

# W-Series

Sealed Rocker Switches

**PRODUCT WEBPAGE**

*request sample, configure part*



The W-Series features complete IP68 protection, even below the panel, where the critical connection is made from your wiring harness. When used in conjunction with the integrated connector, the totally submersible W-Series provides a seal for up to ten individual wires, assuring compatibility with even the most complex circuitry.

**1-2**  
Poles

**.4-10**  
Amps

**12-24**  
VDC

**IP68 Sealing**  
Above/Below-Panel

## Typical Applications

- Marine
- On/Off-Highway

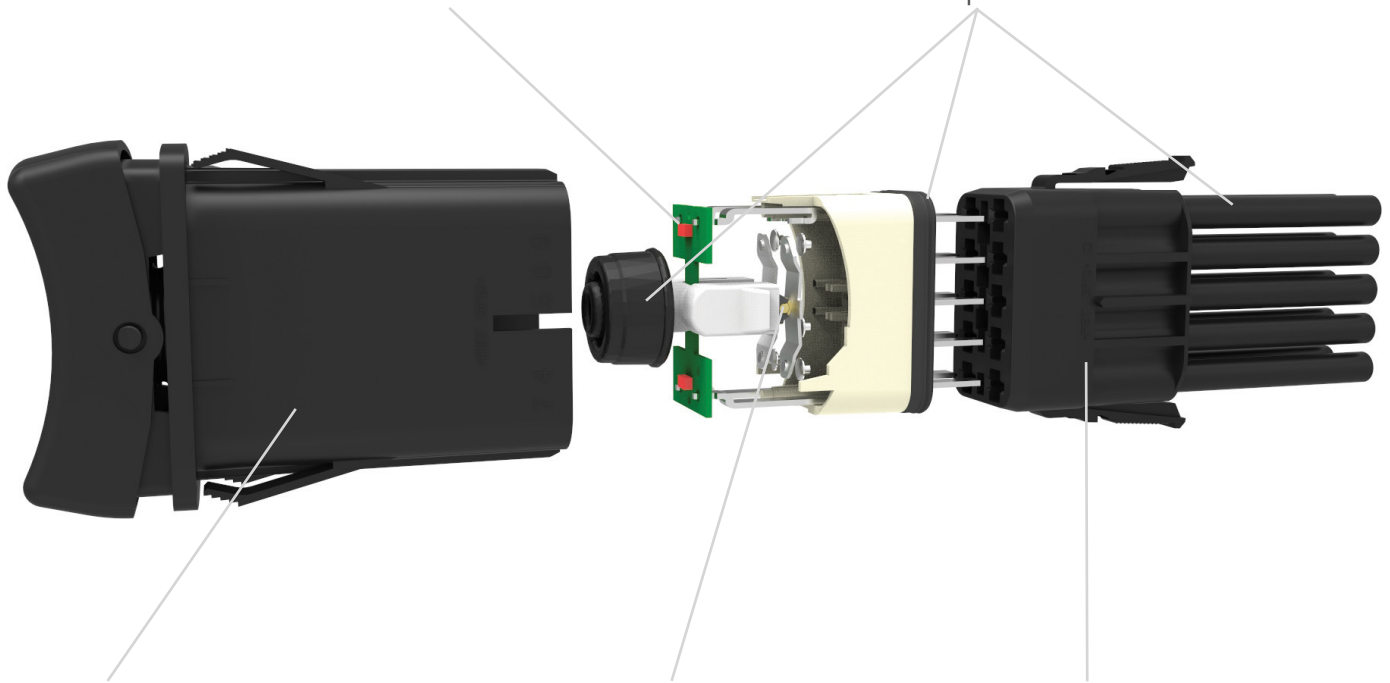
# Design Features

## ILLUMINATION

Choice of highly reliable SMT LED or incandescent lighting with 21 dependent or independent circuit options.

## TRI-SEAL DESIGN

Sealing at actuator, an insert molded neoprene base seal, along with wire lead seals, assures water tight, fully submersible protection.



## BODY

One piece polyester 94V0 seamless body acts as an umbrella to protect critical internal components.

