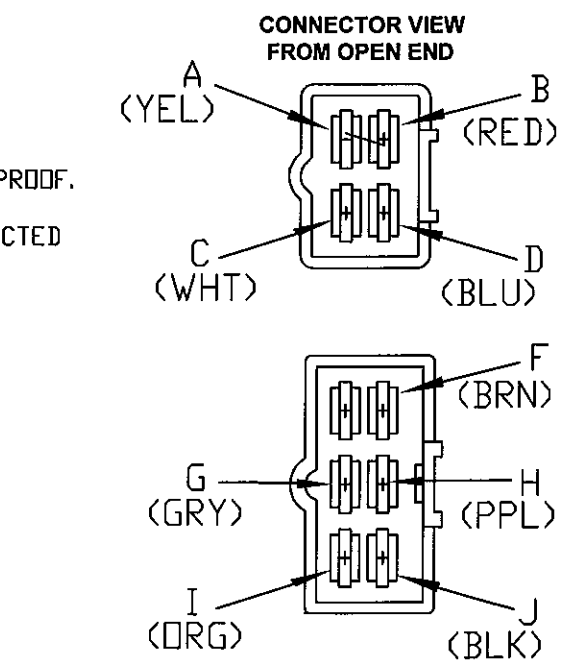
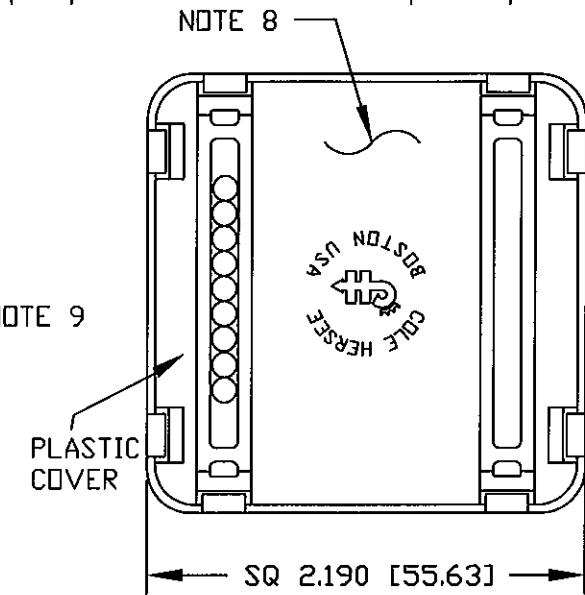
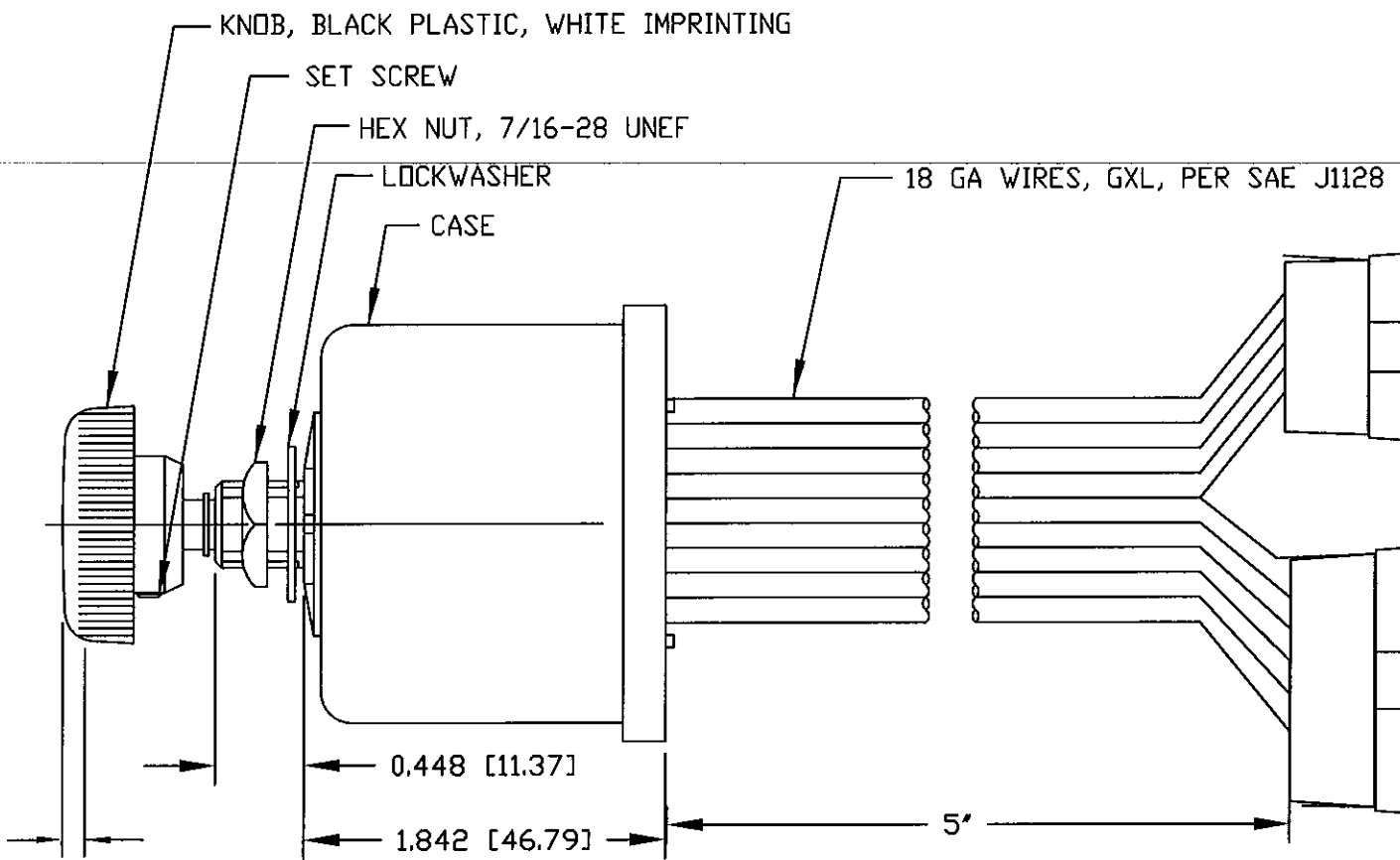
| Rev. | Description of Change | ECN No. | Date |
|------|--------------------------|---------|----------|
| E | ADDED NOTE TO COVER VIEW | 03274 | 7/24/03 |
| F | CHANGE TO SSR PCB | 07060 | 02/16/07 |
| G | BOM CHANGE | 09587 | 01/13/10 |



FRONT VIEW OF KNOB



PUSH TO WASH
NOTE 2



- NOTES:
- DESIGNED FOR 12V SYSTEM, DUAL MOTOR, DYNAMIC AND NON-DYNAMIC PARK.
 - PUSH TO WASH FUNCTION RESULTS IN 3 WIPES AFTER RELEASE OF PUSH SWITCH.
 - RATING: VOLTAGE OPERATING RANGE 9VDC TO 16VDC
 ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
 MOTOR DRIVE: 10 AMPS PER MOTOR CONTINUOUS. START-UP/STALL/LOCKED-ROTOR 30 AMPS. SHORT-CIRCUIT PROOF.
 WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
 - MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
 - CONFORMS TO SAE J1455:
 4.11 GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
 4.11.1 STEADY-STATE ELECTRICAL CHARACTERISTICS.
 4.11.2 TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
 - INTERMITTENT DELAYS: 1, 2, 4, 7, 11 AND 16 SECONDS
 - ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
 - COLE HERSEE PART NUMBER, REVISION, & DATE CODE STAMPED IN WHITE ON REAR PLASTIC COVER.
 - CONNECTORS, DELPHI: 6-PIN, PART# 2977042 (QTY 1); 4-PIN, PART# 6294544 (QTY 1)
 TERMINALS, DELPHI: PART#2965439 (QTY 10)

| COLOR | FUNCTION | TERMINAL |
|--------|---------------------|----------|
| YELLOW | LOW-SPEED MOTOR #1 | A |
| RED | VBB (12V POWER) | B |
| WHITE | HIGH-SPEED MOTOR#1 | C |
| BLUE | PARK MOTOR #1 | D |
| BROWN | WASHER | F |
| GREY | HIGH-SPEED MOTOR #2 | G |
| PURPLE | PARK MOTOR #2 | H |
| ORANGE | LOW-SPEED MOTOR #2 | I |
| BLACK | GROUND (0V) | J |

Tolerances Unless otherwise specifically noted, the following are default tolerances:
 * 2-place Decimal Dimensions +/- .02"
 * 3-place Decimal Dimensions +/- .005"
 * Angular Dimensions +/- 1.0 Deg.
 * Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

Used On or Ref.: **EX28333** Scale: **1:1**

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the Individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Drawn **JCS** Date **10/10/06**
 By: Responsible Engineer: **JCS**

Special Characteristics:

- Critical Characteristic, relating to Safety and/or Regulatory Compliance
- Significant Characteristic relating to Process Control (SPC)
- Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

(Note that the Identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Pg. 1

Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

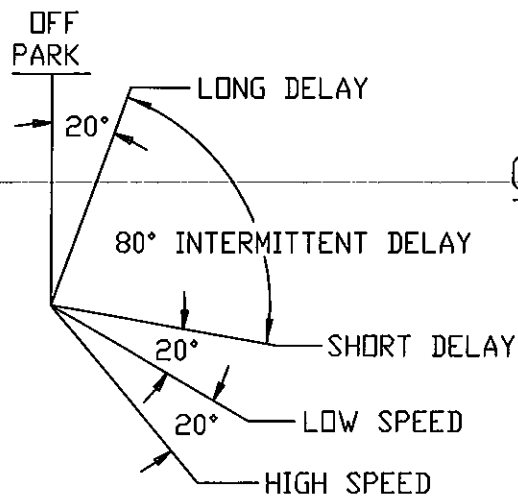
Description:
 WINDSHIELD WIPER CONTROLLER, DUAL-MOTOR, W/ WIPER ENABLE, 12V, SSR

Drawing / Part No.: **75600-01** Current Rev.: **G**

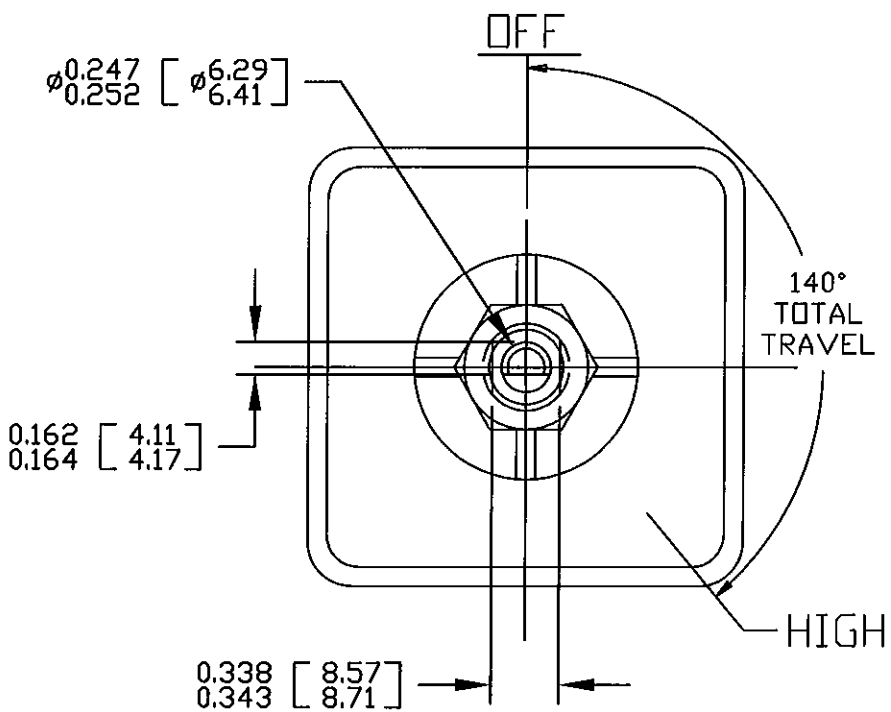


Revision Control Record

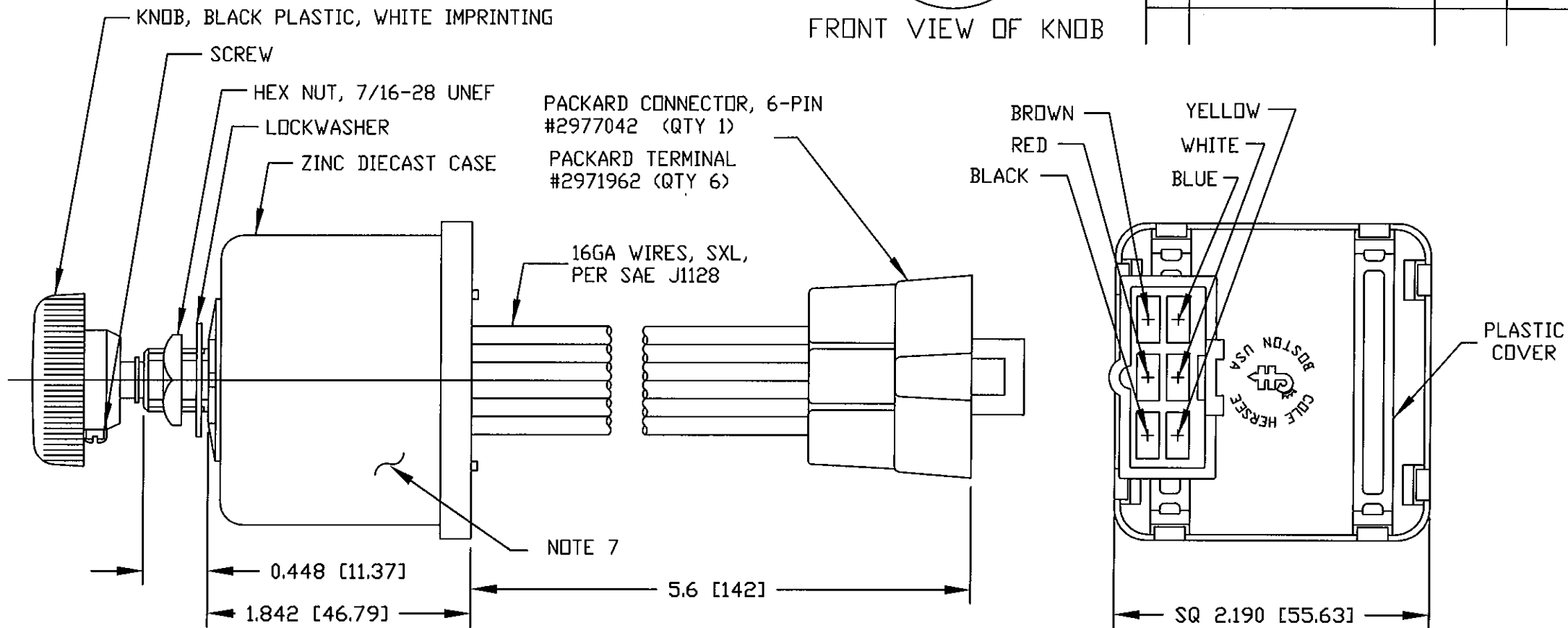
| Rev. | Description of Change | ECN No. | Date |
|------|-----------------------|---------|----------|
| L | REVISED DRAWING, SSR | 07035 | 1/24/07 |
| M | EDIT NOTE 7 | 09257 | 04/21/09 |
| N | BOM CHANGE | 09588 | 01/15/10 |



CIRCUITRY



FRONT VIEW OF KNOB



- NOTES:**
- DESIGNED FOR 12V SYSTEM, SINGLE MOTOR, DYNAMIC AND NON-DYNAMIC PARK. TO BE USED WITH PERMANENT MAGNET MOTOR, NEGATIVE GROUND ONLY.
 - PUSH TO WASH FUNCTION: RESULTS IN 2 TO 3 WIPES AFTER RELEASE OF PUSH SWITCH.
 - RATING: VOLTAGE OPERATING RANGE 9VDC TO 16VDC
 ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
 MOTOR DRIVE: 15 AMPS CONTINUOUS. START-UP/STALL/LOCKED-ROTOR 50 AMPS. SHORT-CIRCUIT PROOF.
 WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
 - MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
 - CONFORMS TO SAE J1455:
 - GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
 - STEADY-STATE ELECTRICAL CHARACTERISTICS.
 - TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
 - ENVIRONMENTAL EXTREMES BY LOCATION.
 - INTERIOR-FORWARD.
 - ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
 - COLE HERSEE PART NUMBER, REVISION, & DATE CODE MARKED AT RANDOM ON CASE.

| COLOR | FUNCTION |
|--------|------------------|
| WHITE | MOTOR HIGH SPEED |
| YELLOW | MOTOR LOW SPEED |
| RED | VBB (+12V) |
| BROWN | WASHER PUMP |
| BLACK | GROUND (0V) |
| BLUE | MOTOR PARK |

Tolerances Unless otherwise specifically noted, the following are default tolerances:
 * 2-place Decimal Dimensions +/- .02"
 * 3-place Decimal Dimensions +/- .005"
 * Angular Dimensions +/- 1.0 Deg.
 * Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

Used On or Ref.: **EX26541** Scale: **1:1**

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Drawn By: **DPS** Date Drawn: **1/23/07**

Special Characteristics:

- Critical Characteristic, relating to Safety and/or Regulatory Compliance
- Significant Characteristic relating to Process Control (SPC)
- Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

(Note that the Identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Responsible Engineer: **JCS** Pg. **1**

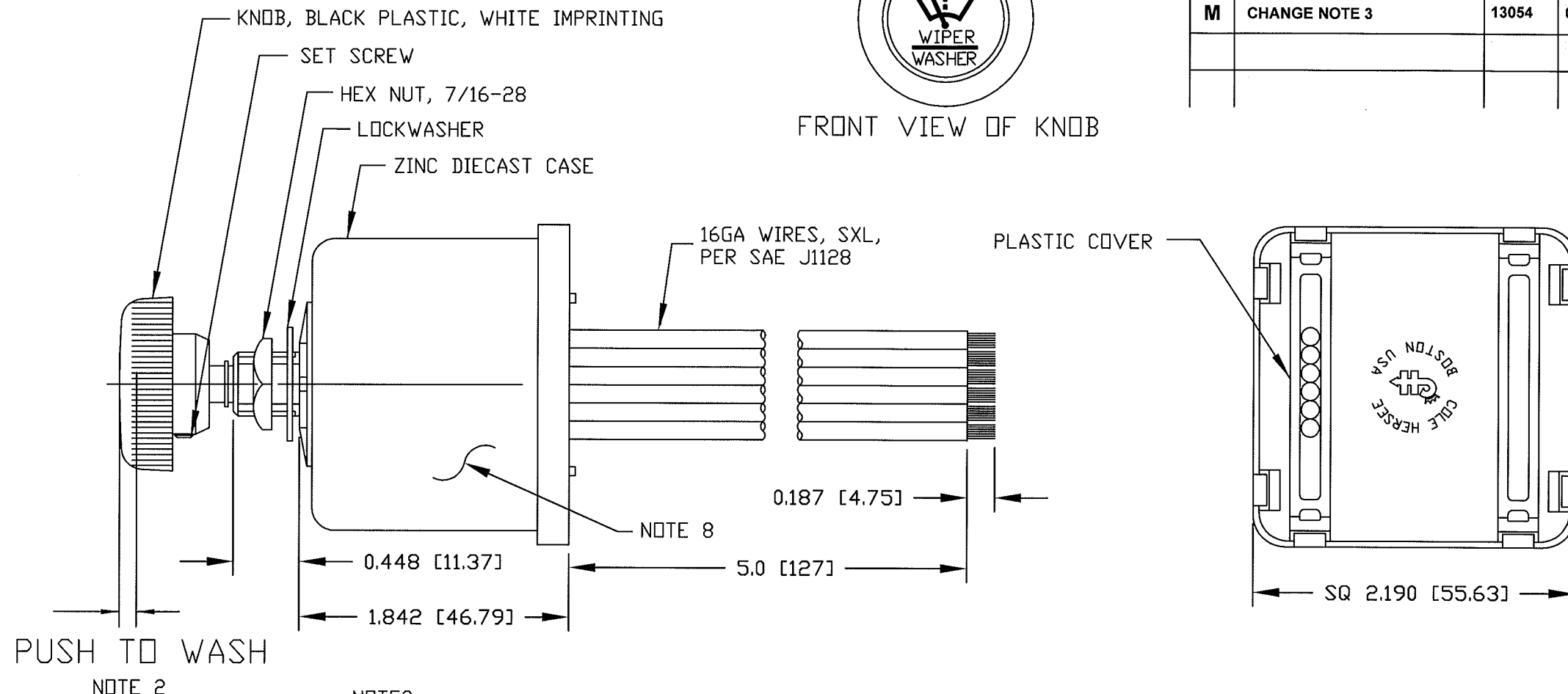
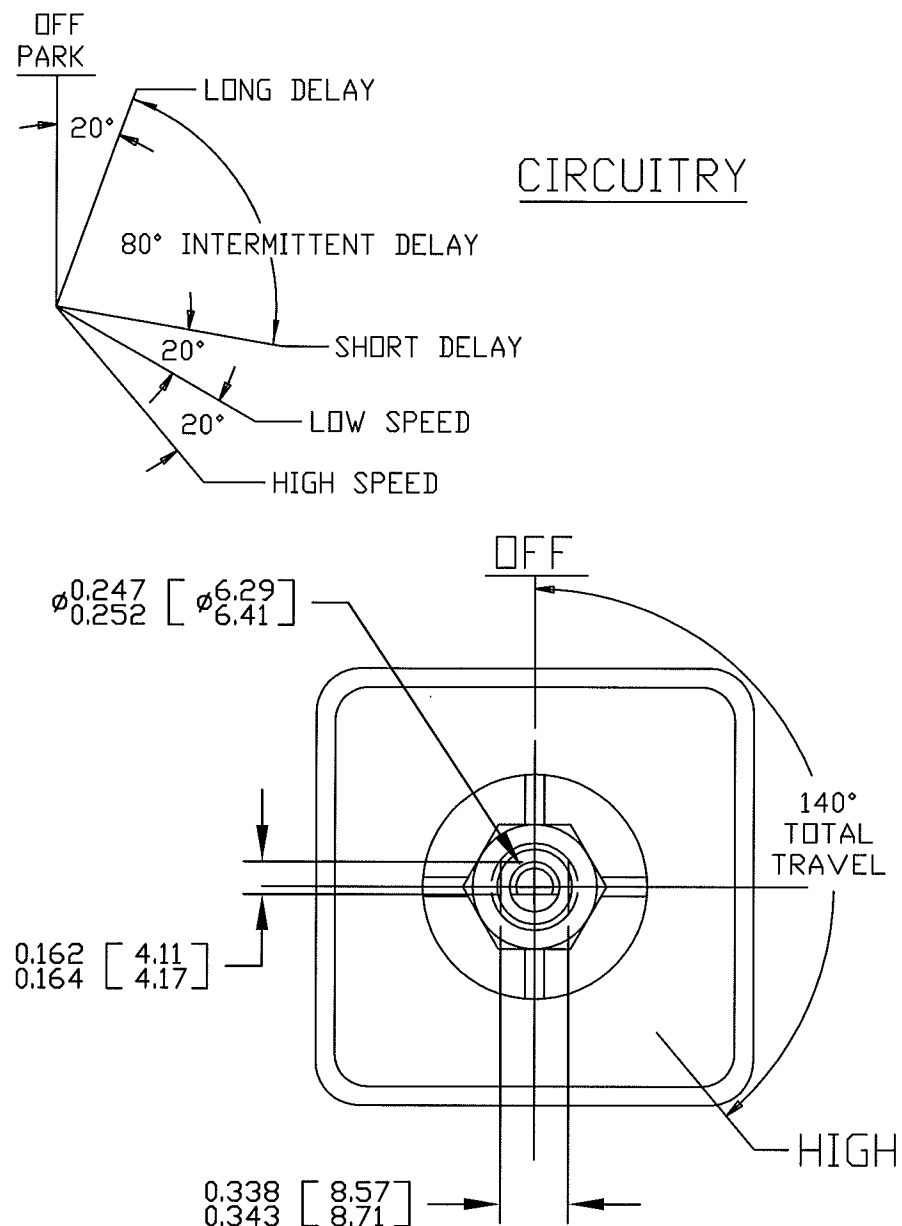
Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