## ROLLER PIN

Proven reliable mechanism is lubricant free and allows for 100k electrical and 250k mechanical cycles, and withstands extreme temperatures from  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

## INTEGRATED CONNECTOR

Accommodates Tyco/Amp .110 junior power timer contacts with twin locking tabs to provide a safe, secure, sealed connection.

# Tech Specs

## Electrical

|                            |                                                  |
|----------------------------|--------------------------------------------------|
| Contact Rating             | .4VA @ 24VDC<br>10 amps, 3-24VDC                 |
| Dielectric Strength        | 1500 Volts RMS                                   |
| Insulation Resistance      | 50 Megohms                                       |
| Initial Contact Resistance | 10 milliohms max. @ 4VDC                         |
| Life                       | Up to 100,000 cycles, circuit and load dependent |
| Contacts                   | Silver tin-oxide, 88/12                          |
| Terminals                  | Copper with silver or gold plating               |
| Quick                      | Connect terminations.                            |
| Voltage                    | 3-24 VDC                                         |
| Overcurrent                | 15A for 50 cycles                                |

## Physical

|           |                                                                                                                    |
|-----------|--------------------------------------------------------------------------------------------------------------------|
| Lighted   | LED - rated 100,000 hours 1/2 life<br>(LED is internally ballasted for voltages to 24 VDC)                         |
| Seals     | Neoprene                                                                                                           |
| Base      | Polyester blend rated to 125C with a UL flammability rating of 94V0.                                               |
| Actuator  | Basic actuator structure molded of thermoplastic polycarbonate with a hard Nylon 66 thermoplastic surface overlay. |
| Lens      | Polycarbonate rated at 100°C                                                                                       |
| Function  | 2 & 3 Position Rocker Style                                                                                        |
| Operation | Maintained & Momentary                                                                                             |
| Base      | PA 6/6 30GF (glass filled)                                                                                         |
| Actuator  | PA 6/6 13GF                                                                                                        |
| Bracket   | PBT 10GF                                                                                                           |
| Connector | PBT 10GF, polarized                                                                                                |

## Actuator Travel (Angular Displacement)

24° full throw

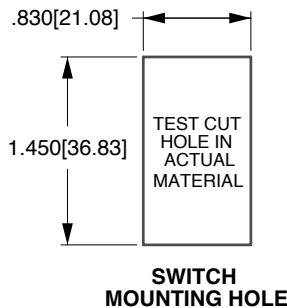
## Environmental

|                               |                                                                                                                                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sealing                       | IP68, for above and below-panel components of actual switch only                                                                                                                                     |
| Corrosion/ Chemical Splash    | Flowing Mixed Gas (FMG)<br>Class III 3 year accelerated exposure per ASTM B-827, B-84                                                                                                                |
| Operating Temperature         | -40°C to +85°C, 22 cycles, 300 hours                                                                                                                                                                 |
| Vibration 1                   | Per Mil-Std 202F, Method 204D<br>Test Condition A 0.06 DA or 10G's 10-500 Hz.                                                                                                                        |
| Vibration 2                   | Resonance search<br>24-50 Hz 0.40 DA<br>50-2000 ±10 G's peak<br>Results Horizontal Axis 3-5 G's max<br>Random<br>24 Hz 0.06 PSD-Gsq/Hz<br>60 Hz 0.50<br>100 Hz 0.50<br>200 Hz 0.025<br>2000 Hz 0.025 |
| Handling/Drop                 | One meter onto concrete floor                                                                                                                                                                        |
| Salt Spray                    | Per Mil-Std 202F, Method 101D,<br>Test Condition A, 48 Hrs.                                                                                                                                          |
| Dust                          | IP6X                                                                                                                                                                                                 |
| Thermal Shock                 | Per Mil-Std 202F, Method 107F,<br>Test Condition A, -55°C to 85°C<br>Test criteria - pre and post test contact resistance                                                                            |
| Moisture Resistance/ Humidity | Per Mil-Std 202F,<br>Method 106F, Test Criteria - pre and post test contact resistance                                                                                                               |

## Mounting Specifications

Panel Thickness Range .032 to .125

For optimum panel fit, the following panel thicknesses are suggested: .032, .062, .093, .125