Description: WINDSHIELD WIPER CONTROLLER, UNIVERSAL, 12V

Drawing / Part No.: **75600-02** **Current Rev.:** **N**

Revision Control Record

| Rev. | Description of Change | ECN No. | Date |
|------|-----------------------|---------|----------|
| L | CHANGE BOM | 09588 | 01/15/10 |
| M | CHANGE NOTE 3 | 13054 | 02/07/13 |



NOTES:

- DESIGNED FOR 12V SYSTEM, SINGLE MOTOR, DYNAMIC AND NON-DYNAMIC PARK. TO BE USED WITH PERMANENT MAGNET MOTOR, NEGATIVE GROUND ONLY.
- PUSH TO WASH FUNCTION: RESULTS IN 2 TO 3 WIPES AFTER RELEASE OF PUSH SWITCH.
- RATING: VOLTAGE OPERATING RANGE 9VDC TO 16VDC
ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
MOTOR DRIVE: 15 AMPS CONTINUOUS. START-UP/STALL/LOCKED-ROTOR 50 AMPS. SHORT-CIRCUIT PROTECTED^(M)
WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
- MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
- CONFORMS TO SAE J1455:
4.11 GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
4.11.1 STEADY-STATE ELECTRICAL CHARACTERISTICS.
4.11.2 TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
- ENVIRONMENTAL EXTREMES BY LOCATION.
5.2 INTERIOR-FORWARD.
- ALL STEEL PARTS PLATED
- ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
- COLE HERSEE PART NUMBER, REVISION, & DATE CODE MARKED AT RANDOM ON CASE.

| COLOR | FUNCTION |
|--------|------------------|
| WHITE | MOTOR HIGH SPEED |
| YELLOW | MOTOR LOW SPEED |
| RED | VBB (+12V) |
| BROWN | WASHER PUMP |
| BLACK | GROUND (0V) |
| BLUE | MOTOR PARK |

Tolerances Unless otherwise specifically noted, the following are default tolerances:
 * 2-place Decimal Dimensions +/- .02"
 * 3-place Decimal Dimensions +/- .005"
 * Angular Dimensions +/- 1.0 Deg.
 * Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

Used On or Ref.: **EX28241** Scale: **1:1**

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Drawn By: **JCS** Date Drawn: **1/9/07**

Special Characteristics:

CC Critical Characteristic, relating to Safety and/or Regulatory Compliance

X Significant Characteristic relating to Process Control (SPC)

KC Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

(Note that the identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Responsible Engineer: **JCS** Pg. **1**

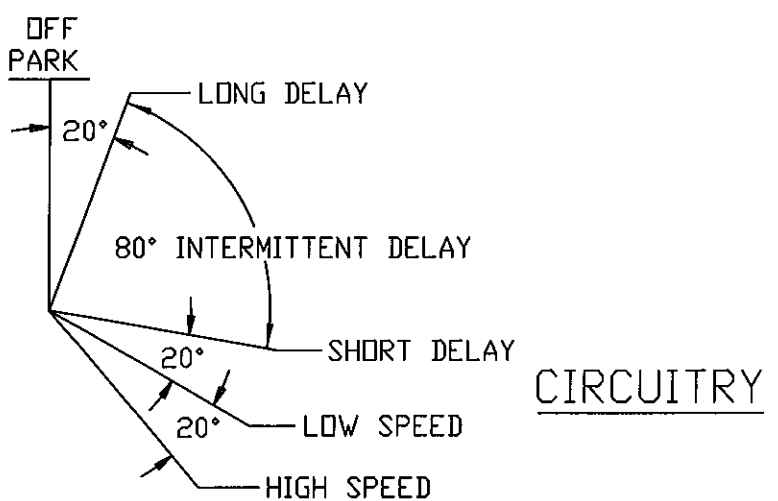
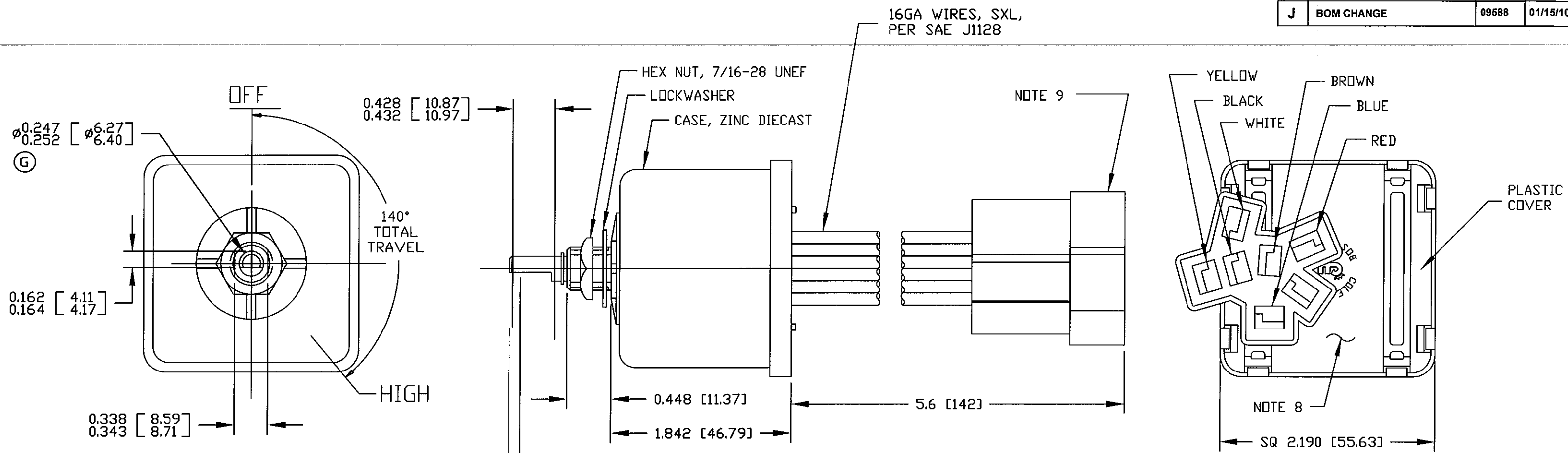
Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

Description: WINDSHIELD WIPER CONTROLLER, UNIVERSAL, 12V

Drawing / Part No.: **75600-04** Current Rev.: **M**

Revision Control Record

| Rev. | Description of Change | ECN No. | Date |
|------|-----------------------|---------|----------|
| H | CHANGED TO SSR | 07074 | 03/02/07 |
| J | BOM CHANGE | 09588 | 01/15/10 |



- NOTES:**
- DESIGNED FOR 12V SYSTEM, SINGLE MOTOR, DYNAMIC AND NON-DYNAMIC PARK. TO BE USED WITH PERMANENT MAGNET MOTOR, NEGATIVE GROUND ONLY.
 - PUSH TO WASH FUNCTION: RESULTS IN 2 TO 3 WIPES AFTER RELEASE OF PUSH SWITCH.
 - RATING: VOLTAGE OPERATING RANGE 9VDC TO 16VDC
 ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
 MOTOR DRIVE: 15 AMPS CONTINUOUS. START-UP/STALL/LOCKED-ROTOR 50 AMPS. SHORT-CIRCUIT PROOF.
 WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
 - MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
 - CONFORMS TO SAE J1455:
 4.11 GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
 4.11.1 STEADY-STATE ELECTRICAL CHARACTERISTICS.
 4.11.2 TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
 - ENVIRONMENTAL EXTREMES BY LOCATION.
 5.2 INTERIOR-FORWARD.
 - ALL STEEL PARTS PLATED.
 - ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
 - COLE HERSEE PART NUMBER, REVISION, & DATE CODE STAMPED IN WHITE.
 - CONNECTOR: DILL #059074. TERMINALS: DELPHI #12020126, QTY 6

| COLOR | FUNCTION |
|--------|------------------|
| WHITE | MOTOR HIGH SPEED |
| YELLOW | MOTOR LOW SPEED |
| BLACK | GROUND (0V) |
| BROWN | WASHER PUMP |
| RED | VBB (12V) |
| BLUE | MOTOR PARK |

Tolerances Unless otherwise specifically noted, the following are default tolerances:
 • 2-place Decimal Dimensions +/- .02"
 • 3-place Decimal Dimensions +/- .005"
 • Angular Dimensions +/- 1.0 Deg.
 • Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Special Characteristics:

- Critical Characteristic, relating to Safety and/or Regulatory Compliance
- Significant Characteristic relating to Process Control (SPC)
- Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

(Note that the identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

Description: WINDSHIELD WIPER & WASHER SW. INTERMITTENT DELAY, 12V.D.C.

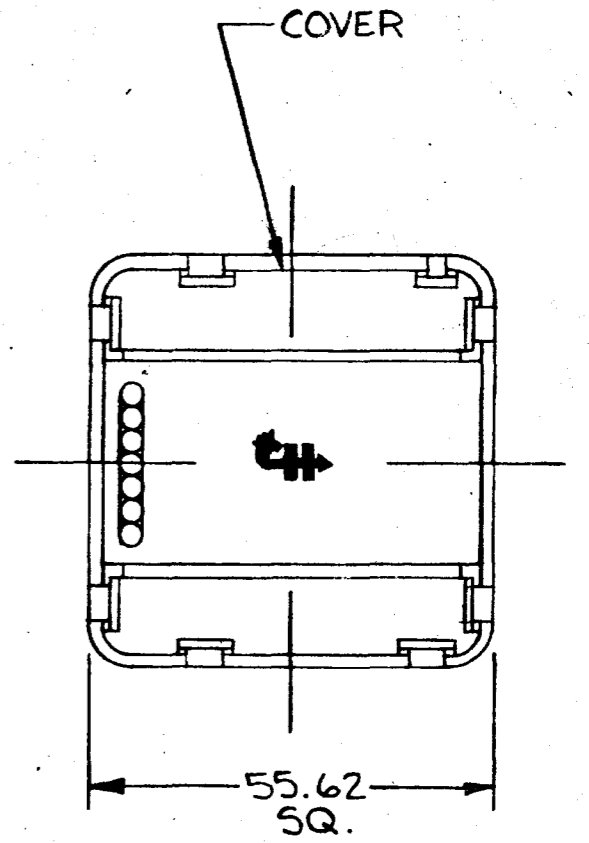
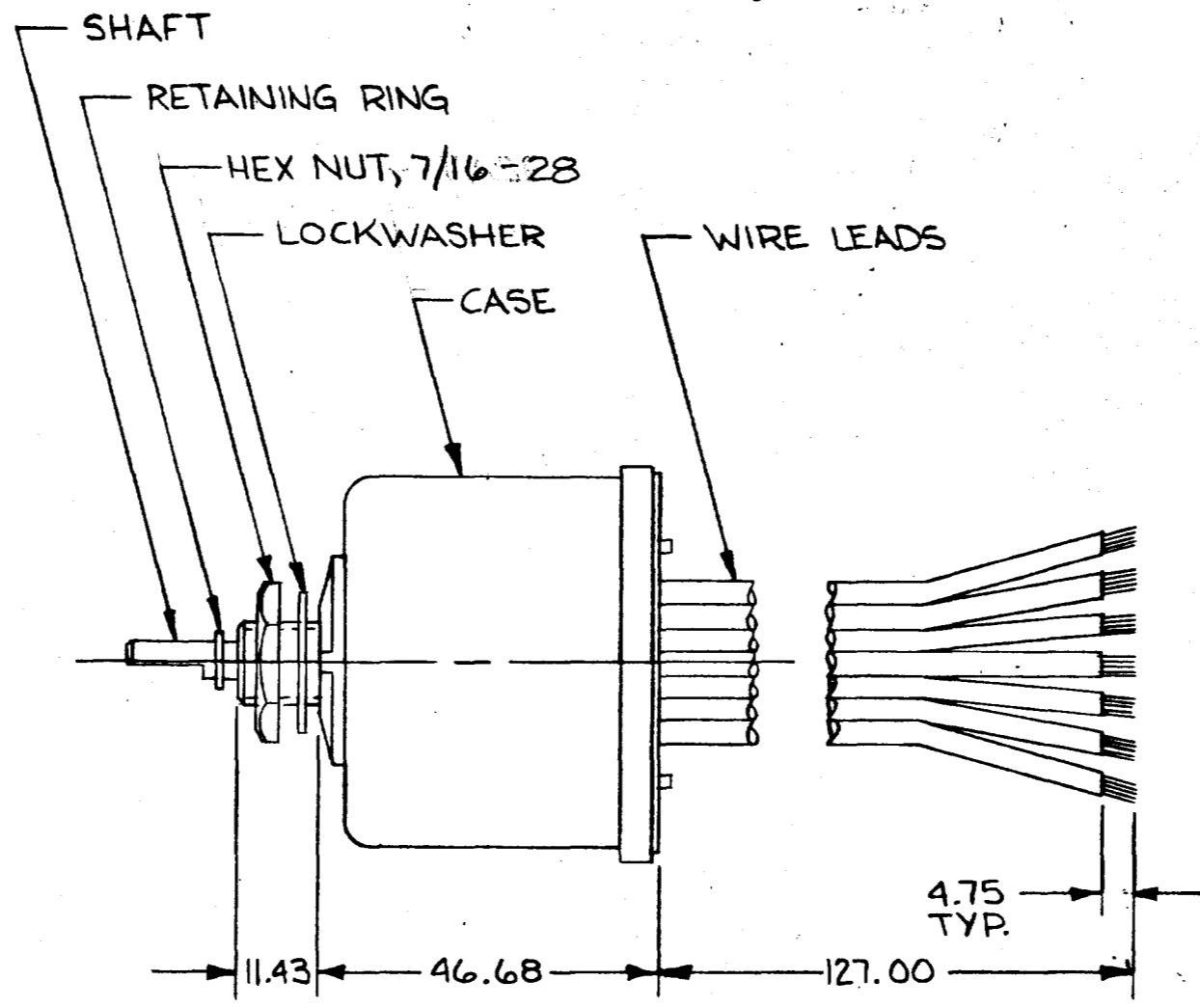
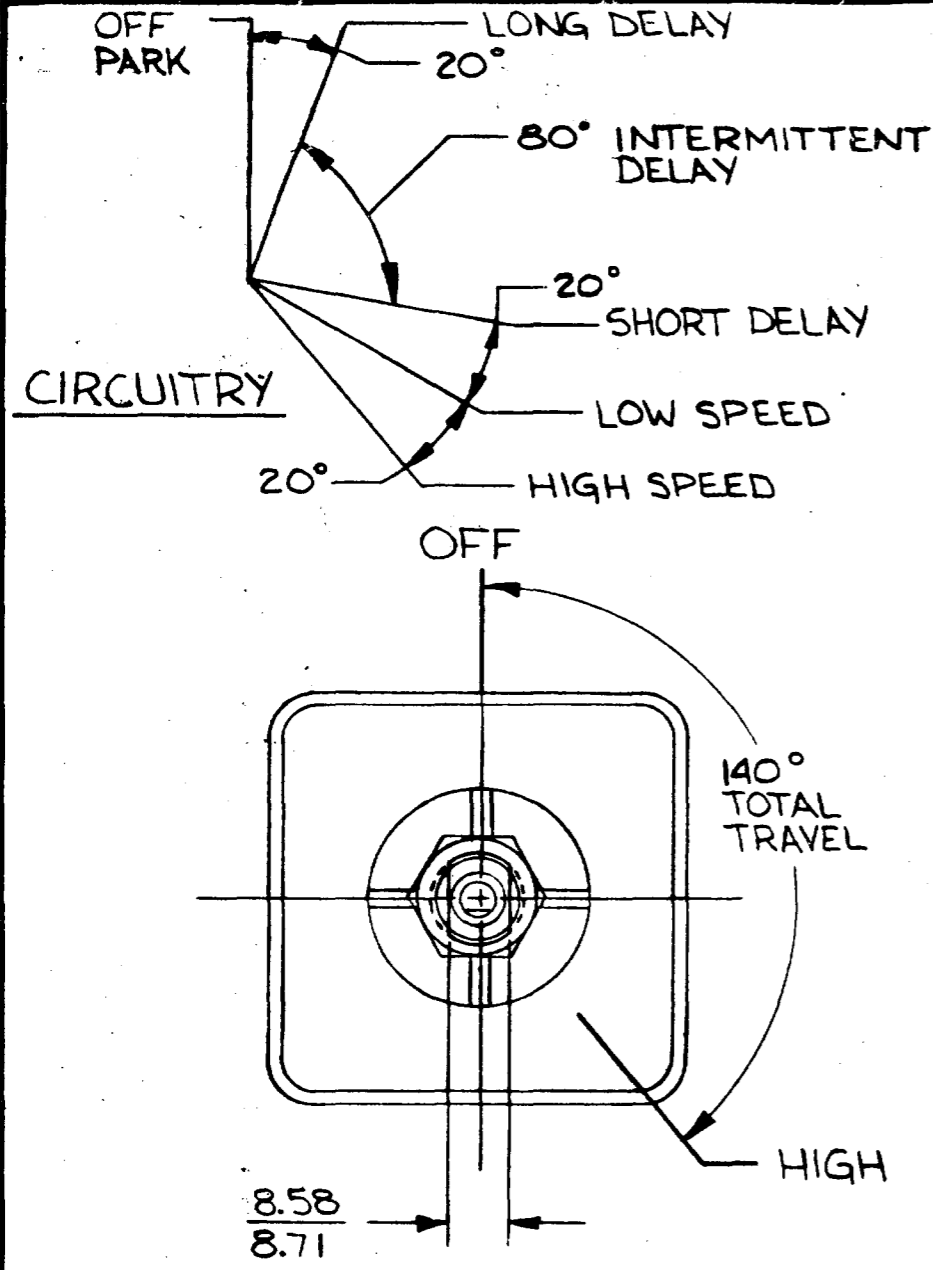
Drawing / Part No.: 75600-07