# Ordering Scheme

Rockers

Sample  
Part Number

W 11 D 2 B C 0 1 - A 7 Z 00 - 0 00

Selection

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

## 1. SERIES

W

## 2. CIRCUIT

( ) - momentary For terminal arrangement, see dimensional specs

| Position: | 1  | 2                | 3                                |
|-----------|----|------------------|----------------------------------|
| SP        | DP | 2 & 3, 5 & 6     | Connected Terminals 1 & 2, 4 & 5 |
| 11        | 21 | ON               | NONE OFF                         |
| 12        | 22 | (ON)             | NONE OFF                         |
| 13        | 23 | ON               | NONE (OFF)                       |
| 14        | 24 | ON               | NONE ON                          |
| 15        | 25 | ON               | NONE (ON)                        |
| 16        | 26 | ON               | OFF ON                           |
| 17        | 27 | ON               | OFF (ON)                         |
| 18        | 28 | (ON)             | OFF (ON)                         |
| -         | 42 | 2 & 3, 5 & 6     | NONE 1 & 8                       |
| -         | 43 | 2 & 3            | 2 & 3, 4 & 5 4 & 5               |
| -         | 44 | 2 & 3, 5 & 6     | 2 & 3 OFF                        |
| -         | 45 | (2 & 3), (5 & 6) | 2 & 3 OFF                        |
| -         | 46 | (2 & 3), (5 & 6) | 2 & 3 2 & 1                      |
| -         | 47 | 2 & 3 & 4, 5 & 6 | 2 & 3, 4 & 5 2 & 1, 4 & 5        |
| -         | 48 | 2 & 3, 5 & 6     | 2 & 3 2 & 1                      |
| -         | 49 | 2 & 3, 5 & 6     | 2 & 3, 4 & 5 2 & 1, 4 & 5        |
| 51        | -  | 3 & 10           | 2 & 3 OFF                        |
| 52        | -  | 3 & 10           | 2 & 3 2 & 1                      |
| 53        | -  | (3 & 10)         | 2 & 3 OFF                        |
| 54        | -  | 3 & 10           | 2 & 3 (OFF)                      |
| 55        | -  | (3 & 10)         | 2 & 3 2 & 1                      |
| 56        | -  | (3 & 10)         | 2 & 3 (OFF)                      |
| 57        | -  | (3 & 10)         | 2 & 3 (2 & 1)                    |
| 58        | -  | OFF              | 2 & 3 2 & 1                      |
| -         | 61 | 3 & 10, 6 & 9    | 2 & 3, 5 & 6 OFF, OFF            |
| -         | 62 | 3 & 10, 6 & 9    | 2 & 3, 4 & 5 2 & 1, 5 & 4        |
| -         | 63 | (3 & 10, 6 & 9)  | 2 & 3, 4 & 5 OFF, OFF            |
| -         | 64 | 3 & 10, 6 & 9    | 2 & 3, 4 & 5 (OFF, OFF)          |
| -         | 65 | (3 & 10, 6 & 9)  | 2 & 3, 4 & 5 2 & 1, 5 & 4        |
| -         | 66 | (3 & 10, 6 & 9)  | 2 & 3, 4 & 5 (OFF, OFF)          |
| -         | 67 | (3 & 10, 6 & 9)  | 2 & 3, 4 & 5 (2 & 1, 5 & 4)      |
| -         | 68 | OFF, OFF         | 2 & 3, 4 & 5 2 & 1, 5 & 4        |

## 3. RATING

3

B 10A 24V D 10A 12V G 10A 6V H 10A 3V

## 4. TERMINATION / BASE STYLE

2 .110 TAB (QC)