Current Rev.: J

| | |
|--------------------|-------|
| MM | IN |
| 4.75 | .187 |
| 8.58 | .338 |
| 11.43 | .452 |
| 11.43 | .448 |
| 46.68 | 1.838 |
| 55.62 | 2.190 |
| 727.00 | 5.00 |
| 0.8mm ² | 18 GA |
| 2.0mm ² | 14 GA |

75601-06

COLE-HERSEE CO.



| SWITCH CONNECTIONS | | |
|--------------------|--------------------------------|---|
| COLOR | WIRE SIZE | CONNECT WIRE TO: |
| YELLOW | 2.0 mm ² (14 GA) | MOTOR LOW SPEED TERMINAL |
| WHITE | 2.0 mm ² (14 GA) | MOTOR HIGH SPEED TERMINAL |
| GREEN | 2.0 mm ² (14 GA) | MOTOR PARK TERMINAL |
| BLACK | 0.8 mm ² (18 GA) | GROUND (B-) THIS CONNECTION MUST BE MADE |
| BROWN | 0.8 mm ² (18 GA) | WASHER PUMP (B+ TERMINAL) |
| RED | 2.0 mm ² (14 GA) | B+ (THESE TWO WIRES MUST BE CONNECTED TOGETHER) |
| RED | 0.8 mm ² (18 GA) | |

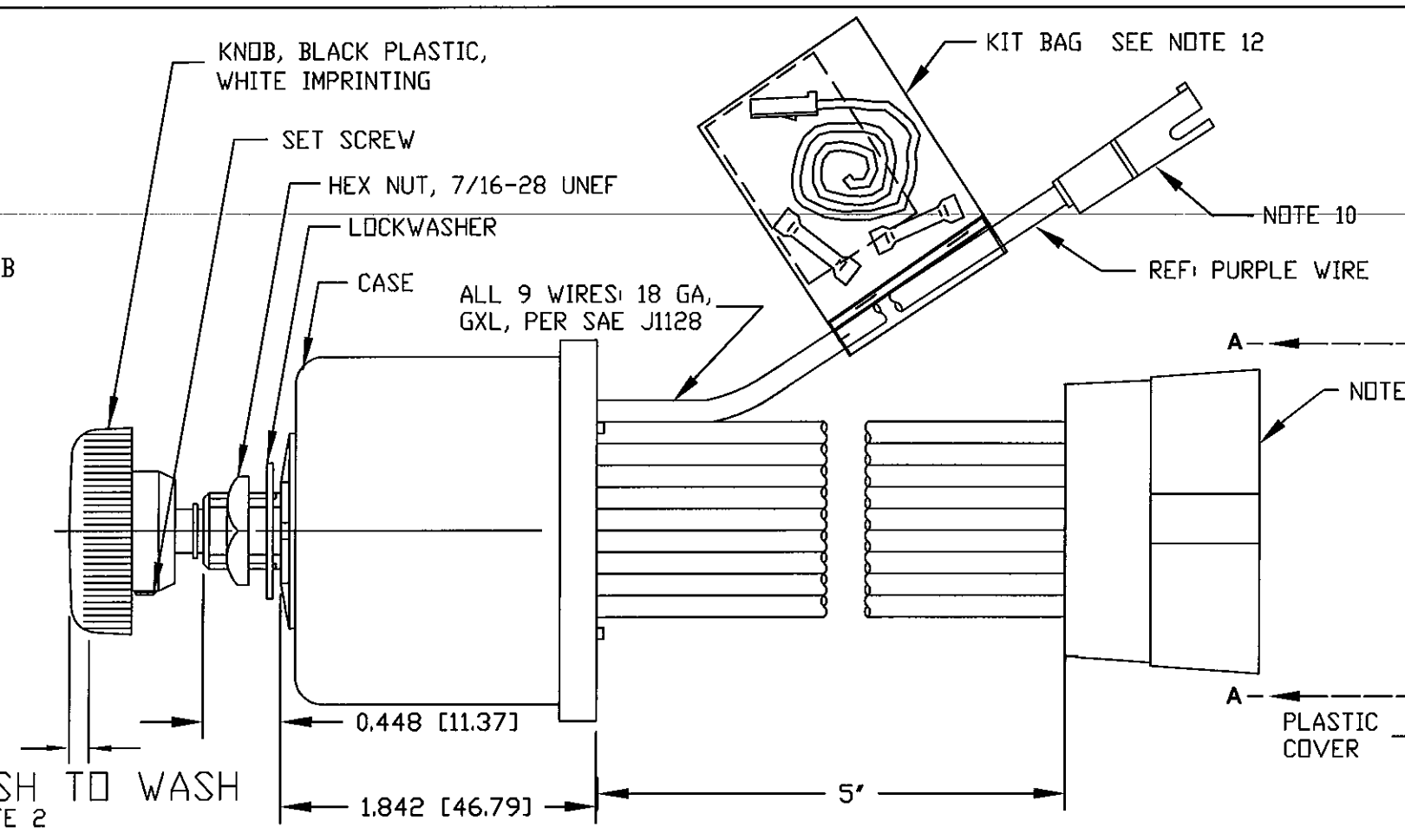
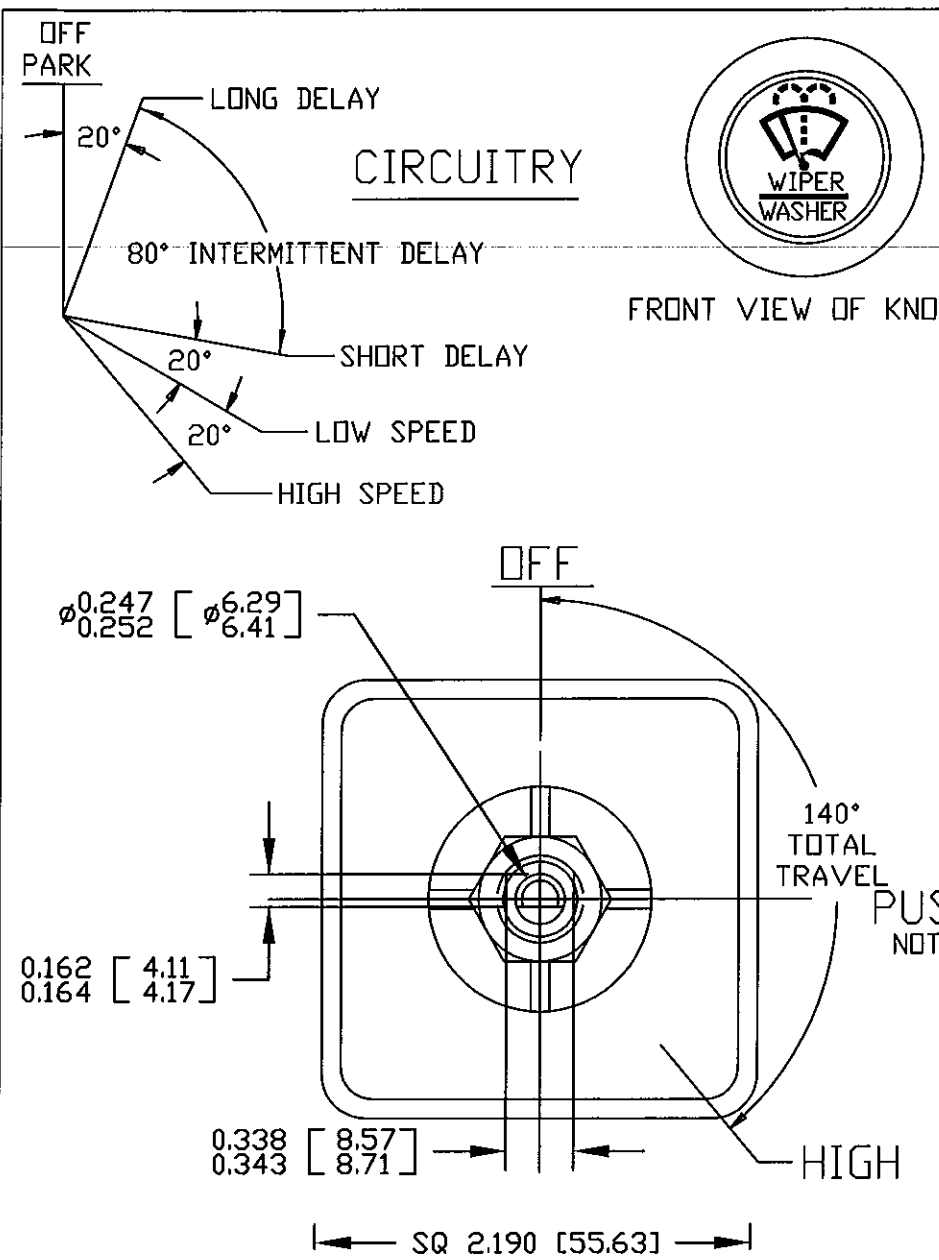
NOTES:

1. PUSH TO WASH, WASHER & WIPER CIRCUIT ACTIVATED (1-3 WIPES AFTER WASHER CIRCUIT IS DEACTIVATED).
2. ALL STEEL PARTS PLATED.
3. ALL DIMENSIONS ARE REF. ONLY.
4. 12 VOLTS D.C.
5. SEPARATE B+ AND GROUND CONNECTIONS MUST BE MADE TO THE WIPER MOTOR.

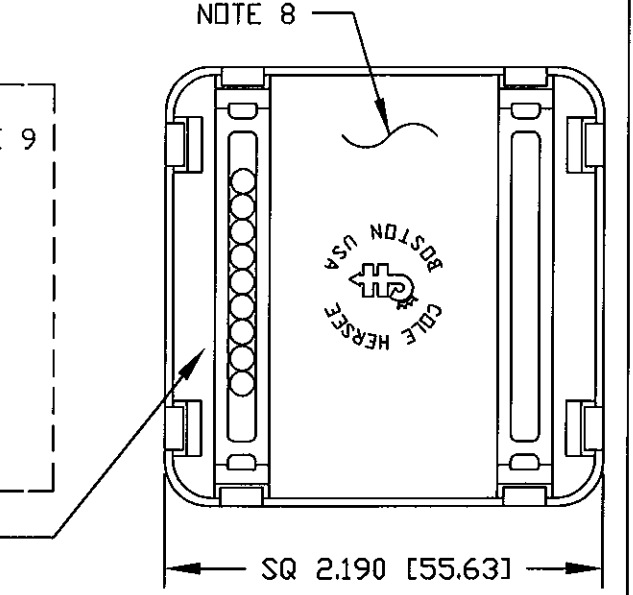
METRIC

| LET. | WAS | DATE | BY | LET. | WAS | DATE | BY | MATERIAL | DRAWN | CHECKED | APPROVD. | SCALE | DATE DRAWN | |
|------|-----|------|----|------|-----|-----------|---------|----------|------------|---------------------------------|----------|-------|------------|----------------|
| | | | | | | | | # | LZ | | | 1:1 | 3-18-87 | |
| | | | | | | | | | FINISH | Cole Hersee Co. | | | | DATE BLUEPRINT |
| | | | | | | | | | TOLERANCES | WINDSHIELDWIPER & WASHER SWITCH | | | | 75601-06 |
| | | | | | | | | | DECIMAL ± | PM MOTOR | | | | |
| | | | | | | | | | METRIC ± | | | | | |
| | | | | | A | ECN 24882 | 7-22-91 | A | | | | | | |
| | | | | | | ISSUED | 3-23-87 | A | | | | | | |

DO NOT SCALE

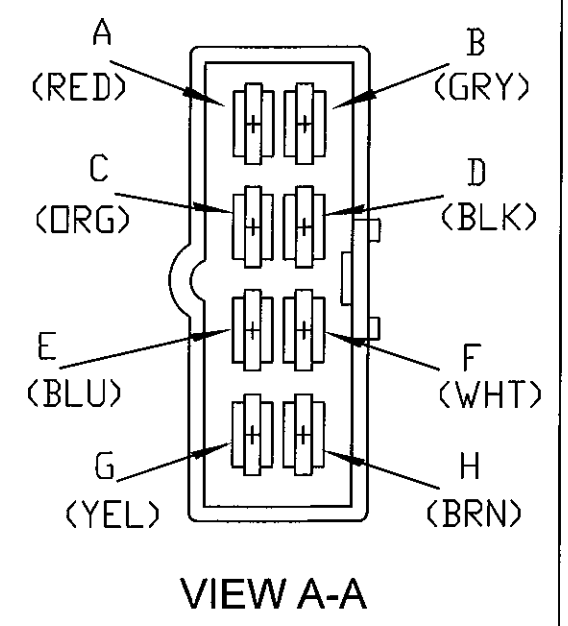


| Revision Control Record | | | |
|-------------------------|-----------------------|---------|----------|
| Rev. | Description of Change | ECN No. | Date |
| A | NEW RELEASE | 07475 | 12/04/07 |
| B | SOFTWARE CHANGE | 08085 | 01/31/08 |
| C | BOM CHANGE | 09587 | 01/13/10 |



| COLOR | FUNCTION | CONNECTOR | TERMINAL |
|--------|-----------------------------|-----------|----------|
| RED | VBB (12V POWER) | 8-PIN | A |
| GREY | HIGH-SPEED MOTOR #2 | 8-PIN | B |
| ORANGE | LOW-SPEED MOTOR #2 | 8-PIN | C |
| BLACK | GROUND (0V) | 8-PIN | D |
| BLUE | PARK MOTOR #1 (SEE NOTE 11) | 8-PIN | E |
| WHITE | HIGH-SPEED MOTOR#1 | 8-PIN | F |
| YELLOW | LOW-SPEED MOTOR #1 | 8-PIN | G |
| BROWN | WASHER | 8-PIN | H |
| PURPLE | PARK MOTOR #2 (SEE NOTE 11) | 1-PIN | |

- NOTES:
- DESIGNED FOR 12V SYSTEM, DUAL MOTOR. MUST BE USED WITH NON-DYNAMIC PARK MOTORS ONLY.
 - PUSH TO WASH FUNCTION RESULTS IN 3 WIPES AFTER RELEASE OF PUSH SWITCH.
 - RATING: VOLTAGE OPERATING RANGE 9VDC TO 16VDC
 ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
 MOTOR DRIVE: 10 AMPS PER MOTOR CONTINUOUS, START-UP/STALL/LOCKED-ROTOR 30 AMPS. SHORT-CIRCUIT PROOF.
 WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
 - MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
 - CONFORMS TO SAE J1455:
 4.11 GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
 4.11.1 STEADY-STATE ELECTRICAL CHARACTERISTICS.
 4.11.2 TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
 - INTERMITTENT DELAYS: 1, 2, 4, 7, 11 AND 16 SECONDS
 - ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
 - COLE HERSEE PART NUMBER, REVISION, & DATE CODE STAMPED IN WHITE ON REAR PLASTIC COVER.
 - CONNECTOR, DELPHI: 8-PIN, PART# 2965972 (QTY 1)
 TERMINALS, DELPHI: 2965439 (QTY 8)
 - CONNECTOR, DELPHI: 1-PIN, PART# 8905650 (QTY 1)
 TERMINALS, DELPHI: 2965439 (QTY 1)
 - UNIT REQUIRES TWO SEPARATE WIRE CONNECTIONS TO MOTOR PARK SIGNALS.
 THIS MAY REQUIRE RE-WIRING VEHICLE HARNESS. DO NOT CONNECT PARK WIRES TOGETHER.
 NOTE THAT 1-PIN CONNECTOR (PURPLE WIRE) IS FOR PARK MOTOR #2.
 - WRAP PLASTIC BAG AROUND SWITCH PURPLE WIRE, FOLD AND STAPLE AS SHOWN.



Tolerances Unless otherwise specifically noted, the following are default tolerances:
 * 2-place Decimal Dimensions +/- .02"
 * 3-place Decimal Dimensions +/- .005"
 * Angular Dimensions +/- 1.0 Deg.
 * Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

Used On or Ref.: **EX28333** Scale: **1:1**

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Drawn **JCS** Date **12/04/07**
 By: Drawn:

Special Characteristics:

- ⊠ Critical Characteristic, relating to Safety and/or Regulatory Compliance
- ⊞ Significant Characteristic relating to Process Control (SPC)
- Ⓚ Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

(Note that the Identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Responsible Engineer: **JCS** Pg. **1**

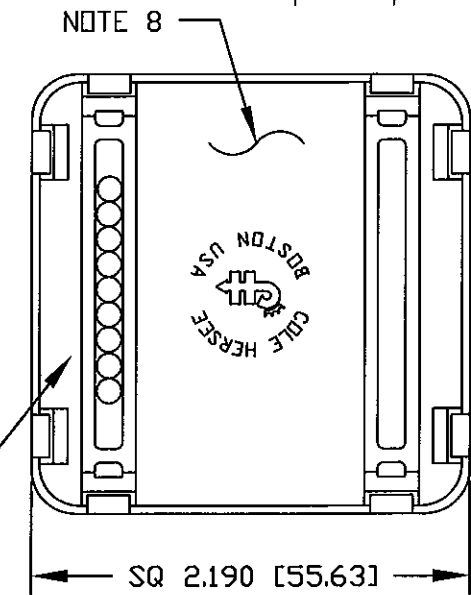
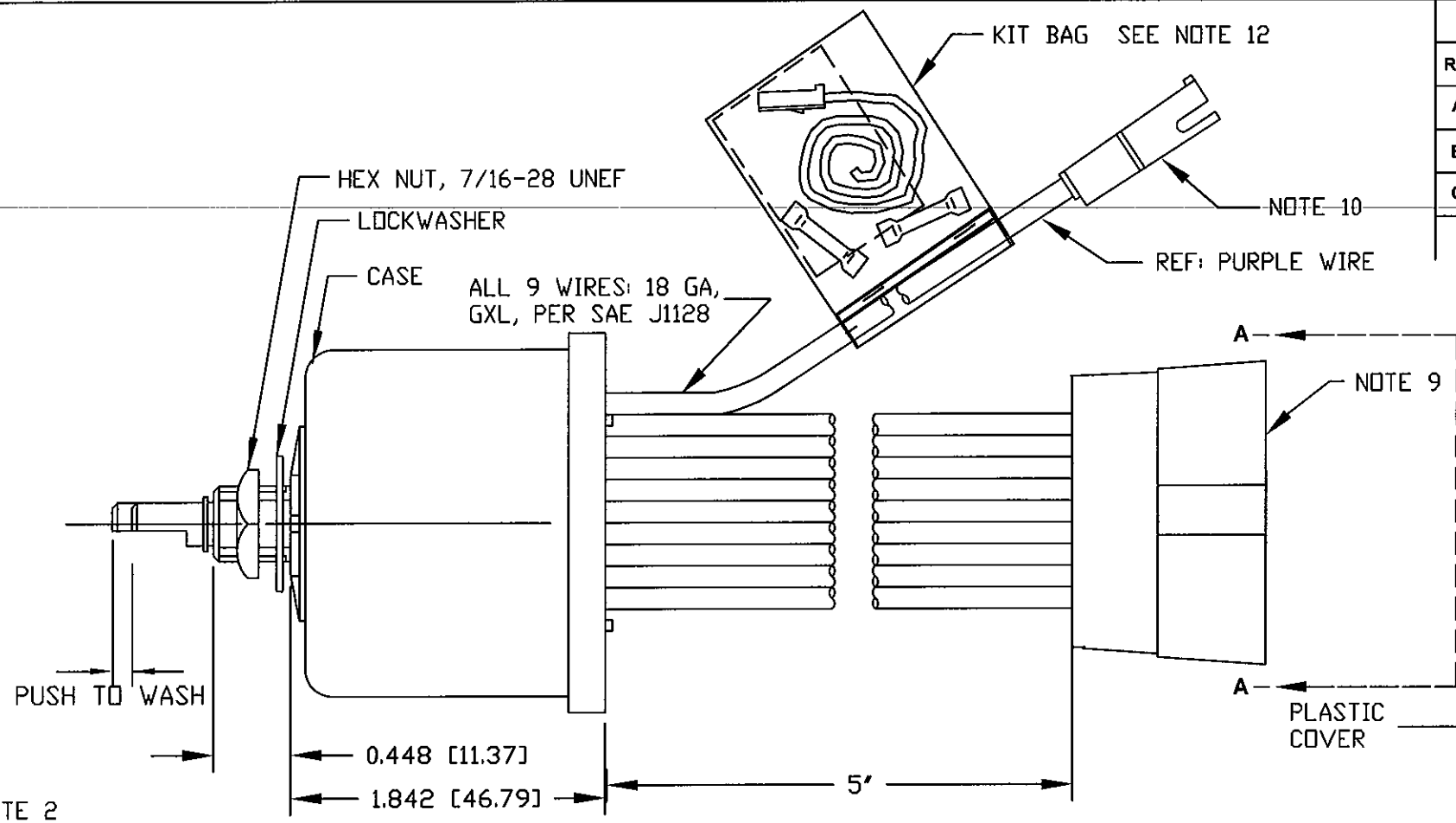
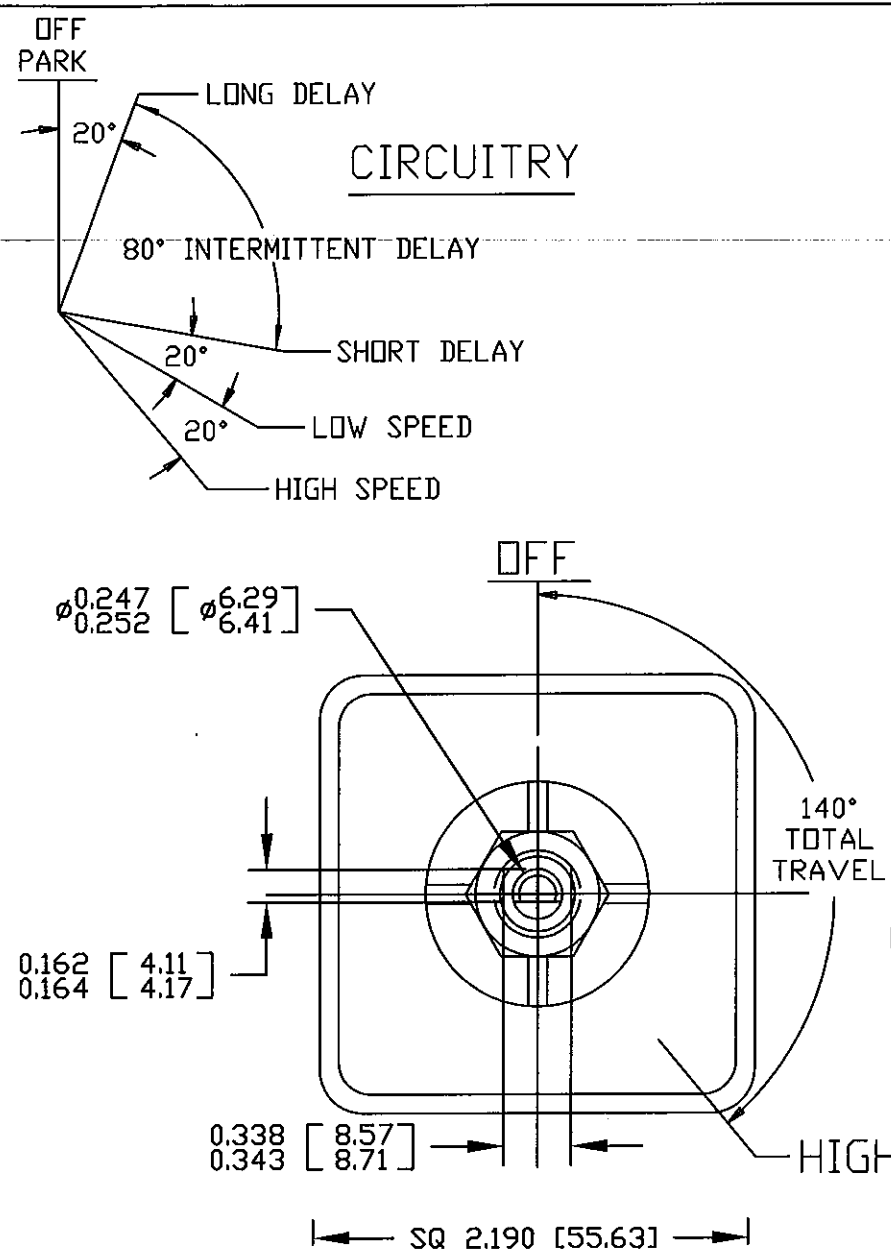
Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