## 5. ILLUMINATION

Lamp #1: above terminals 1&4 end of switch; Lamp #2 above terminals 3&6 end of switch. Positive (+) and negative (-) symbols apply to LED lamps only

| Lamps                                     | Actuator Lens Position Illumination Type | Lamp Wired to Terminals |
|-------------------------------------------|------------------------------------------|-------------------------|
| O NONE                                    |                                          |                         |
| A #1                                      | Independent                              | 8+ 7-                   |
| B #1                                      | Down                                     | 3+ 7-                   |
| C #2                                      | Up                                       | 3+ 7-                   |
| D #1                                      | Down                                     | 3+ 7-                   |
| E #1                                      | Up                                       | 1+ 7-                   |
| F #1                                      | Independent                              | 8+ 7-                   |
| G #1                                      | Independent                              | 3+ 6-                   |
| H #2                                      | Independent                              | 8+ 7-                   |
| Selections for Single Pole Switches Only: |                                          |                         |
| J #1                                      | Down                                     | 3+ 8-                   |
| K #1                                      | Independent                              | 6+ 7-                   |
| L #1                                      | Down                                     | 3+ 6-                   |
| M #2                                      | Up                                       | 3+ 6-                   |
| N #1                                      | Down                                     | 3+ 6-                   |
| P #1                                      | Up                                       | 1+ 4-                   |
| R #1                                      | Down                                     | 3+ 7-                   |
| S #1                                      | Down                                     | 6+ 7-                   |
| U #1                                      | Independent                              | 8+ 7-                   |
| V #2                                      | Independent                              | 10+ 9-                  |
| W #1                                      | Independent                              | 8+ 7-                   |
| Y #1 & #2                                 | Independent in Series                    | 8+ 7-                   |
| Z #1 & #2                                 | Independent in Parallel                  | 8+ 7-                   |

## 6,7. LAMP (SAME CODING FOR BOTH SELECTIONS)

Selection 6: above terminals 1 & 4; Selection 7: above terminals 3 & 6

|          |                   |
|----------|-------------------|
| No lamp  | 0                 |
| LED* Red | Amber Green White |
| 2VDC     | A L F 4           |
| 6VDC     | B M G 5           |
| 12VDC    | C N H 6           |
| 24VDC    | D P J 8           |

\* Consult factory for "daylight bright", blue/green and white LED options.  
Typical current draw for LED is 20ma.

## 8. BRACKET COLOR

1

1 Black

## 9. ACTUATOR

1

3 Black with Laser Etched A Black

## 10. LENS COLOR / STYLE - ABOVE LAMP #1 TERMINALS 1 & 4 11. LENS COLOR / STYLE - ABOVE LAMP #2 TERMINALS 3 & 6

|             |       |       |       |     |      |                   |
|-------------|-------|-------|-------|-----|------|-------------------|
| Z - No Lens |       |       |       |     |      |                   |
| Clear       | White | Amber | Green | Red | Blue |                   |
| 1           | -     | B     | G     | M   | T    | Large Transparent |
| -           | 7     | C     | H     | N   | U    | Large Translucent |
| 3           | -     | D     | J     | P   | V    | Bar Transparent   |
| -           | 9     | E     | K     | R   | W    | Bar Translucent   |
| 5           | A     | -     | -     | -   | -    | Laser-Etched      |

Lens color for LEDs must be clear, white, or match color of LED.

## 12. ACTUATOR LENS OR BODY LEGENDS

2

00 - No Legend this location/No actuator

|        |        |        |        |
|--------|--------|--------|--------|
| 11 ON  | 12 OFF | 13 I   | 14 O   |
| OFF    | ON     | O      | I      |
| 15 O O | 16 O O | 17 O I | 18 I O |
| F N    | N F    | F      |        |
| 21     | 22     | 23     | 24     |
| OFF    | ON     | O      | I      |
| 25 O   | 26 O   | 27 O   | 28 I   |
| F      | N      |        |        |

For additional legend options & codes, visit us at carlingtech.com

## 13. LEGENDS ORIENTATION

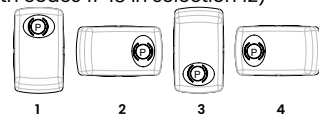
0 No legend (used with codes 11-18 in selection 12)

1 Orientation 1

2 Orientation 2

3 Orientation 3

4 Orientation 4



## 14. ACTUATOR LENS LEGENDS

2

00 No legend (used with codes 11-18 in selection 12) Selection 14 required when switch requires two legends. If the two legends consist of one lens & one body legend, lens legend must be specified in selection 12; body legend specified in selection 14. For standard legends, see "Standard Legend Codes" page. For additional legends, please consult factory

Notes:

1 Custom colors are available. Consult factory.

2 White imprinting is standard on black actuators; Black imprinting is standard on white, red & gray actuators; Custom colors are available, consult factory.

3 .4VA @ 24VDC rating is available, consult factory for circuit compatibility.

[Configure Complete Part Number >](#)

[Browse Standard Parts >](#)

# Ordering Scheme Locking Rocker

Sample  
Part Number

W 11 D 2 0 W 0 J - P 7 B 00 - 0

Selection 1 2 3 4 5 6 7 8 9 10 11 12 13

## 1. SERIES

W

## 2. CIRCUIT

( ) - momentary  
For terminal arrangement, see dimensional specifications

| Position: |    | 1            | 2                   | 3            |
|-----------|----|--------------|---------------------|--------------|
| SP        | DP | 2 & 3, 5 & 6 | Connected Terminals | 1 & 2, 4 & 5 |
| 11        | 21 | ON           | NONE                | OFF          |
| 14        | 24 | ON           | NONE                | ON           |

## 3. RATING

B 10A 24V  
D 10A 12V  
G 10A 6V  
H 10A 3V

## 4. TERMINATION / BASE STYLE

2 .110 TAB (QC)

## 5. ILLUMINATION

Lamp #1: above terminals 1&4 end of switch.; Lamp #2 above terminals 3&6 end of switch. Positive (+) and negative (-) symbols apply to LED lamps only

|   |              | <u>Actuator Lens Position</u> |                                |    |
|---|--------------|-------------------------------|--------------------------------|----|
|   | <u>Lamps</u> | <u>Illumination Type</u>      | <u>Lamp Wired to Terminals</u> |    |
| O | NONE         |                               |                                |    |
| C | # 2          | Up                            | 3+                             | 7- |
| H | # 2          | Independent                   | 8+                             | 7- |

## 6. LOCK

W Lock Option

## 7. LAMP #2

| No lamp | 0   |       |       |       |  |
|---------|-----|-------|-------|-------|--|
| LED*    | Red | Amber | Green | White |  |
| 2VDC    | A   | L     | F     | 4     |  |
| 6VDC    | B   | M     | G     | 5     |  |
| 12VDC   | C   | N     | H     | 6     |  |
| 24VDC   | D   | P     | J     | 8     |  |

\* Consult factory for "daylight bright", blue/green and white LED options. Typical current draw for LED is 20ma.

## 8. BRACKET COLOR <sup>1</sup>

J Black

## 9. ACTUATOR <sup>1</sup>

P Black  
R Red

## 10. LENS

| Z - No Lens | Clear | White | Amber | Green | Red | Blue |                   |
|-------------|-------|-------|-------|-------|-----|------|-------------------|
| 1           | -     | B     | G     | M     | T   |      | Large Transparent |
| -           | 7     | C     | H     | N     | U   |      | Large Translucent |
| 3           | -     | D     | J     | P     | V   |      | Bar Transparent   |
| -           | 9     | E     | K     | R     | W   |      | Bar Translucent   |

Lens color for LEDs must be clear, white, or match color of LED.

## 11. LOCK FUNCTION

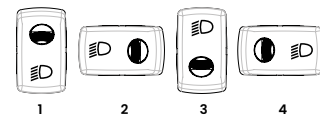
| Up | Down | Lock Color    |
|----|------|---------------|
| B  | J    | Black         |
| C  | K    | White         |
| D  | L    | Red           |
| E  | M    | Safety Orange |

## 12. LASER ETCHED, LENS OR BODY LEGEND <sup>1</sup>

00 No legend  
For standard legends, see "Standard Legend Codes" page.  
For additional legends, please consult factory

## 13. LEGENDS ORIENTATION

- 0 No legend
- 1 Orientation 1
- 2 Orientation 2
- 3 Orientation 3
- 4 Orientation 4



Notes:

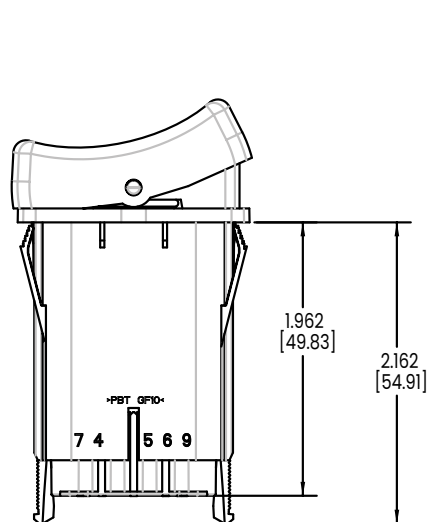
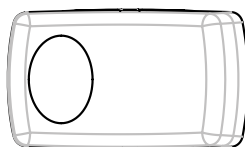
<sup>1</sup> White imprinting is standard on black actuators; Black imprinting is standard on white, red & gray actuators; Custom colors are available, consult factory.

[Configure Complete Part Number >](#)

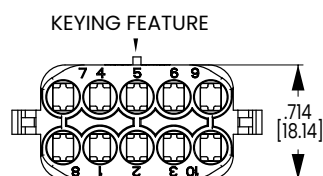
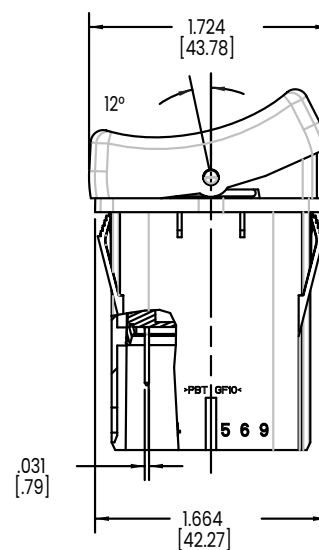
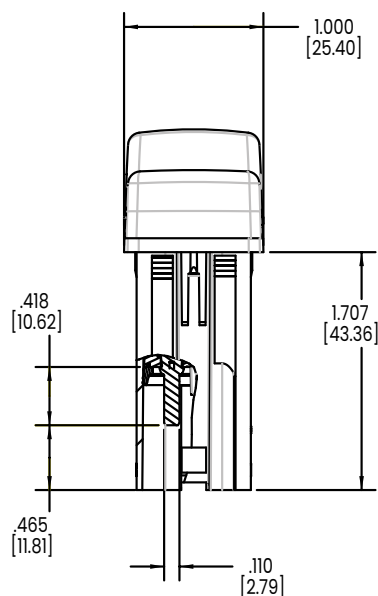
[Browse Standard Parts >](#)

# Dimensional Specs

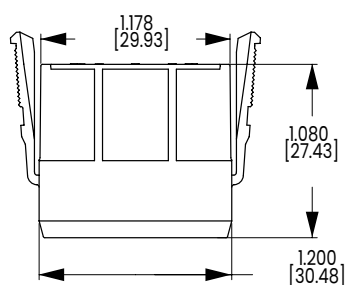
inches [millimeters]



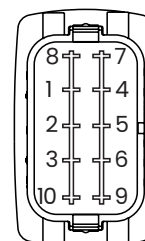
SWITCH SHOWN WITH  
CONNECTOR INSTALLED



WCH CONNECTOR  
(190-31214-001)



TERMINAL ARRANGMENT



## Notes:

WCH connector is intended for use with Tyco/Amp .110 Junior Power Timer, female contacts, and wire seals.  
For 14-16 awg wire, specify Tyco/Amp P/N 927766-3  
For 16-20 awg wire, specify Tyco/Amp P/N 927770-3  
Tyco/Amp cable seal P/N 828904-1 (20-18 awg wire) or P/N 828905-1 (16-14 awg wire) is required for each individual wire lead, and Tyco/Amp cable plug, P/N 828922-1, is required to seal each unused connector opening.  
Consult Tyco/Amp for the cable seal recommended for your specific wire gauge and thickness.

# Circuit Diagrams

| CIRCUIT CODE | CIRCUIT DIAGRAM | CIRCUIT CODE | CIRCUIT DIAGRAM | CIRCUIT CODE | CIRCUIT DIAGRAM | CIRCUIT CODE | CIRCUIT DIAGRAM |
|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|
| 11           |                 | 23           |                 | 46           |                 | 57           |                 |
| 12           |                 | 24           |                 | 47           |                 | 58           |                 |
| 13           |                 | 25           |                 | 48           |                 | 61           |                 |
| 14           |                 | 26           |                 | 49           |                 | 62           |                 |
| 15           |                 | 27           |                 | 51           |                 | 63           |                 |
| 16           |                 | 28           |                 | 52           |                 | 64           |                 |
| 17           |                 | 42           |                 | 53           |                 | 65           |                 |
| 18           |                 | 43           |                 | 54           |                 | 66           |                 |
| 21           |                 | 44           |                 | 55           |                 | 67           |                 |
| 22           |                 | 45           |                 | 56           |                 | 68           |                 |

# Lamp Circuit Diagrams

| LAMP CIRCUIT CODE | CIRCUIT DIAGRAM |
|-------------------|-----------------|
| A                 |                 |
| B                 |                 |
| C                 |                 |
| D                 |                 |
| E                 |                 |
| F                 |                 |
| G                 |                 |
| H                 |                 |

| LAMP CIRCUIT CODE | CIRCUIT DIAGRAM |
|-------------------|-----------------|
| J                 |                 |
| K                 |                 |
| L                 |                 |
| M                 |                 |
| N                 |                 |
| P                 |                 |
| R                 |                 |
| S                 |                 |

| LAMP CIRCUIT CODE | CIRCUIT DIAGRAM |
|-------------------|-----------------|
| U                 |                 |
| V                 |                 |
| W                 |                 |
| Y                 |                 |
| Z                 |                 |

# Standard Legend Codes

|       |        |      |     |     |     |       |          |      |          |                 |           |      |
|-------|--------|------|-----|-----|-----|-------|----------|------|----------|-----------------|-----------|------|
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| YK    | UA     | UB   | US  | UV  | UW  | UX    | UY       | MP   | MR       | PX              | MS        | MT   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| VU    | MW     | NZ   | NX  | NY  | YM  | VW    | PS       | PW   | PZ       | WG              | WM        | RN   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| RP    | YG     | TX   | VD  | VE  | VF  | VG    | SH       | SM   | SN       | SP              | SR        | SY   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| DIM   | BRIGHT | UH   | UJ  | PD  | PE  | PF    | VC       | VJ   | UF       | UG              | MU        | TN   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| NS    | PB     | SE   | VZ  | YE  | NN  | RW    | PU       | WA   | YN       | UE              | NM        | RJ   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| NR    | YD     | TL   | VR  | SL  | VA  | UC    | VN       | PK   | VY       | UZ              | RH        | NU   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| NV    | RB     | RC   | RK  | RL  | MZ  | RG    | UP       | DOWN | UD       | UR              | WD        | TY   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| PA    | UK     | WR   | UU  | UT  | YR  | PM    | VV       | WB   | TB       | TC              | TD        | TE   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| MY    | PV     | TA   | TZ  | WC  | PT  | PN    | PH       | RA   | TU       | TT              | YL        | SK   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| VS    | UL     | UM   | WK  | TS  | VT  | WL    | VP       | YJ   | PJ       | RY              | UP        | NW   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| NP    | RE     | RF   | PP  | PR  | TV  | PC    | YT       | YU   | PL       | WJ              | MV        | RR   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| TK    | RT     | SZ   | VX  | WF  | WH  | PG    | SJ       | YA   | YB       | RM              | TM        | RD   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| RS    | UN     | TP   | TR  | NT  | MX  | YC    | TW       | TJ   | YF       | TH              | TF        | TG   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| YS    | YH     | SX   | RZ  | YP  | WN  | WP    | WW       | WX   | SA       | SB              | SC        | SD   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| RAISE | LOWER  | HIGH | LOW | FWD | REV | DEPTH | TRIM TAB | ACC  | NAV ANCH | WIND LASS UP/DN | LIVE WELL | REAR |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| ST    | SU     | WU   | WV  | SV  | SW  | VB    | VH       | VK   | VL       | VM              | WE        | SF   |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| PARK  | AUTO   | RU   | RV  | RX  |     |       |          |      |          |                 |           |      |
|       |        |      |     |     |     |       |          |      |          |                 |           |      |
| SG    | SS     |      |     |     |     |       |          |      |          |                 |           |      |

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