Description:
WINDSHIELD WIPER CONTROLLER, DUAL-MOTOR, 12V, SSR, NON-DYNAMIC PARK MOTOR

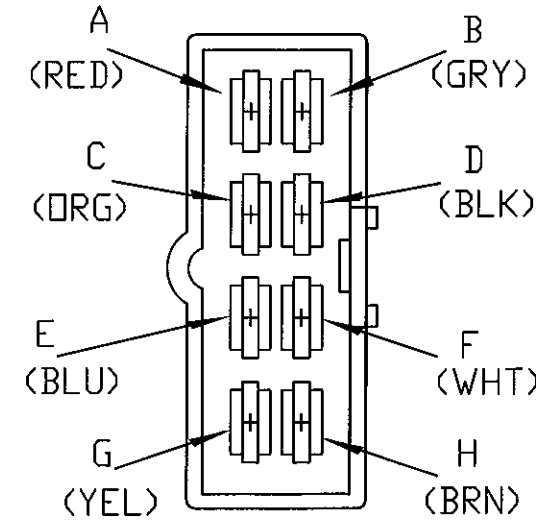
Drawing / Part No.: **75601-14** Current Rev. **C**

Revision Control Record

| Rev. | Description of Change | ECN No. | Date |
|------|-----------------------|---------|----------|
| A | NEW RELEASE | 07476 | 12/04/07 |
| B | PROGRAM SOFTWARE | 08085 | 01/31/08 |
| C | BOM CHANGE | 09587 | 01/13/10 |



- NOTES:**
- DESIGNED FOR 12V SYSTEM, DUAL MOTOR. MUST BE USED WITH NON-DYNAMIC PARK MOTORS ONLY.
 - PUSH TO WASH FUNCTION RESULTS IN 3 WIPES AFTER RELEASE OF PUSH SWITCH.
 - RATING: VOLTAGE OPERATING RANGE 9VDC TO 16VDC
 ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
 MOTOR DRIVE: 10 AMPS PER MOTOR CONTINUOUS. START-UP/STALL/LOCKED-ROTOR 30 AMPS. SHORT-CIRCUIT PROOF.
 WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
 - MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
 - CONFORMS TO SAE J1455:
 4.11 GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
 4.11.1 STEADY-STATE ELECTRICAL CHARACTERISTICS.
 4.11.2 TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
 - INTERMITTENT DELAYS: 1, 2, 4, 7, 11 AND 16 SECONDS
 - ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
 - COLE HERSEE PART NUMBER, REVISION, & DATE CODE STAMPED IN WHITE ON REAR PLASTIC COVER.
 - CONNECTOR, DELPHI: 8-PIN, PART# 2965972 (QTY 1)
 TERMINALS, DELPHI: 2965439 (QTY 8)
 - CONNECTOR, DELPHI: 1-PIN, PART# 8905650 (QTY 1)
 TERMINALS, DELPHI: 2965439 (QTY 1)
 - UNIT REQUIRES TWO SEPARATE WIRE CONNECTIONS TO MOTOR PARK SIGNALS.
 THIS MAY REQUIRE RE-WIRING VEHICLE HARNESS. DO NOT CONNECT PARK WIRES TOGETHER.
 NOTE THAT 1-PIN CONNECTOR (PURPLE WIRE) IS FOR PARK MOTOR #2.
 - WRAP PLASTIC BAG AROUND SWITCH PURPLE WIRE, FOLD AND STAPLE AS SHOWN.



VIEW A-A

| COLOR | FUNCTION | CONNECTOR | TERMINAL |
|--------|-----------------------------|-----------|----------|
| RED | VBB (12V POWER) | 8-PIN | A |
| GREY | HIGH-SPEED MOTOR #2 | 8-PIN | B |
| ORANGE | LOW-SPEED MOTOR #2 | 8-PIN | C |
| BLACK | GROUND (0V) | 8-PIN | D |
| BLUE | PARK MOTOR #1 (SEE NOTE 11) | 8-PIN | E |
| WHITE | HIGH-SPEED MOTOR#1 | 8-PIN | F |
| YELLOW | LOW-SPEED MOTOR #1 | 8-PIN | G |
| BROWN | WASHER | 8-PIN | H |
| PURPLE | PARK MOTOR #2 (SEE NOTE 11) | 1-PIN | |

Tolerances Unless otherwise specifically noted, the following are default tolerances:
 * 2-place Decimal Dimensions $\pm .02$ "
 * 3-place Decimal Dimensions $\pm .005$ "
 * Angular Dimensions ± 1.0 Deg.
 * Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

Used On: **EX28333** Scale: **1:1**

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Drawn By: **JCS** Date: **12/04/07**

Special Characteristics:

- Critical Characteristic, relating to Safety and/or Regulatory Compliance
- Significant Characteristic relating to Process Control (SPC)
- Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

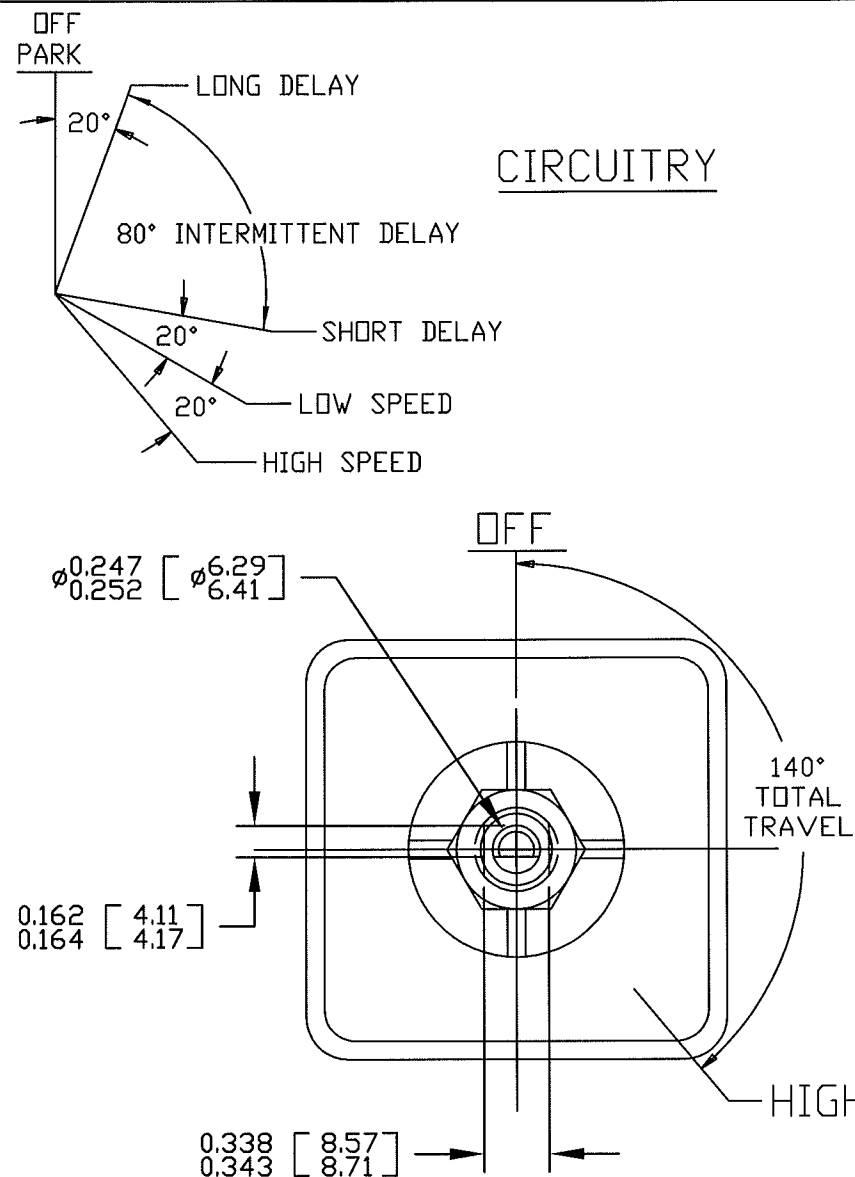
(Note that the Identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Responsible Engineer: **JCS** Pg. **1**

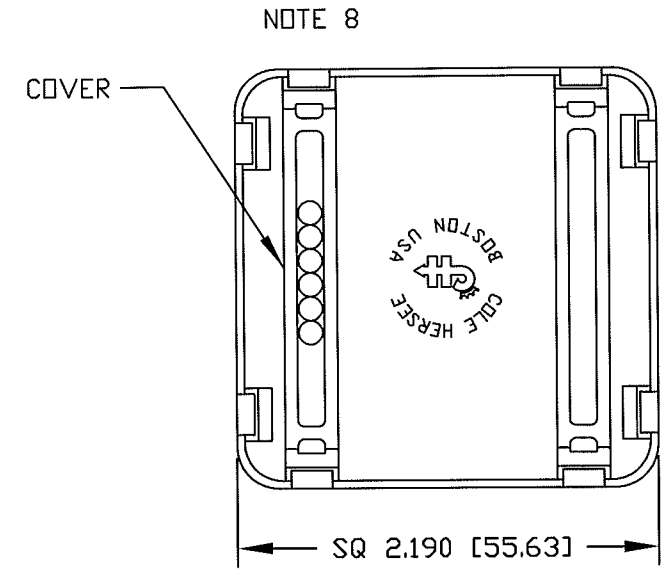
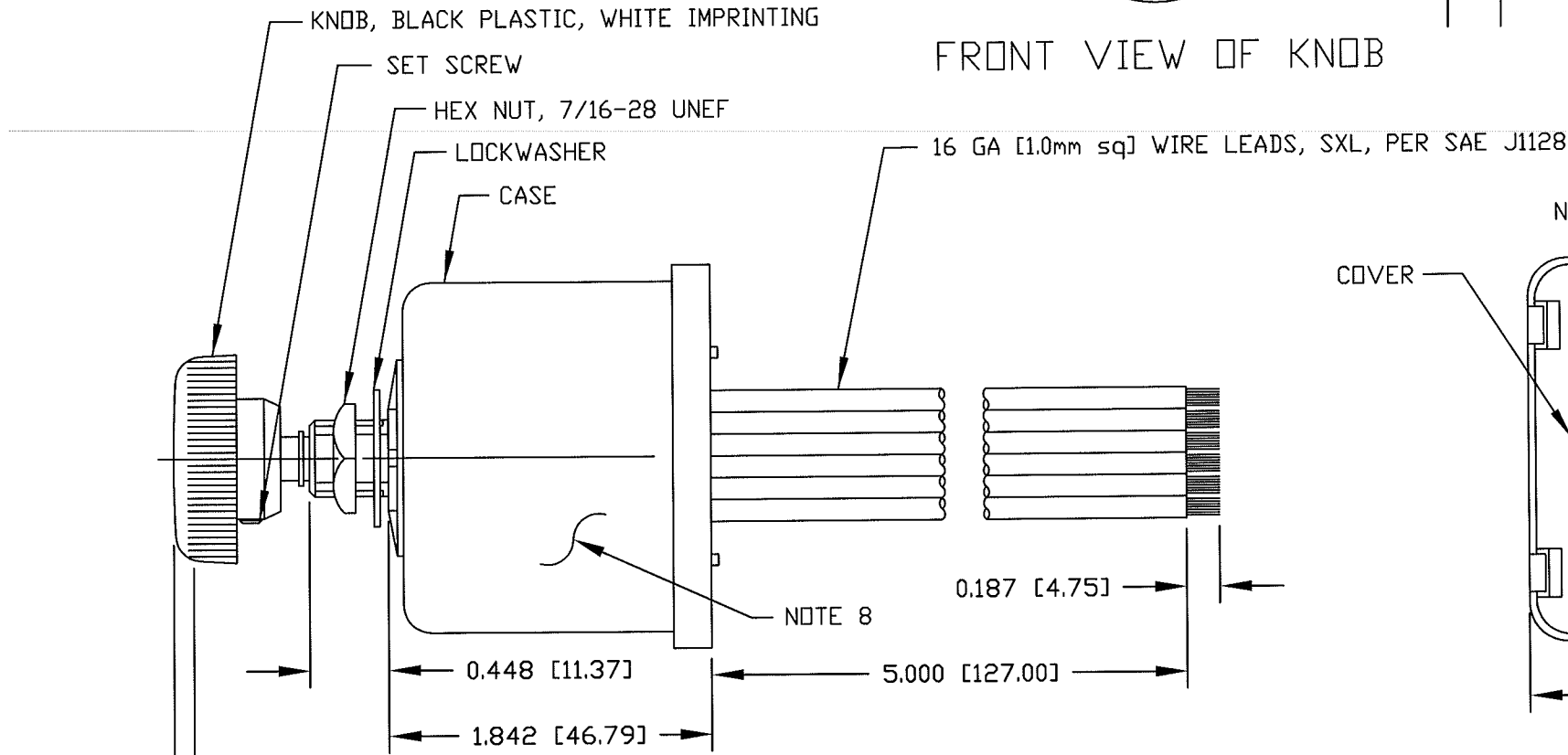
Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

Description:
WINDSHIELD WIPER CONTROLLER, DUAL-MOTOR, 12V, SSR, NON-DYNAMIC PARK MOTOR

Drawing / Part No.: **75601-15** Current Rev. **C**



| Revision Control Record | | | |
|-------------------------|-----------------------|---------|----------|
| Rev. | Description of Change | ECN No. | Date |
| H | BOM CHANGE | 09588 | 01/18/10 |
| J | CHANGE NOTE 3 | 13055 | 02/07/13 |
| | | | |



PUSH TO WASH
NOTE 2

- NOTES:
- DESIGNED FOR 24V SYSTEM, SINGLE MOTOR, DYNAMIC AND NON-DYNAMIC PARK. TO BE USED WITH PERMANENT MAGNET MOTOR, NEGATIVE GROUND ONLY.
 - PUSH TO WASH FUNCTION: RESULTS IN 2 TO 3 WIPES AFTER RELEASE OF PUSH SWITCH.
 - RATING: VOLTAGE OPERATING RANGE 18VDC TO 32VDC
ROTARY SWITCH ACTUATION 20,000 CYCLES MINIMUM.
MOTOR DRIVE: 15 AMPS CONTINUOUS, START-UP/STALL/LOCKED-ROTOR 50 AMPS. SHORT-CIRCUIT PROTECTED.
WASHER CIRCUIT 3 AMPS, PUSH SWITCH 20,000 CYCLES MINIMUM.
 - MICROPROCESSOR CONTROLLED, SOLID-STATE RELAY, CURRENT LIMIT SENSE CIRCUIT, REVERSE POLARITY PROTECTED
 - CONFORMS TO SAE J1455:
4.11 GENERAL HEAVY DUTY TRUCK ELECTRICAL ENVIRONMENT.
4.11.1 STEADY-STATE ELECTRICAL CHARACTERISTICS.
4.11.2 TRANSIENT, NOISE AND ELECTROSTATIC CHARACTERISTICS.
 - ENVIRONMENTAL EXTREMES BY LOCATION.
5.2 INTERIOR-FORWARD.
 - ALL STEEL PARTS PLATED.
 - ALL DIMENSIONS ARE REFERENCE ONLY UNLESS NOTED OTHERWISE.
 - COLE HERSEE PART NUMBER, REVISION, & DATE CODE MARKED AT RANDOM ON CASE.

| COLOR | CONNECT WIRE TO: |
|--------|--|
| YELLOW | MOTOR LOW SPEED TERMINAL |
| WHITE | MOTOR HIGH SPEED TERMINAL |
| BLUE | MOTOR PARK TERMINAL |
| BLACK | GROUND (B-) THIS CONNECTION MUST BE MADE |
| BROWN | WASHER PUMP (B+ TERMINAL) |
| RED | B+ |

SEPARATE B+ AND GROUND CONNECTIONS MUST BE MADE TO THE WIPER MOTOR

Tolerances Unless otherwise specifically noted, the following are default tolerances:
 * 2-place Decimal Dimensions +/- .02"
 * 3-place Decimal Dimensions +/- .005"
 * Angular Dimensions +/- 1.0 Deg.
 * Metric: Refer to equivalent English Dimension Tolerance
 >>> NOTE: All tolerances are Non-Cumulative. <<<

Dimensional Units All dimensions are expressed in inches except those shown in brackets (xxx) are expressed in millimeters

"REF." or an Asterisk (*) = Non-Toleranced Reference Dimension, shown for clarification purposes only.

Used On or Ref.: **EX-26548** Scale: **1:1**

PROPRIETARY INFORMATION This Engineering Drawing, and the information contained herein, is proprietary to Cole Hersee Company and may not be disclosed, re-produced, or in any other way transferred or communicated to any other party without the express written consent of an authorized representative of Cole Hersee Company.

DESIGN CONTROL It is the responsibility of the individual using / referencing this drawing to assure that the noted design revision level agrees with the revision level of the Controlled Document (Master Drawing). This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.

DO NOT SCALE - Dimensional variation may occur during printing / reproduction.

Drawn By: **ZU** Date Drawn: **03/13/87**

Special Characteristics:

- Critical Characteristic, relating to Safety and/or Regulatory Compliance
- Significant Characteristic relating to Process Control (SPC)
- Control Dimension relating to Form - Fit - Function as defined by Cole Hersee Company and/or the Customer

(Note that the identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.)

Responsible Engineer: **Pg. 1**

Cole Hersee Co.
 20 Old Colony Ave., South Boston, MA, 02127
 Phn: 617-268-2100 Web: www.colehersee.com

Description: WINDSHIELD WIPER & WASHER SW. INTERMITTENT DELAY, 24V.D.C.

Drawing / Part No.: **75602-04** Current Rev.: **J**

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкуренеспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru