

# CONTENTS



|                              |         |
|------------------------------|---------|
| Cockpit Vision               | 4 - 14  |
| Cockpit International        | 15 - 25 |
| Cockpit Titanium             | 26 - 32 |
| Cockpit White                | 33 - 38 |
| Cockpit Digital              | 39 - 40 |
| CanCockpit Gauges            | 41 - 43 |
| Performance Gauges           | 44      |
| Kimax                        | 45 - 46 |
| Alarm & Central Locking      | 47 - 51 |
| Cruise Controls              | 52      |
| Senders, Switches & Adaptors | 53 - 85 |
| Electronic Switch Boxes      | 86 - 87 |
| Accessories                  | 88 - 91 |
| Conversion Tables            | 92      |
| Part Number Index            | 93 - 96 |

## Cockpit Vision

|                                             |       |
|---------------------------------------------|-------|
| Speedometers, automotive                    | 4     |
| Pitot Tube Speedo, marine                   | 4     |
| Tachometers                                 | 5     |
| Tachourmeter                                | 5     |
| Fuel Gauges                                 | 6     |
| Pressure Gauge, electrical                  | 7 - 8 |
| Pressure Gauge, mechanical                  | 8     |
| Boost Gauges, mechanical                    | 9     |
| Turbo Charger Gauge, mechanical             | 9     |
| Vacuum Gauge, mechanical                    | 9     |
| Pressure Gauge Accessories                  | 10    |
| Cylinder Head Temp Gauge                    | 10    |
| Temperature Gauges, electrical              | 11    |
| Temperature Gauges, mechanical              | 12    |
| Exhaust Temperature / Pyrometer, electrical | 12    |
| Voltmeter                                   | 13    |
| Ammeters, with internal shunt               | 13    |
| Ammeters, with external shunt               | 13    |
| Clock, analogue                             | 14    |
| Instrument Kit                              | 14    |

## Cockpit International

|                                             |    |
|---------------------------------------------|----|
| Speedometers, electrical                    | 15 |
| Tachometers, electrical with LCD Hourmeter  | 16 |
| Tachometers, electrical                     | 16 |
| Fuel Gauges, electrical                     | 17 |
| Pressure Gauges, electrical                 | 18 |
| Pressure Gauges, mechanical                 | 19 |
| Pressure Gauges, mechanical dual pointer    | 19 |
| Temperature Gauges, electrical              | 20 |
| Temperature Gauges, mechanical              | 21 |
| Exhaust Temperature / Pyrometer, electrical | 21 |
| Ammeters, with internal shunt               | 22 |
| Ammeters, with external shunt               | 22 |
| Voltmeters                                  | 23 |
| Battman III Battery Monitor                 | 23 |
| Warning Lights Cluster                      | 23 |
| Hourmeters, electrical                      | 24 |
| Hourmeter, electrical - rectangular type    | 25 |
| Hourmeter, LCD                              | 25 |

## Cockpit Titanium

|                                 |         |
|---------------------------------|---------|
| Speedometer, automotive         | 26      |
| Pitot Tube Speedo, marine       | 26      |
| Tachometer                      | 27      |
| Fuel Gauge, electrical          | 27      |
| Voltmeter                       | 28      |
| Turbo Charger Gauge, mechanical | 28      |
| Oil Pressure Gauges, electrical | 29      |
| Temperature Gauges, electrical  | 29 - 30 |
| Gauge Pod Kits                  | 31 - 32 |

## Cockpit White

|                                             |    |
|---------------------------------------------|----|
| Speedometers, automotive                    | 33 |
| Pitot Tube Speedo, marine                   | 33 |
| Tachometers                                 | 34 |
| Fuel Gauge, electrical                      | 34 |
| Pressure Gauge, electrical                  | 35 |
| Pressure Gauge, mechanical                  | 35 |
| Turbo Charger Gauge, mechanical             | 36 |
| Exhaust Temperature / Pyrometer, electrical | 36 |
| Temperature Gauge, electrical               | 37 |
| Temperature Gauge, mechanical               | 37 |
| Voltmeter                                   | 38 |
| Instrument Kit                              | 38 |

## Cockpit Digital

|                                     |    |
|-------------------------------------|----|
| Tachometer, digital                 | 39 |
| Air Fuel Ratio Gauge, digital       | 39 |
| Pressure Gauge, digital             | 39 |
| Voltmeter, digital                  | 39 |
| Temperature Gauges - Oil, digital   | 40 |
| Temperature Gauges - Water, digital | 40 |
| Clock, digital                      | 40 |

## CANcockpit

|                                     |    |
|-------------------------------------|----|
| Tachometers, Master Gauge           | 41 |
| Speedometers, Master Gauge          | 41 |
| Tachometer, Satellite Gauge         | 42 |
| Pressure Gauges, Satellite Gauge    | 42 |
| Temperature Gauges, Satellite Gauge | 42 |
| Fuel Gauge, Satellite Gauge         | 42 |
| AdBlue Gauge, Satellite Gauge       | 42 |
| Voltmeters, Satellite Gauge         | 42 |
| Black Box, Master Gauge             | 43 |
| Clamp Rings                         | 43 |
| Wiring Harnesses                    | 43 |
| Software Accessories                | 43 |

## Performance Gauges

|                                                              |    |
|--------------------------------------------------------------|----|
| Tachometer 95mm                                              | 44 |
| Tachometer 120mm                                             | 44 |
| Tachometer 120mm<br>with Voltmeter, Oil pressure, Water temp | 44 |

## Kimax

|                           |    |
|---------------------------|----|
| Kimax I, Cabin            | 45 |
| Kimax I, Trailer          | 45 |
| Kimax I, Hydraulic Sensor | 45 |
| Kimax II, DIN Radio Panel | 46 |
| Kimax II, Universal       | 46 |
| Kimax II, Sensor          | 46 |
| Kimax II, Accessories     | 46 |

## Alarm & Central Locking

|                                                            |    |
|------------------------------------------------------------|----|
| Central Lock Universal Remote for Keyless Entry            | 47 |
| Central Lock Universal Remote for Keyless Entry with Alarm | 47 |
| Flash 2 Open - Garage Door Opening System                  | 47 |
| Remote Controlled Immobiliser                              | 48 |
| Remote Controlled Alarm System                             | 48 |
| Remote Controlled Central Locking kit                      | 49 |
| Central Locking Kit                                        | 49 |
| Low Water Alarm                                            | 50 |
| Tyre Pressure Gauge                                        | 50 |
| Speed Alert                                                | 51 |
| Warning Lights                                             | 51 |
| Warning Buzzers                                            | 51 |

## Cruise Controls

|                           |    |
|---------------------------|----|
| Universal Cruise Controls | 52 |
|---------------------------|----|

## Senders, Switches & Adaptors

|                                               |         |
|-----------------------------------------------|---------|
| Vehicle Application Listing                   | 53 - 70 |
| Merchandisers                                 | 71 - 72 |
| Pressure Senders & Switches                   | 73      |
| Pressure Switches                             | 74      |
| Pressure Switches Heavy Duty                  | 74      |
| Oil Pressure Senders Specification            | 75      |
| Oil Line Kits                                 | 75      |
| Pressure Switches for a range of applications | 76      |
| Temperature Switches                          | 77      |
| Temperature Senders & Switches                | 78      |
| Temperature Senders Specification             | 79      |
| Adaptors, brass                               | 80      |
| T-Piece Adaptors                              | 80      |
| Tank Unit Sender Accessories                  | 80      |
| Fuel Level Senders                            | 81      |
| Arm Type Fuel Senders                         | 81      |
| Reed Switch Senders                           | 81      |
| Tubular Type Senders                          | 82      |
| RPM Senders                                   | 83      |
| Speedo Senders                                | 83      |
| Drive Keys                                    | 84      |
| Double Sided Nuts                             | 84      |
| Speed and RPM Sender Connectors               | 84      |
| Tachograph Connectors                         | 84      |
| Starter Switches                              | 85      |

## Electronic Switch Boxes

|                                       |    |
|---------------------------------------|----|
| Electric Adjustable Switch Box        | 86 |
| Multi-Frequency Switch Box            | 86 |
| Electric Ratio Box                    | 87 |
| Universal Signal Conversion Ratio Box | 87 |
| Signal Amplifier/Divider              | 87 |

## Accessories

|                                        |    |
|----------------------------------------|----|
| Digital Hand Held Tachometers          | 88 |
| Gauge Check                            | 88 |
| Housing Binnacles, plastic             | 89 |
| Housing, metal, and related components | 89 |
| Housing, plastic                       | 89 |
| Instrument Panels, metal black         | 89 |
| Clamp Rings & Stud Kits                | 90 |
| Brackets, metal black                  | 90 |
| Instrument Blank, plastic black        | 90 |
| Reduction Rings, metal black           | 90 |
| Globe Holders & Globes                 | 91 |
| Globes                                 | 91 |
| Light Covers                           | 91 |
| Wiring Kits                            | 91 |

## Conversion Tables

|                   |    |
|-------------------|----|
| Conversion Tables | 92 |
|-------------------|----|

## Part Number Index

|                   |         |
|-------------------|---------|
| Part Number Index | 93 - 96 |
|-------------------|---------|

## COCKPIT VISION

Cockpit Vision is the pinnacle of instrument technology. It represents latest advances in instrument illumination and installation techniques.

Using fibre-optic technology to illuminate the pointer and VDO's Trioptic through dial lighting we achieve superb night time illumination.

The installation technique used, where possible, disregards U-brackets and studs and features instead a 360° locking ring thereby eliminating panel warping and gauge rotation. We call it the VDO Spin-lock.

## SPEEDOMETERS, automotive



Illumination through dial and pointer. 12V globe included.

Field adjustable to suit 500 to 400,000 imp/km by pulse setting, or auto-calibration function through LCD readout via reset button. Total distance 999,999.9 not resettable. Speed display analogue; Odometer and trip distance LC-display trip distance 99,999.9 resettable.

Signal source Hall-effect, inductive or blocking oscillator sender units.

For 24V application use globe #240.053 (2 required).

For matching sender units refer to page 83.

### Speedometer - Electronic

| Part No.    | Range       | Size  | Voltage |
|-------------|-------------|-------|---------|
| 437 015 028 | 0 - 200km/h | 80mm  | 12/24V  |
| 437 015 021 | 0 - 300km/h | 80mm  | 12/24V  |
| 437 015 025 | 0 - 200km/h | 85mm  | 12/24V  |
| 437 015 022 | 0 - 300km/h | 100mm | 12/24V  |
| 437 015 029 | 0 - 200km/h | 100mm | 12/24V  |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.

## PITOT TUBE SPEEDO, marine



The Pitot Tube Speedo is designed to determine the speed of a boat over water. It consists of a Pitot tube foot and hose to transfer air pressure to the speedo head system where the air pressure is converted to speed.

### Speedometer - Pitot Tube

| Part No. | Range | Size | Voltage |
|----------|-------|------|---------|
| 260.111  | 50mph | 85mm | 12V     |

### Accessories

| Part No. | Description               |
|----------|---------------------------|
| 170.702  | pitot tube assembly black |

## TACHOMETERS

Suitable for most petrol and diesel engines. Field programmable to suit 4, 6 or 8 cyl./4 stroke ignition and alternator pick-up (terminal "W"). Single phase, not suitable for star point or magneto system. For standard, points ignition system, add a 1N4004 diode in series with the signal wire (cathode towards tach). Illumination 12V included.

### Tachometer - Electronic

| Part No.    | Range        | Size  | Voltage |
|-------------|--------------|-------|---------|
| 333 015 037 | 0 - 4000rpm  | 52mm  | 12V     |
| 333 015 031 | 0 - 8000rpm  | 52mm  | 12V     |
| 333 015 038 | 0 - 4000rpm  | 80mm  | 12V     |
| 333 015 032 | 0 - 7000rpm  | 80mm  | 12V     |
| 333 015 046 | 0 - 10000rpm | 80mm  | 12V     |
| 333 015 033 | 0 - 7000rpm  | 85mm  | 12V     |
| 333 015 047 | 0 - 4000rpm  | 100mm | 12V     |
| 333 015 034 | 0 - 8000rpm  | 100mm | 12V     |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.

For external shift-light, use rev-switch p/n 660.990



## TACHOMETER COLUMN MOUNT

### Tachourmeter - Column Mount - Kit

| Part No.       | Range       | Size | Voltage |
|----------------|-------------|------|---------|
| 333 015 033POD | 0 - 7000rpm | 85mm | 12V     |

**Note:** Kit includes tachometer, gauge, pod plug and terminals.



## TACHOURMETER

Suitable for most petrol and diesel engines. Adjustable through LCD and reset button. Field programmable to 1, 2, 3, 4, 5, 6, 8 or 12 cyl./4-stroke, 1, 2, 3 or 4 cyl./2-stroke ignition and alternator pick-up ("W" terminal). Also suitable for signal from generator or inductive sender unit but not suitable for magneto ignition system. Incorporated hourmeter shows true engine hours. Operating hours 99,999.9. Pulse range 0.5-200 pulses per rev. Illumination 12V included.

For 24V application use globe #240.053 (2 required).

For matching sender units refer to page 83.

### Tachourmeter - Electronic

| Part No.    | Range       | Size | Voltage |
|-------------|-------------|------|---------|
| 333 015 035 | 0 - 7000rpm | 85mm | 12/24V  |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.



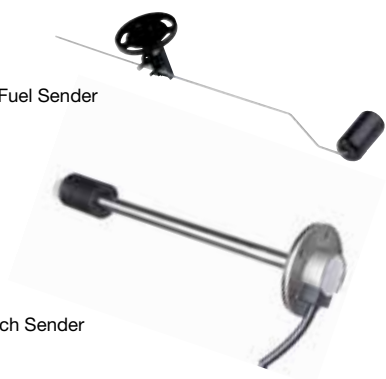


## FUEL GAUGES

Suitable for use with most petrol, diesel fuel, and LPG systems.  
Illumination 12V included.



Adjustable Float Arm Sender 220.003



Arm Type Fuel Sender



Reed Switch Sender



Sender-Tubular Tank



Flange Mounting Kit N05801432



| Fuel Gauge - Float Arm Sender |                                                            |                | 52mm    |
|-------------------------------|------------------------------------------------------------|----------------|---------|
| Part No.                      | Description                                                | Specifications | Voltage |
| 301 010 011                   | Fuel gauge (float arm)                                     | 10 - 180 ohms  | 12V     |
| 301.105                       | Fuel gauge for USA application                             | 240 - 33 ohms  | 12V     |
| 301 010 010                   | Fuel gauge LPG<br>Suits 5 - 90 ohms LPG tank unit senders. | 5 - 90 ohms    | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Sender - Adjustable Float Arm |                |             |
|-------------------------------|----------------|-------------|
| Part No.                      | Specifications | Length      |
| 220.003                       | 10 - 180 ohms  | 150 - 600mm |
| 220.004                       | 5 - 90 ohms    | 150 - 600mm |
| 220.005                       | 240 - 33 ohms  | 150 - 600mm |

**Note:** Mounting kit part no. N05801432 not included in kit.

### Arm Type Fuel Sender

See complete listing of arm type fuel senders on page 81.

**Note:** Mounting kit part no. N05801432 not included in kit.

### Reed Switch Sender Fuel & Water

Just for 10 - 180 ohms gauges.

See complete listing of arm/reed switch senders on page 81.

**Note:** Mounting kit part no. N05801432 not included in kit.

### Fuel Gauge - Tubular

| Part No.    | Description        | Ohms   |        | Voltage |
|-------------|--------------------|--------|--------|---------|
|             |                    | Empty  | Full   |         |
| 301 010 009 | Fuel gauge-tubular | 110/50 | 2 ohms | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

### Tubular Type Sender

See complete listing of tubular type senders on page 82.

**Note:** Mounting kit part no. N05801432 not included in kit.

### Accessories

| Part No.  | Description         | PCD  |
|-----------|---------------------|------|
| N05801432 | Flange mounting kit | 54mm |

**Note:** For more Accessories, refer to pages 88 - 91.

### Fuel Gauge - OE Senders

| Part No.    | Description      | Specifications | Voltage |
|-------------|------------------|----------------|---------|
| 301 010 015 | Suits OE senders | 73 -10 ohms    | 12V     |

**Matching** Sender - Replaces gauge for Holden HQ (73-76) on, HJ, HX, HZ, Torana LH, LX, Ford XR to XC, Escort and Cortina.

## PRESSURE GAUGE, electrical

Suitable for most vehicles.

Illumination 12V included.

Adaptors are listed on page 80.

| Electric Pressure Gauge - 500Kpa |                             |                       | 52mm    |
|----------------------------------|-----------------------------|-----------------------|---------|
| Part No.                         | Description                 | Specifications        | Voltage |
| 350 010 016                      | Oil pressure symbol on dial | 500Kpa<br>10-184 ohms | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Sender        |                  |             | 10-180 ohms |
|---------------|------------------|-------------|-------------|
| Part No.      | Range            | Thread      | Terminal    |
| 360.001       | 500Kpa           | 1/8"-27NPTF | Spade       |
| 360.004       | 500Kpa           | 1/4"-18NPTF | Button      |
| 360.016       | 500Kpa           | 1/8"-28BSBT | Button      |
| 360.018       | 500Kpa           | 1/8"-27NPTF | M4 thread   |
| 360081030049K | 5 Bar / 7 psi SW | 1/8"-27NPTF | M4 thread   |

Refer to your engine manufacturers manual for correct oil pressure ratings.

**Note:** 500 Kpa = 5 Bar = 72.5 psi      700 Kpa = 7 Bar = 101.5 psi  
1000 Kpa = 10 Bar = 145 psi      2800 Kpa = 28 Bar = 406 psi



Sender 360.001

## PRESSURE GAUGE, electrical

Suitable for most vehicles.

Illumination 12V included.

Adaptors are listed on page 80.

| Electric Pressure Gauge - 500Kpa |                    |                        | 52mm    |
|----------------------------------|--------------------|------------------------|---------|
| Part No.                         | Description        | Specifications         | Voltage |
| 350 010 017                      | Oil symbol on dial | 1000Kpa<br>10-199 OHMS | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Senders       |                   |             | 10-199 ohms |
|---------------|-------------------|-------------|-------------|
| Part No.      | Range             | Thread      | Terminal    |
| 360.002       | 1000Kpa           | 1/8"-27NPTF | Spade       |
| 360.019       | 1000Kpa           | 1/8"-27NPTF | M4 thread   |
| 360081030052C | 10 Bar / 7 psi SW | 1/8"-27NPTF | M4 thread   |

Refer to your engine manufacturers manual for correct oil pressure ratings.

**Note:** 500 Kpa = 5 Bar = 72.5 psi      700 Kpa = 7 Bar = 101.5 psi  
1000 Kpa = 10 Bar = 145 psi      2800 Kpa = 28 Bar = 406 psi



Sender 360.002



Sender 360.086



Oil line kit 230.012



Nut and cone 230.008



Engine fitting 230.024



Nut and cone 230.025

## PRESSURE GAUGE, electrical

Suitable for most vehicles.

Supplied with nut and cone to suit 3/16" PVC tubing.

Illumination 12V included.

| Pressure Gauge - 100psi |                              |               | 52mm    |
|-------------------------|------------------------------|---------------|---------|
| Part No.                | Description                  | Specification | Voltage |
| 350010021               | Oil on dial<br>10-184 ohms   | 100psi        | 12V     |
| 350 010 001             | Trans on dial<br>10-184 ohms | 400psi        | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Sender        |         |             | 10-180 ohms |
|---------------|---------|-------------|-------------|
| Part No.      | Range   | Thread      | Terminal    |
| 360.086       | 100psi  | 1/8"-27NPTF | M4 Thread   |
| 360081038003C | 25 Bar* | 1/8"-27NPTF | M4 Thread   |
| 360081038008C | 400psi  | 1/8"-27NPTF | M4 Thread   |

Refer to your engine manufacturers manual for correct oil pressure ratings.

**Note:** 500 Kpa = 5 Bar = 72.5 psi      700 Kpa = 7 Bar = 101.5 psi

1000 Kpa = 10 Bar = 145 psi      2800 Kpa = 28 Bar = 406 psi

\* (0 - 25 Bar Sender is insulated return and can be used for 400 Psi gauge application)

## PRESSURE GAUGES, mechanical

Suitable for most vehicles.

Supplied with nut and cone to suit 3/16" PVC tubing.

Illumination 12V included.

| Pressure Gauge - Air, Oil & Water |            | 52mm |
|-----------------------------------|------------|------|
| Part No.                          | Range      | Size |
| 150 077 010                       | 0 - 15psi  | 52mm |
| 150 077 011                       | 0 - 30psi  | 52mm |
| 150 077 027                       | 0 - 100psi | 52mm |
| 150 077 026                       | 0 - 150psi | 52mm |
| 150 077 020                       | 0 - 700Kpa | 52mm |

| Accessories |                                                      |
|-------------|------------------------------------------------------|
| Part No.    | Description                                          |
| 230.012     | 1.8m fitting kit - 3/16" PVC tubing & engine fitting |
| 230.013     | 5m fitting kit - 3/16" PVC tubing & engine fitting   |
| 230.008     | Nut and cone for 3/16" PVC Tubing, M12x1.5 thread    |
| 230.024     | Engine fitting 1/8"-27NPTF male, 3/16" tubing        |
| 230.025     | Nut and cone 1/8"-27NPTF nut                         |
| 230.015     | Air/Fuel pressure restrictor                         |



## BOOST GAUGES, mechanical

Suitable for diesel vehicles.

Supplied with nut and cone to suit 3/16" PVC tubing.

Illumination 12V included.

| Boost Gauge |          | 52mm |
|-------------|----------|------|
| Part No.    | Range    | Size |
| 150 077 010 | 0-15 psi | 52mm |
| 150 077 011 | 0-30 psi | 52mm |

**Note:** Use airline kit 230.012 or 230.013

Accessories on page 10.

Includes Air Restrictor: 10027



## TURBO CHARGER GAUGE, mechanical

Suitable for petrol vehicles.

Supplied with nut and cone to suit 3/16" PVC tubing.

Illumination 12V included.

| Turbo Charger Gauge |               | 52mm |
|---------------------|---------------|------|
| Part No.            | Range         | Size |
| 150 077 004         | -30"Hg/+25psi | 52mm |

Hg = Negative 30 inches of vacuum of mercury.

**Note:** Use airline kit 230.012 or 230.013

Accessories on page 10.

Includes Air Restrictor: 10027



## VACUUM GAUGE, mechanical

Suitable for most vehicles.

Supplied with nut and cone to suit 3/16" PVC tubing.

Illumination 12V included.

| Vacuum Gauge |           | 52mm |
|--------------|-----------|------|
| Part No.     | Range     | Size |
| 150 077 005  | -30-0" Hg | 52mm |

Hg = Negative 30 inches of vacuum of mercury.

**Note:** Use airline kit 230.012 or 230.013

Accessories on page 10.

Includes Air Restrictor: 10027



## PRESSURE GAUGE ACCESSORIES



Oil line kit 230.012



Nut and cone 230.008



Engine fitting 230.024



Nut and cone 230.025



| Accessories |                                                      |
|-------------|------------------------------------------------------|
| Part No.    | Description                                          |
| 230.012     | 1.8m fitting kit - 3/16" PVC tubing & engine fitting |
| 230.013     | 5m fitting kit - 3/16" PVC tubing & engine fitting   |
| 230.025     | Nut and cone 1/8"-27NPTF nut                         |
| 230.008     | Nut and cone for 3/16" PVC tubing, M12x1.5 thread    |
| 230.024     | Engine fitting 1/8"-27NPTF male, 3/16" tubing        |
| 10027       | Air restrictor to fit 3/16" PVC Tubing               |

## CYLINDER HEAD TEMPERATURE GAUGE

Suitable for most engines including air cooled, industrial, agricultural.  
Thermocouple connection fits under 13mm spark plug, or a bolt of the same or smaller diameter.  
Illumination 12V included.

| Temperature Gauge - Electric |             |             | 52mm                |
|------------------------------|-------------|-------------|---------------------|
| Part No.                     | Range       | Dial Colour | Kit Specifications  |
| 310.901                      | 100 - 600°F | Black       | Gauge, sender, loom |

| Accessories |                                |
|-------------|--------------------------------|
| Part No.    | Description                    |
| 323.010     | Thermocouple spare part sender |

## TEMPERATURE GAUGES, electrical

Suitable for most vehicles.

Illumination 12V included.

For more matching sender units refer to page 78.

Adaptors are listed on page 80.

| Temperature Gauge - Water |                               |                           | 52mm    |
|---------------------------|-------------------------------|---------------------------|---------|
| Part No.                  | Description                   | Specifications            | Voltage |
| 310 010 014               | Water temp.<br>symbol on dial | 40 - 120°C<br>287-23 ohms | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Temperature Sender |            |             |           |           |
|--------------------|------------|-------------|-----------|-----------|
| Part No.           | Range      | Thread      | Terminal  | Body Type |
| 320.002            | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.093            | 40 - 120°C | 1/8"-27NPTF | M4 thread | b         |
| 323.801/005/001    | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.022            | 40 - 120°C | 1/2"-14NPTF | spade     | c         |
| 323801001006K      | 40 - 120°C | M14x1.5mm   | spade     | c         |
| 320.004            | 40 - 120°C | M16x1.5mm   | button    | a         |

**Note:** 40 - 120°C = 100 - 250°F

For calibration specs, see page 92.

| Temperature Gauge - Oil |                                    |                           | 52mm    |
|-------------------------|------------------------------------|---------------------------|---------|
| Part No.                | Description                        | Specifications            | Voltage |
| 310 010 015             | Engine oil temp.<br>symbol on dial | 50 - 150°C<br>323-18 ohms | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Temperature Sender |            |               |           |           |
|--------------------|------------|---------------|-----------|-----------|
| Part No.           | Range      | Thread        | Terminal  | Body Type |
| 320.021            | 50 - 150°C | 1/8"-27NPTF   | button    | a         |
| 320.028            | 50 - 150°C | 1/8"-27NPTF   | button    | d         |
| 320.070            | 50 - 150°C | 1/8"-27NPTF   | M4 thread | f         |
| 320.092            | 50 - 150°C | 1/8"-27NPTF   | M4 thread | d         |
| 320.016            | 50 - 150°C | 1/2"-20Whit.S | spade 90° | c         |
| 320.023            | 50 - 150°C | 3/8"-BSPF     | spade     | c         |
| 320.010            | 50 - 150°C | M12x1.5mm     | button    | a         |

**Note:** 50 - 150°C = 120 - 300°F

For calibration specs, see page 92.



a.



b.



c.



d.



e.



f.



## TEMPERATURE GAUGES, mechanical

Suitable for most vehicles.

Process connection is 1/8"-27NPTF threaded removable thermowell.

Temperature is transmitted via capillary tube.

Coil up excess capillary tubing - do not cut to shorten!

Illumination 12V included.

Adaptors are listed on page 80.



Thermowell 180.059

| Temperature Gauge - Water |            | 52mm             |
|---------------------------|------------|------------------|
| Part No.                  | Range      | Capillary Length |
| 180 077 022               | 40 - 120°C | 1600mm           |
| 180 077 023               | 40 - 120°C | 2600mm           |
| 180 077 021               | 40 - 120°C | 4000mm           |

| Temperature Gauge - Oil |            | 52mm             |
|-------------------------|------------|------------------|
| Part No.                | Range      | Capillary Length |
| 180 077 020             | 50 - 150°C | 1600mm           |
| 180 077 019             | 50 - 150°C | 4000mm           |

| Accessories |                        |                          |
|-------------|------------------------|--------------------------|
| Part No.    | Description            | Note                     |
| 180.059     | Thermowell 1/8"-27NPTF | Suits adaptors # 320.xxx |

**Note:** Refer page 80 for adaptors.

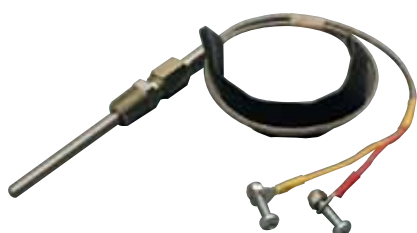
## EXHAUST TEMPERATURE / PYROMETER, electrical

Suitable for most exhaust systems.

Thermocouple connection is by 1/4"-18 compressing fitting.

Temperature is transmitted via capillary tube.

Illumination 12V included.



Thermocouple 320.714

| Pyrometer - Electrical Kit |                          | 52mm    |
|----------------------------|--------------------------|---------|
| Part No.                   | Range                    | Voltage |
| 310.159                    | 0 - 900°C (37.6mV@900°C) | 12V     |

**Note:** Cutting or adding length of loom will not affect calibration.

| Spare Parts for 310.159 exhaust temperature/pyrometer kit |                                                                                        |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------|
| Part No.                                                  | Description                                                                            |
| 310 015 009                                               | Instrument                                                                             |
| 320.714                                                   | Thermocouple 1/4" NPTF non bonded junction "K" type to be fitted 100mm after the turbo |
| 240.035                                                   | Loom, 5m                                                                               |
| 320.059                                                   | Weld boss 1/4" - 1/8" NPTF                                                             |

## VOLTMETER

Suitable for most engines/vehicles where battery and charging systems need to be monitored.

Illumination 12V included.

| Voltmeter   |         |         | 52mm |
|-------------|---------|---------|------|
| Part No.    | Range   | Voltage |      |
| 332 010 004 | 8 - 16V | 12V     |      |

**Note:** 2 pin plug kit part no. 240.031 recommended. Not included in kit.



## AMMETERS, with internal shunt

Suitable for most engines which require battery and charging system monitoring.

Voltage dependent - suitable for 12V or 24V.

Ammeters with internal shunt are easily identified by the heavy duty threaded terminals on the back of the instrument.

Illumination 12V included.

| Ammeter with Internal Shunt - metal body |                   |                |         | 52mm |
|------------------------------------------|-------------------|----------------|---------|------|
| Part No.                                 | Description       | Specifications | Voltage |      |
| 190077006                                | 30-0-30 amp gauge | use 6mm wire   | 12V     |      |
| 190077007                                | 60-0-60 amp gauge | use 6mm wire   | 12V     |      |



## AMMETERS, with external shunt

Suitable for monitoring heavy duty electrical charging system.

Voltage dependent - suitable for 12V or 24V.

Illumination 12V included. For 24V application use dropping resistor N05801180 and globe 240.051.

| Ammeter with External Shunt |                       |                |         | 52mm |
|-----------------------------|-----------------------|----------------|---------|------|
| Part No.                    | Description           | Specifications | Voltage |      |
| 190.504                     | 150-0-150 ammeter kit |                | 12V     |      |

**Note:** For installation use 10mm wire.

| Spare Parts for 190.504 ammeter kit |                       |                 |
|-------------------------------------|-----------------------|-----------------|
| Part No.                            | Description           | Specifications  |
| 190 075 004                         | 150-0-150 gauge, 52mm |                 |
| 190.080                             | Shunt - 150 amps      | 50mV @ 150 amps |
| 190.888                             | 5m loom               |                 |





# CLOCK, analogue



Suitable for most vehicles.  
Features a 12V quartz movement for high accuracy.  
Illumination 12V included.

| Clock       | 52mm    |
|-------------|---------|
| Part No.    | Voltage |
| 370 012 001 | 12V     |

**Note:** 2 pin plug kit part no. 240.031 recommended. Not included in kit.

# INSTRUMENT KIT

Cockpit vision instrument kits are the perfect solution for the automotive enthusiast. The kit comprises of gauges and matching senders.



| Cockpit Vision Kit |             |
|--------------------|-------------|
| Part No.           | Description |
| 740.106            | Gauge kit   |

**Note:** Wiring and terminals not included.



| Kit Contents - Gauges |                          |
|-----------------------|--------------------------|
| Part No.              | Description              |
| 333 015 033           | Tachometer (85mm)        |
| 310 010 014           | Water Temperature (52mm) |
| 301 010 011           | Fuel (52mm)              |
| 350 010 017           | Oil Pressure (52mm)      |
| 332 010 004           | Volt Meter (52mm)        |

| Kit Contents - Senders |                   |
|------------------------|-------------------|
| Part No.               | Description       |
| 360.002                | Oil Pressure      |
| 320.002                | Water Temperature |
| 220.003                | Fuel              |

**Note:** Speedo & other gauges not part of the kit and can be purchased separately.



Sender 360.002



Sender 320.002



Adjustable Float Arm Sender 220.003

# COCKPIT INTERNATIONAL

Cockpit International represents a range of heavy duty instruments designed for the commercial and industrial market. The best combination of colours for readability and reduced eye fatigue are used in the styling of our cockpit instruments.

State of the art manufacturing and quality control procedures ensure that the end product features up to date engineering and design standards, such as the unique air core electric movements.

These reliable gauges feature easy to read floodlit dial illumination for accurate referencing.

## SPEEDOMETERS, electrical

The features of the programmable speedometer are a w/resettable LCD trip odometer with a push button and the trip odometer is displayed in the LCD window. Unique auto-calibration feature allows for easy adjustment and can be used with Hall Effect and inductive senders or most electronic controlled transmissions outputs.

Floodlit illumination. 12V globe included.

Field adjustable to suit 500 to 400,000 imp/km by pulse setting, or auto-calibration function through LCD readout via reset button. Total distance 999,999.9 not resettable. Speed display analogue; Odometer and trip distance LC-display trip distance 99,999.9 resettable.

Signal source Hall-effect, inductive or blocking oscillator sender units.

For 24V application use globe #240.053 (2 required).

For matching sender units refer to page 83.

| Speedometer |             |       |         |
|-------------|-------------|-------|---------|
| Part No.    | Range       | Size  | Voltage |
| 437 035 016 | 0 - 120km/h | 85mm  | 12/24V  |
| 437 055 001 | 0 - 60km/h  | 100mm | 12/24V  |
| 437 055 011 | 0 - 120km/h | 100mm | 12/24V  |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.

| Speedometer      |             |       |         |
|------------------|-------------|-------|---------|
| Part No.         | Range       | Size  | Voltage |
| 1323020100010603 | 0 - 125km/h | 140mm | 12V     |
| 437 025 002      | 0 - 125km/h | 140mm | 24V     |

**Note:** 140mm Speedometer Impulse Ratio programmable 1,000-60,000 pulses/Km.

8 pin plug kit part no. 340.824 recommended. Not included in kit.

| Sender   |         |                     |      |         |          |
|----------|---------|---------------------|------|---------|----------|
| Part No. | Voltage | Thread              | Type | Imp/Rev | Plug Kit |
| K46020   | 12/24V  | M22x1.5<br>L/H male | H/E  | 8       | K72221   |
| K46021   | 12/24V  | 7/8" -<br>18UNF     | H/E  | 8       | K72221   |

| Senders  |                                                  |             |            |                                        |
|----------|--------------------------------------------------|-------------|------------|----------------------------------------|
| Part No. | Description                                      | Drive Key   | Pulses/Rev | Nut Size                               |
| 340.808  | In line suits various vehicles with M22 nut size | 3x8mm blade | 8          | M22 x 1.5mm Inc. 5mm dia lug drive key |

See complete listing of arm senders on page 81.



# TACHOURMETERS, electrical with LCD Hourmeter



The programmable tachometer w/LCD hourmeter can be used with most engine electronic control ignitions with tachometer output terminal, standard coil ignition, alternator signal, and 12V square wave applications. Non-resettable engine hourmeter is displayed in LCD windows.

Suitable for most petrol and diesel engines. Adjustable through LCD and reset button. Field programmable to 1, 2, 3, 4, 5, 6, 8 or 12 cyl./4-stroke, 1, 2, 3 or 4 cyl./2-stroke ignition and alternator pick-up ("W" terminal). Also suitable for signal from generator or inductive sender unit. Incorporated hourmeter shows true engine hours. Operating hours 99,999.9. Pulse range 0.5-200 pulses per rev. Not suitable for magneto system.

Illumination 12V included. For 24V application use globe #240.053 (2 required). For matching sender units refer to page 83.

| Tachourmeter - for inductive sender |         |       |         |
|-------------------------------------|---------|-------|---------|
| Part No.                            | Range   | Size  | Voltage |
| 333 035 010                         | 3000rpm | 80mm  | 12/24V  |
| 333 035 011                         | 4000rpm | 80mm  | 12/24V  |
| 333 035 025                         | 3000rpm | 85mm  | 12/24V  |
| 333 035 013                         | 4000rpm | 85mm  | 12/24V  |
| 333 055 002                         | 3000rpm | 100mm | 12/24V  |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.

# TACHOMETERS, electrical

Suitable for most petrol and diesel engines. Field programmable to 4, 6 or 8 cyl./4-stroke ignition and alternator pick-up ("W" terminal). Single phase not suitable for star point or magneto system. Illumination 12V and 24V included.



| Tachometer  |         |       |         |
|-------------|---------|-------|---------|
| Part No.    | Range   | Size  | Voltage |
| 333 035 017 | 6000rpm | 52mm  | 12V     |
| 333 035 001 | 3000rpm | 80mm  | 12V     |
| 333 035 002 | 4000rpm | 80mm  | 12V     |
| 333 035 003 | 7000rpm | 80mm  | 12V     |
| 333 045 001 | 3000rpm | 80mm  | 24V     |
| 333 045 002 | 4000rpm | 80mm  | 24V     |
| 333 035 004 | 3000rpm | 85mm  | 12V     |
| 333 055 001 | 3000rpm | 100mm | 12V     |
| 333 055 011 | 4000rpm | 100mm | 12V     |
| 333 065 001 | 3000rpm | 100mm | 24V     |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.

## FUEL GAUGES, electrical

Suitable for use with most petrol, diesel fuel, and LPG systems.

Illumination 12V and 24V included.

For matching sender units refer to page 81.

| Fuel Gauge - 10-180 ohms |       | 52mm |         |
|--------------------------|-------|------|---------|
| Part No.                 | Range | Size | Voltage |
| 301 030 001              | 0-1/1 | 52mm | 12V     |
| 301 040 001              | 0-1/1 | 52mm | 24V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
Without ISO symbol.

| Sender - Adjustable Float Arm |                |             |
|-------------------------------|----------------|-------------|
| Part No.                      | Specifications | Length      |
| 220.003                       | 10 - 180 ohms  | 150 - 600mm |
| 220.004                       | 5 - 90 ohms    | 150 - 600mm |

**Note:** Mounting kit part no. N05801432 not included in kit.

### Arm Type Fuel Sender

See complete listing of arm type fuel senders on page 81.

**Note:** Mounting kit part no. N05801432 not included in kit.  
Suitable for 3 - 180 and 10 - 180 Ohms

### Reed Switch Sender Fuel & Water

Just for 3 - 180 ohms gauges.

See complete listing of arm reed switch senders on page 81.

**Note:** Mounting kit part no. N05801432 not included in kit.  
Suitable for 3 - 180 and 10 - 180 Ohms

| Fuel Gauge - Tubular |       | 52 mm |         |
|----------------------|-------|-------|---------|
| Part No.             | Range | Size  | Voltage |
| 301 030 002          | 0-1/1 | 52mm  | 12V     |
| 301 040 002          | 0-1/1 | 52mm  | 24V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
With ISO symbol.

For tubular tank units, adjustable resistance.

### Tubular Type Sender

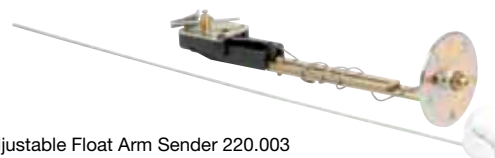
See complete listing of tubular type senders on page 82.

**Note:** Mounting kit part no. N05801432 not included in kit.

### Accessories

| Part No.  | Description         | PCD  |
|-----------|---------------------|------|
| N05801432 | Flange mounting kit | 54mm |

**Note:** More Accessories, refer to pages 88 - 91.

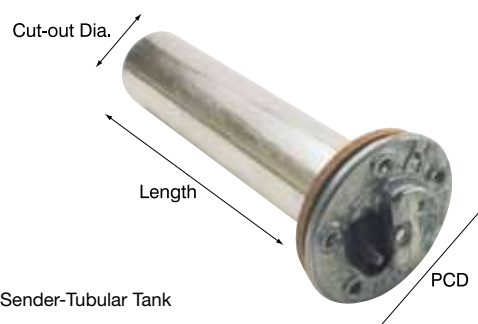


Adjustable Float Arm Sender 220.003



Arm Type Fuel Sender

Reed Switch Sender



Sender-Tubular Tank

## PRESSURE GAUGES, electrical

Suitable for most vehicles and machines. Illumination 12V or 24V included.

Note: Not recommended for petrol.

Adaptors are listed on page 80.



Sender 360.001



Sender 360.002



Sender 360 081 038 003C

| Pressure Gauge - Engine Oil Pressure |            | 52mm    |
|--------------------------------------|------------|---------|
| Part No.                             | Range      | Voltage |
| 350 030 016                          | 0 - 500Kpa | 12V     |
| 350 040 016                          | 0 - 500Kpa | 24V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

With ISO symbol.

500Kpa = 5Bar = 72.5 psi

| Sender - 500Kpa |        |             | 10-180 ohms |
|-----------------|--------|-------------|-------------|
| Part No.        | Range  | Thread      | Terminal    |
| 360.001         | 500Kpa | 1/8"-27NPTF | Spade       |
| 360.004         | 500Kpa | 1/4"-18NPTF | Button      |
| 360.016         | 500Kpa | 1/8"-28BSBT | Button      |
| 360.018         | 500Kpa | 1/8"-27NPTF | M4 thread   |

**Note:** 500 Kpa = 5 Bar = 72.5 psi

Refer to your engine manufacturers manual for correct oil pressure ratings.

For thread adaptors see page 80. For additional pressure senders see page 73.

For calibration specs, see page 92.

| Pressure Gauge - Engine Oil Pressure |             | 52mm    |
|--------------------------------------|-------------|---------|
| Part No.                             | Range       | Voltage |
| 350 030 017                          | 0 - 1000Kpa | 12V     |
| 350 040 017                          | 0 - 1000Kpa | 24V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

With ISO symbol.

1000Kpa = 10 Bar = 145 psi

For thread adaptors see page 80. For additional pressure senders see page 73.

| Senders       |                   |             | 10-199 ohms |
|---------------|-------------------|-------------|-------------|
| Part No.      | Range             | Thread      | Terminal    |
| 360.002       | 1000Kpa           | 1/8"-27NPTF | Spade       |
| 360.019       | 1000Kpa           | 1/8"-27NPTF | M4 thread   |
| 360081030052C | 10 Bar / 7 psi SW | 1/8"-27NPTF | M4 thread   |

Refer to your engine manufacturers manual for correct oil pressure ratings.

**Note:** 500 Kpa = 5 Bar = 72.5 psi      700 Kpa = 7 Bar = 101.5 psi

1000 Kpa = 10 Bar = 145 psi      2800 Kpa = 28 Bar = 406 psi

For calibration specs, see page 92.

| Pressure Gauge - Transmission Oil Pressure |            | 52mm    |
|--------------------------------------------|------------|---------|
| Part No.                                   | Range      | Voltage |
| 350 030 005                                | 0 - 25bar  | 12V     |
| 350 030 006                                | 0 - 25 bar | 24V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

With ISO symbol.

2500Kpa = 25bar = 406psi

Dropping resistor 24 - 12V

| Senders       |                                                    | Insulated Return 2 terminal |
|---------------|----------------------------------------------------|-----------------------------|
| Part No.      | Description                                        | Specifications              |
| 360081038003C | 0 - 25 bar 400 psi single station insulated return | 1/8"-27 NPTF                |

For thread adaptors see page 80. For additional pressure senders see page 73.

For calibration specs, see page 92.



## PRESSURE GAUGES, mechanical

Suitable for most vehicles and machines. Can be used on most non-aggressive gases and liquids. Supplied with nut and cone for 3/16" PVC tubing. Illumination 12V included.

For 24V application use globe part no. 240.053

| Pressure Gauge |             | 52mm    |
|----------------|-------------|---------|
| Part No.       | Range       | Voltage |
| 150 035 019    | 0 - 700Kpa  | 12V     |
| 150 035 020    | 0 - 1000Kpa | 12V     |
| 150 035 022    | 0 - 2500Kpa | 12V     |



## PRESSURE GAUGES, mechanical dual pointer

Suitable for most vehicles and machines. Two independent measuring systems indicated separate pressures on one scale.

Supplied with nut and cone for 3/16" PVC tubing.

Illumination 12V and 24V globes included. Part no. 240.053

| Dual Pressure Gauge |             |      |
|---------------------|-------------|------|
| Part No.            | Range       | Size |
| 150.316             | 0 - 1000Kpa | 60mm |
| 151.910             | 0 - 150 psi | 52mm |



| Accessories |                                                      |
|-------------|------------------------------------------------------|
| Part No.    | Description                                          |
| 230.012     | 1.8m fitting kit - 3/16" PVC tubing & engine fitting |
| 230.013     | 5m fitting kit - 3/16" PVC tubing & engine fitting   |
| 230.008     | Nut and cone for 3/16" PVC tubing, M12x1.5 thread    |
| 230.024     | Engine fitting 1/8"-27NPTF male, 3/16" PVC tubing    |
| 230.025     | Nut and cone 1/8"-27NPTF nut                         |



Oil line kit 230.012



Nut and cone 230.008



Engine fitting 230.024



Nut and cone 230.025



## TEMPERATURE GAUGES, electrical

Suitable for most vehicles and machines.

Illumination 12V or 24V included.

For matching sender units refer to page 78.



a.



b.



c.



d.



e.



f.



| Temperature Gauge - Water |            | 52mm |         |
|---------------------------|------------|------|---------|
| Part No.                  | Range      | Size | Voltage |
| 310 030 002               | 40 - 120°C | 52mm | 12V     |
| 310 040 002               | 40 - 120°C | 52mm | 24V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
With ISO symbol.  
40 - 120°C = 100 - 250°F

| Senders         |            |             |           |           |
|-----------------|------------|-------------|-----------|-----------|
| Part No.        | Range      | Thread      | Terminal  | Body Type |
| 320.002         | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.093         | 40 - 120°C | 1/8"-27NPTF | M4 thread | b         |
| 323.801/005/001 | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.022         | 40 - 120°C | 1/2"-14NPTF | spade     | c         |
| 323801001006K   | 40 - 120°C | M14x1.5mm   | spade     | c         |
| 320.004         | 40 - 120°C | M16x1.5mm   | button    | a         |

**Note:** 40 - 120°C = 100 - 250°F

For thread adaptors see page 80. For calibration specs, see page 92.

| Temperature Gauge - Engine Oil |            | 52mm    |  |
|--------------------------------|------------|---------|--|
| Part No.                       | Range      | Voltage |  |
| 310 030 003                    | 50 - 150°C | 12V     |  |
| 310 040 003                    | 50 - 150°C | 24V     |  |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
With ISO symbol.  
50 - 150°C = 120 - 300°F

| Sender   |            |             |           |           |
|----------|------------|-------------|-----------|-----------|
| Part No. | Range      | Thread      | Terminal  | Body Type |
| 320.021  | 50 - 150°C | 1/8"-27NPTF | button    | a         |
| 320.028  | 50 - 150°C | 1/8"-27NPTF | button    | e         |
| 320.092  | 50 - 150°C | 1/8"-27NPTF | M4 thread | f         |
| 320.010  | 50 - 150°C | M12x1.5mm   | button    | a         |
| 320.007  | 50 - 150°C | M14x1.5mm   | spade     | d         |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
50 - 150°C = 120 - 300°F

For calibration specs, see page 92.

| Temperature Gauge - Transmission Oil |            | 52mm    |  |
|--------------------------------------|------------|---------|--|
| Part No.                             | Range      | Voltage |  |
| 310 030 004                          | 60 - 200°C | 12V     |  |
| 310 040 004                          | 60 - 200°C | 24V     |  |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
With ISO symbol.  
60 - 200°C = 140 - 392°F

| Sender   |            |             |          |           |
|----------|------------|-------------|----------|-----------|
| Part No. | Range      | Thread      | Terminal | Body Type |
| 320.006  | 60 - 200°C | 1/8"-27NPTF | button   | a         |
| 320.020  | 60 - 200°C | 1/8"-27NPTF | button   | e         |

For additional senders see page 78. For calibration specs, see page 92.

## TEMPERATURE GAUGES, mechanical

Suitable for most vehicles and machines.

Process connection is 1/8"-27NPTF threaded removable thermowell.

Temperature is transmitted via capillary tube.

Coil up excess capillary tubing - do not cut to shorten!

Illumination 12V included. For 24V application use globe part no. 240.053.

| Temperature Gauge |            | 52mm             |
|-------------------|------------|------------------|
| Part No.          | Range      | Capillary Length |
| 180 035 002       | 40 - 120°C | 1600mm           |
| 180 035 004       | 40 - 120°C | 2600mm           |
| 180 035 005       | 40 - 120°C | 4000mm           |
| 180 035 006       | 40 - 120°C | 6000mm           |
| 180 035 008       | 50 - 150°C | 2600mm           |

| Accessories |                        |                          |
|-------------|------------------------|--------------------------|
| Part No.    | Description            | Note                     |
| 180.059     | Thermowell 1/8"-27NPTF | Suits adaptors # 320.xxx |



Thermowell 180.059

## EXHAUST TEMPERATURE / PYROMETER, electrical

Suitable for most exhaust systems.

Thermocouple connection is by 1/4"-18NPTF compression fitting.

Illumination 12V included.

For 24V application use dropping resistor part no. N05801180 and globe part no. 240.053.

| Pyrometer - Electric Kit |                          | 52mm    |
|--------------------------|--------------------------|---------|
| Part No.                 | Range                    | Voltage |
| 397 015 003              | 0 - 900°C (37.6mV@900°C) | 12V     |

Complete kit - consisting of instrument, thermocouple, 5m loom & weld boss.

**Note:** Cutting or adding length of loom will not effect calibration.

| Spare Parts for 397 015 003 Pyrometer Kit |                                                     |
|-------------------------------------------|-----------------------------------------------------|
| Part No.                                  | Description                                         |
| 320.059                                   | Weld boss 1/4"-18 NPTF                              |
| 240.035                                   | Loom, 5 meter                                       |
| 310 035 001                               | Instrument 0 - 900°C (37.6mv) 52mm                  |
| 320.714                                   | Thermocouple 1/4" NPTF non bonded junction "K" type |



Thermocouple 320.714



## AMMETERS, with internal shunt

Suitable for most engines which requires battery charging system, monitoring. Voltage independent - suitable for 12V or 24V.

Ammeters with internal shunt are easily identified by the heavy duty threaded terminals. Heavy duty wire must be used for wiring.

Illumination 12V included. For 24V application use globe #240.053.

| Ammeter with Internal Shunt |               | 52mm    |
|-----------------------------|---------------|---------|
| Part No.                    | Range         | Voltage |
| 190 037 002                 | 60-0-60 amp   | 12V     |
| 190 037 003                 | 100-0-100 amp | 12V     |



Suitable for most engines. Monitors charge and battery condition.

Illumination 12V included.

For 24V application use dropping resistor part no. N05801180 and globe part no. 240.051.

| Ammeter with External Shunt |              |                | 52mm    |
|-----------------------------|--------------|----------------|---------|
| Part No.                    | Description  | Specifications | Voltage |
| 190.505                     | 150-0-150AMP | 52mm           | 12V     |

Complete kit consisting of instrument, shunt and loom.

**Note:** For shunt installation, use 10mm wire.



| Spare Parts for 190.505 ammeter kit |                       |                 |
|-------------------------------------|-----------------------|-----------------|
| Part No.                            | Description           | Specifications  |
| 190 035 005C                        | 150-0-150 gauge, 52mm |                 |
| 190.080                             | Shunt - 150 amps      | 50mV @ 150 amps |
| 190.888                             | 5m loom               |                 |

## VOLTMETERS

Suitable for all engines and machines.

Monitors charge and battery condition.

Dial colour coded.

Illumination 12V or 24V included.

| Voltmeter   | 52mm     |         |
|-------------|----------|---------|
| Part No.    | Range    | Voltage |
| 332 030 001 | 8 - 16V  | 12V     |
| 332 040 001 | 18 - 32V | 24V     |

**Note:** 2 pin plug kit part no. 240.031 recommended. Not included in kit.  
With ISO symbol.



## BATTMAN III BATTERY MONITOR

It's like a fuel gauge for your battery. The Battman III lets you know everything that is essential to know about your battery.

- Battery voltage 8 - 30V
- Battery capacity used in amphotours
- Battery capacity regained in amphotours
- Charging and discharging current in amps

### Benefits

- Measuring range, current: +0.1 - 200A
- Accuracy, voltage: better than 1%
- Accuracy, current: +5%
- Measuring range: amphotours 0 - 999AH
- Measuring range voltage: 8 - 30V
- Accuracy: +0.5%



| Battman III Battery Monitor - Kit | 52mm                   |         |
|-----------------------------------|------------------------|---------|
| Part No.                          | Specification          | Voltage |
| 190.725                           | Liquid crystal readout | 8 - 30V |

**Note:** Kit includes gauge, loom shunt, push button switch

| Accessories |             |
|-------------|-------------|
| Part No.    | Description |
| 190.727     | Shunt       |

## WARNING LIGHTS CLUSTER

Universal Warning Light Cluster can be used for monitoring vehicle temperature, pressure, battery charging, high beams and ignition.

| Warning lights cluster | 52mm                                              |         |
|------------------------|---------------------------------------------------|---------|
| Part No.               | Specifications                                    | Voltage |
| 231003001              | Temp - Pressure - Volt -<br>Headlights - Ignition | 12V     |

**Note:** Cluster contains 5 globes socket assembly.



# HOURLMETERS, electrical

Suitable for all vehicles and machines.  
Available with 360° minute hand sweep or as counters only.  
12V globe included. For 24V applications, 24V globe part no. 240.055 required.



| Hourmeter - Black bezel      |                |              | 52mm    |
|------------------------------|----------------|--------------|---------|
| Part No.                     | Range          | Illumination | Voltage |
| 331 032 004                  | 0 - 99999.9hrs | Illuminated  | 12V     |
| (T.58 Illumination terminal) |                |              |         |



| Hourmeter - Black bezel |                |                 | 52mm    |
|-------------------------|----------------|-----------------|---------|
| Part No.                | Range          | Illumination    | Voltage |
| 331 032 001             | 0 - 99999.9hrs | Not illuminated | 12V     |
| 331810012004            | 0 - 99999.9hrs | Illuminated     | 12V     |
| 331810012007            | 0 - 99999.9hrs | Illuminated     | 24V     |



331.601

| Hourmeters - Counter type - Black bezel |                |                 | 52mm    |
|-----------------------------------------|----------------|-----------------|---------|
| Part No.                                | Range          | Illumination    | Voltage |
| 331.600                                 | 0 - 99999.9hrs | Not illuminated | 10/80V  |
| 331.601                                 | 0 - 99999.9hrs | Not illuminated | 10/80V  |



331.602

| Hourmeter - Counter type - With Operation Indicator - Chrome bezel |                |                 | 52m     |
|--------------------------------------------------------------------|----------------|-----------------|---------|
| Part No.                                                           | Range          | Illumination    | Voltage |
| 331.602                                                            | 0 - 99999.9hrs | Not illuminated | 10/80V  |

## HOURLMETER

Suitable for all vehicles and machines.

Overall Dimension 53 X 32mm.

Note - Connections not polarity specific.

| Hourmeter |                |             |         |
|-----------|----------------|-------------|---------|
| Part No.  | Range          | Size        | Voltage |
| 331.534   | 0 - 99999.9hrs | 37mm x 25mm | 10/80V  |



## HOURLMETER, LCD

| Hourmeter |                |                 |         |
|-----------|----------------|-----------------|---------|
| Part No.  | Range          | Illumination    | Voltage |
| 331.535   | 0 - 99999.9hrs | Not illuminated | 10/277V |



| Accessories |                                                        |                       |
|-------------|--------------------------------------------------------|-----------------------|
| Part No.    | Description                                            | Note                  |
| 240.031     | Wiring kit                                             |                       |
| 230.043     | Pressure switch - 1 terminal<br>70 Kpa - 5 watts - N/O | 1/8"-27 NPTF<br>6-24V |
| 230.050     | Pressure switch - 2 terminal<br>48 Kpa - 5 watts - N/O | 1/8"-27 NPTF<br>6-24V |

An hourmeter can be activated by connecting to Ignition power +, off the "D" terminal of the alternator or a normally-open pressure switch during engine operation.

Wiring explanation:

K15 - ignition

K31 - earth

K30 - battery

K58 - illumination



Sender 230.043



Sender 230.050



## COCKPIT TITANIUM

### QUALITY

Gauges are designed and based on the proven & successful VDO 'Cockpit Vision' platform.

### ACCURACY

World class instrument technology for accuracy and performance.

### APPEARANCE

Trioptic thru-dial illumination using fibre optic technology to illuminate pointer.

### STYLE

Modern design with an eye catching sports look.

### DESIGN

Utilising VDO "Spin-Lock" locking ring – eliminating panel warping & gauge rotation.



## SPEEDOMETER, automotive

Illumination through dial and pointer. 12V globe included.

Field adjustable to suit 500 to 400,000 imp/km by pulse setting, or auto-calibration function through LCD readout via reset button. Total distance 999,999.9 not resettable. Speed display analogue; Odometer and trip distance LC-display trip distance 99,999.9 resettable.

Signal source Hall-effect, inductive or blocking oscillator sender units.

For 24V application use globe #240.053 (2 required).

For matching sender units refer to page 83.

| Speedometer |         | 85mm    |
|-------------|---------|---------|
| Part No.    | Range   | Voltage |
| 437.900     | 200km/h | 12/24V  |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.



## PITOT TUBE SPEEDO, marine

The Pitot Tube Speedo is designed to determine the speed of a boat over water. It consists of a pitot tube foot and hose to transfer air pressure to the speedo head system where the air pressure is converted to speed.

| Speedometer - Pitot Tube |       | 85mm    |
|--------------------------|-------|---------|
| Part No.                 | Range | Voltage |
| 226.900                  | 50mph | 12V     |

| Accessories |                           |
|-------------|---------------------------|
| Part No.    | Description               |
| 170.702     | Pitot tube assembly black |

## TACHOMETER

Suitable for most petrol and diesel engines. Field programmable to suit 4, 6 or 8 cyl./4 stroke ignition and alternator pick-up (terminal "W"). Single phase, not suitable for star point or magneto system.

Illumination 12V included.

| Tachometer |         |         | 85mm |
|------------|---------|---------|------|
| Part No.   | Range   | Voltage |      |
| 333.900    | 8000rpm | 12V     |      |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.



## TACHOMETER COLUMN MOUNT

| Tachometer - Column Mount - Kit |             |         | 85mm |
|---------------------------------|-------------|---------|------|
| Part No.                        | Range       | Voltage |      |
| 333.900POD                      | 0 - 8000rpm | 12V     |      |

**Note:** Kit includes gauge, tacho and wiring.



## FUEL GAUGE, electrical

Suitable for most petrol, diesel fuel, and LPG systems.

Illumination 12V included.

For matching sender units refer to page 81.

| Fuel Gauge |            |      |         |
|------------|------------|------|---------|
| Part No.   | Range      | Size | Voltage |
| 310.900    | Empty-Full | 52mm | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
For tank units with 10-180 ohms resistance.  
Without ISO symbol.



| Sender - Adjustable Float Arm |                |             |
|-------------------------------|----------------|-------------|
| Part No.                      | Specifications | Length      |
| 220.003                       | 3 - 184 ohms   | 150 - 600mm |

**Note:** Mounting kit part no. N05801432 not included in kit.



Adjustable Float Arm Sender 220.003

### Reed Switch Sender Fuel & Water

Just for 3 - 180 ohms gauges.

See complete listing of reed switch senders on page 81.

**Note:** Mounting kit part no. N05801432 not included in kit.



Reed Switch Sender



# VOLTMETER

Suitable for all engines and machines.  
Monitors charge and battery condition.  
Dial colour coded.  
Illumination 12V or 24V included.

| Voltmeter |       | 52mm    |
|-----------|-------|---------|
| Part No.  | Range | Voltage |
| 332.900   | 8-16V | 12V     |

**Note:** 2 pin plug kit part no. 240.031 recommended. Not included in kit.  
With ISO symbol.



# TURBO CHARGER GAUGE, mechanical

Suitable for petrol vehicles.  
Supplied with nut and cone to suit 3/16" PVC tubing.  
Illumination 12V included. Use air filter supplied with gauge to avoid  
air pulsation.

| Turbo Charger Gauge |               | 52mm |
|---------------------|---------------|------|
| Part No.            | Range         | Size |
| 150.900             | -30"Hg/+25psi | 52mm |

Hg = Negative 30 inches of vacuum of mercury.

**Note:** Use airline kit 230.012 or 230.013  
Accessories on page 10.  
Air Restrictor: 10027

# OIL PRESSURE GAUGES, electrical

| Oil Pressure - Engine Oil |           | 52mm |         |
|---------------------------|-----------|------|---------|
| Part No.                  | Range     | Size | Voltage |
| 350.900                   | 0 - 80psi | 52mm | 12V     |
| 350.901                   | 0-5 Bar   | 52mm | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
With ISO symbol.

| Sender   |                    |             |
|----------|--------------------|-------------|
| Part No. | Range              | Thread      |
| 360.001  | 0 - 80psi (0-5Bar) | 1/8"-27NPTF |

See complete listing of arm type fuel senders on page 81.  
For calibration specs, see page 92.



Sender 360.001

# TEMPERATURE GAUGES, electrical

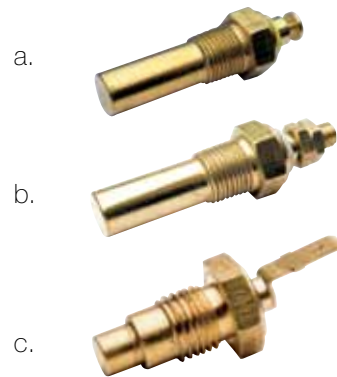
Suitable for most vehicles and engines.  
Illumination 12V and 24V included.  
For matching sender units refer to page 78.

| Temperature Gauge - Water |             |      |         |
|---------------------------|-------------|------|---------|
| Part No.                  | Range       | Size | Voltage |
| 301.900                   | 100 - 250°F | 52mm | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.  
With ISO symbol.  
100 - 250F = 40 - 120°C

| Sender          |             |             |           |           |
|-----------------|-------------|-------------|-----------|-----------|
| Part No.        | Range       | Thread      | Terminal  | Body Type |
| 320.002         | 100 - 250°F | 1/8"-27NPTF | button    | a         |
| 320.093         | 100 - 250°F | 1/8"-27NPTF | M4 thread | b         |
| 323.801/005/001 | 100 - 250°F | 1/8"-27NPTF | button    | a         |
| 320.022         | 100 - 250°F | 1/2"-14NPTF | spade     | c         |
| 323801001006K   | 100 - 250°F | M14x1.5mm   | spade     | c         |
| 320.004         | 100 - 250°F | M16x1.5mm   | button    | a         |

**Note:** 40 - 120°C = 100 - 250°F  
For calibration specs, see page 92.



## TEMPERATURE GAUGES, electrical

Suitable for most vehicles.

Illumination 12V included.

For more matching sender units refer to page 78.

Adaptors are listed on page 80.



a.



b.



c.



| Temperature Gauge - Water |                               |                           | 52mm    |
|---------------------------|-------------------------------|---------------------------|---------|
| Part No.                  | Description                   | Specifications            | Voltage |
| 301.901                   | Water temp.<br>symbol on dial | 40 - 120°C<br>287-23 ohms | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Temperature Sender |            |             |           |           |
|--------------------|------------|-------------|-----------|-----------|
| Part No.           | Range      | Thread      | Terminal  | Body Type |
| 320.002            | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.093            | 40 - 120°C | 1/8"-27NPTF | M4 thread | b         |
| 323.801/005/001    | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.022            | 40 - 120°C | 1/2"-14NPTF | spade     | c         |
| 323801001006K      | 40 - 120°C | M14x1.5mm   | spade     | c         |
| 320.004            | 40 - 120°C | M16x1.5mm   | button    | a         |

**Note:** 40 - 120°C = 100 - 250°F

For calibration specs, see page 92.



d.



e.



f.



| Temperature Gauge - Oil |                                    |                           | 52mm    |
|-------------------------|------------------------------------|---------------------------|---------|
| Part No.                | Description                        | Specifications            | Voltage |
| 301.902                 | Engine oil temp.<br>symbol on dial | 50 - 150°C<br>323-18 ohms | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Temperature Sender |            |               |           |           |
|--------------------|------------|---------------|-----------|-----------|
| Part No.           | Range      | Thread        | Terminal  | Body Type |
| 320.021            | 50 - 150°C | 1/8"-27NPTF   | button    | a         |
| 320.028            | 50 - 150°C | 1/8"-27NPTF   | button    | d         |
| 320.092            | 50 - 150°C | 1/8"-27NPTF   | M4 thread | d         |
| 320.016            | 50 - 150°C | 1/2"-20Whit.S | spade 90° | c         |
| 320.023            | 50 - 150°C | 3/8"-BSPF     | spade     | c         |
| 320.010            | 50 - 150°C | M12x1.5mm     | button    | a         |
| 320.007            | 50 - 150°C | M14x1.5mm     | spade 90° | e         |

**Note:** 50 - 150°C = 120 - 300°F

For calibration specs, see page 92.

# GAUGE POD KIT

Suitable for VY-VZ Commodores.

- Fits all mode VY-VZ Commodore for Holden sports vehicle look and function.
- The Pod is made of the same material and colour as the genuine dashboard that will not warp or discolour.
- Gauges are genuine high quality VDO instruments for accuracy and performance.
- Kits come complete with all you need for simple "plug n play" installation. No cutting or drilling required.  
Includes: Senders, Adaptors, Loom Extension, Cable Ties.
- Fitted correctly, this addition will not alter the vehicle's existing warning system.
- Gauge pod kit cannot be fitted to a vehicle with climate control.



| Gauge Pod Kit                                                                         |                 |
|---------------------------------------------------------------------------------------|-----------------|
| Part No.                                                                              | Description     |
| 740.300                                                                               | Gauge & Pod kit |
| <b>Note:</b> Wiring and terminals not included.<br>The pod is only available in grey. |                 |

| Kit Contents |                         |
|--------------|-------------------------|
| Part No.     | Description             |
| 350.900      | Pressure gauge 0-80 psi |
| 332.900      | Voltmeter 8-16V         |
| 500.302      | Loom Binnacle - VY-VZ   |
| B06020601P   | Housing binnacles       |
| 240.072      | Light cover blue        |







# GAUGE POD KIT

Suitable for BA and BF Ford Falcon.

- Fits all mode BA-BF Falcon for Ford sports vehicle look and function.
- The Pod is made of the same material and colour as the genuine dashboard that will not warp or discolour.
- Gauges are genuine high quality VDO instruments for accuracy and performance.
- Kits come complete with all you need for simple “plug n play” installation. No cutting or drilling required.  
Includes: Senders, Adaptors, Loom Extension, Cable Ties.
- Fitted correctly, this addition will not alter the vehicle's existing warning

| Gauge Pod Kit |                 |
|---------------|-----------------|
| Part No.      | Description     |
| 740.302       | Gauge & Pod kit |

**Note:** Wiring and terminals not included.  
The pod is only in grey available.



| Kit Contents |                         |
|--------------|-------------------------|
| Part No.     | Description             |
| 350.900      | Pressure gauge 0-80 psi |
| 332.900      | Voltmeter 8 -16V        |
| 500.302      | Loom Binnacle - VY-VZ   |
| 740.301      | Housing binnacles       |
| 240.072      | Light cover blue        |

## COCKPIT WHITE

Cockpit White offers an alternative appearance to conventional black face dials, developed from VDO's strength and commitment to the automotive industry to provide a low cost range of gauges suited to a broad range of applications. These reliable gauges feature easy to read flood lit dial illumination for a fantastic look.

### SPEEDOMETERS, automotive

Illumination through dial and pointer. 12V globe included.

Field adjustable to suit 500 to 400,000 imp/km by pulse setting, or auto-calibration function through LCD readout via reset button. Total distance 999,999.9 not resettable. Speed display analogue; Odometer and trip distance LC-display trip distance 99,999.9 resettable.

Signal source Hall-effect, inductive or blocking oscillator sender units.

For 24V application use globe #240.053 (2 required).

For matching sender units refer to page 83.

| Speedometer - Electronic |             |       |         |
|--------------------------|-------------|-------|---------|
| Part No.                 | Range       | Size  | Voltage |
| 437.202                  | 0 - 120mph  | 85mm  | 12/24V  |
| 437.100                  | 0 - 280km/h | 100mm | 12/24V  |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.



### PITOT TUBE SPEEDO, marine

The Pitot Tube Speedo is designed to determine the speed of a boat over water. It consists of a pitot tube foot and hose to transfer air pressure to the speedo head system where the air pressure is converted to speed.

| Speedometer - Pitot Tube |       |      |         |
|--------------------------|-------|------|---------|
| Part No.                 | Range | Size | Voltage |
| 170.701                  | 50Kn  | 85mm | 12V     |

| Accessories |                           |
|-------------|---------------------------|
| Part No.    | Description               |
| 170.702     | Pitot tube assembly black |



## TACHOMETERS

Field programmable to suit 4, 6 or 8 cylinder, four stroke petrol engines with coil pickup or alternator pick-up (terminal "W") on diesel applications. Illumination 12V included. Single phase, not suitable for star point or magneto system.



### Tachometer - Electronic

| Part No. | Range       | Size  | Voltage |
|----------|-------------|-------|---------|
| 333.100  | 0 - 8000rpm | 100mm | 12V     |
| 333.255  | 0 - 7000rpm | 85mm  | 12V     |

**Note:** 8 pin plug kit part no. 340.824 recommended. Not included in kit.



## TACHOMETER COLUMN MOUNT

### Tachometer - Column Mount - Kit

| Part No.   | Range       | Voltage |
|------------|-------------|---------|
| 333.255POD | 0 - 7000rpm | 12V     |

**Note:** Kit includes gauge, tacho and wiring.

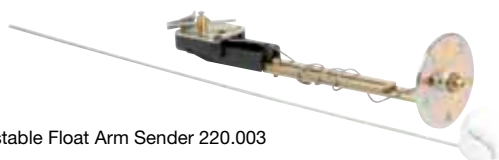


## FUEL GAUGE, electrical

Suitable for use with most petrol and diesel fuel. Illumination 12V and 24V included.

| Fuel Gauge |                      |               | 52mm    |
|------------|----------------------|---------------|---------|
| Part No.   | Range                | Size          | Voltage |
| 301.216    | Fuel gauge float arm | 10 - 180 ohms | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.



Adjustable Float Arm Sender 220.003

### Sender - Adjustable Float Arm

| Part No. | Specifications | Length      |
|----------|----------------|-------------|
| 220.003  | 10 - 180 ohms  | 150 - 600mm |

**Note:** Mounting kit part no. N05801432 not included in kit.



Arm Type Fuel Sender

### Arm Type Fuel Sender

See complete listing of arm type fuel senders on page 81.

**Note:** Mounting kit part no. N05801432 not included in kit.



Reed Switch Sender

### Reed Switch Sender Fuel & Water

Just for 10 - 180 ohms gauges.

See complete listing of reed switch senders on page 81.

**Note:** Mounting kit part no. N05801432 not included in kit.



Flange Mounting Kit N05801432

### Accessories

| Part No.  | Description         | PCD  |
|-----------|---------------------|------|
| N05801432 | Flange mounting kit | 54mm |

**Note:** More Accessories, refer to pages 88 - 91.

## PRESSURE GAUGE, electrical

Suitable for most vehicles.

Illumination 12V included.

Adaptors are listed on page 80.

| Electric Pressure Gauge - 80psi / 500Kpa |                | 52mm    |
|------------------------------------------|----------------|---------|
| Part No.                                 | Specifications | Voltage |
| 350.240                                  | 80psi (500Kpa) | 12V     |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Sender        |                  | 0-180 ohms  |           |
|---------------|------------------|-------------|-----------|
| Part No.      | Range            | Thread      | Terminal  |
| 360.001       | 500Kpa           | 1/8"-27NPTF | Spade     |
| 360.004       | 500Kpa           | 1/4"-18NPTF | Button    |
| 360.016       | 500Kpa           | 1/8"-28BSBT | Button    |
| 360.018       | 500Kpa           | 1/8"-27NPTF | M4 thread |
| 360081030049K | 5 Bar / 7 psi SW | 1/8"-27NPTF | M4 thread |

Refer to your engine manufacturers manual for correct oil pressure ratings.

**Note:** 500 Kpa = 5 Bar = 72.5 psi      700 Kpa = 7 Bar = 101.5 psi  
1000 Kpa = 10 Bar = 145 psi      2800 Kpa = 28 Bar = 406 psi



Sender 360.001

## PRESSURE GAUGE, mechanical

Suitable for most vehicles.

Supplied with nut and cone for 3/16" PVC tubing.

Illumination 12V included.

| Electric Pressure Gauge |                | 52mm    |
|-------------------------|----------------|---------|
| Part No.                | Specifications | Voltage |
| 150.202                 | 0 - 100psi     | 12V     |

| Accessories |                                                      |
|-------------|------------------------------------------------------|
| Part No.    | Description                                          |
| 230.012     | 1.8m fitting kit - 3/16" PVC tubing & engine fitting |
| 230.013     | 5m fitting kit - 3/16" PVC tubing & engine fitting   |
| 230.008     | Nut and cone for 3/16" PVC tubing, M12x1.5 thread    |
| 230.024     | Engine fitting 1/8"-27NPTF male, 3/16" PVC tubing    |
| 230.025     | Nut and cone 1/8"-27NPTF nut                         |



Oil line kit 230.012



Nut and cone 230.008



Engine fitting 230.024



Nut and cone 230.025

## TURBO CHARGER GAUGE, mechanical

Suitable for vehicles.

Supplied with nut and cone to suit 3/16" PVC tubing.

Illumination 12V included.



Engine fitting 230.024



Nut and cone 230.025

| Turbo Charger Gauge |                 | 52mm          |
|---------------------|-----------------|---------------|
| Part No.            | Description     | Specification |
| 150.206             | "TURBO" on dial | -30"HG/+25psi |

Hg = Negative 30 inches of vacuum of mercury.

**Note:** Use airline kit 230.012 or 230.013

Accessories on page 10.

Air Restrictor: X39732002001

| Accessories |                                                      |
|-------------|------------------------------------------------------|
| Part No.    | Description                                          |
| 230.012     | 1.8m fitting kit - 3/16" PVC tubing & engine fitting |
| 230.013     | 5m fitting kit - 3/16" PVC tubing & engine fitting   |
| 230.008     | Nut and cone for 3/16" PVC tubing, M12x1.5 thread    |

**Note:** For more Accessories, refer to pages 88 - 91.

## EXHAUST TEMPERATURE / PYROMETER, electrical

Suitable for most exhaust systems. Thermocouple connection is by 1/4"-18 compressing fitting.

This kit features the VDO "Spin-lock" fastening system illumination 12V included.

Adaptors are listed on page 80.



Thermocouple 320.714

| Pyrometer - Electrical Kit |              | 52mm    |
|----------------------------|--------------|---------|
| Part No.                   | Range        | Voltage |
| 310.240                    | 250 - 1600°F | 12V     |

Complete kit - consisting of instrument, thermocouple, 5m loom.

| Spare Parts for 310.240 exhaust temperature/pyrometer kit |                                                     |
|-----------------------------------------------------------|-----------------------------------------------------|
| Part No.                                                  | Description                                         |
| 320.714                                                   | Thermocouple 1/4" NPTF non bonded junction "K" type |
| 240.035                                                   | Loom, 5m                                            |
| 320.059                                                   | Weld boss 1/4" - 1/8" NPTF                          |

# TEMPERATURE GAUGE, electrical

Suitable for most vehicles.  
Illumination 12V included.  
For more matching sender units refer to page 78.  
Adaptors are listed on page 80.

| Temperature Gauge - Water |                       |                     | 52mm |
|---------------------------|-----------------------|---------------------|------|
| Part No.                  | Description           | Specifications      |      |
| 310.239                   | Electrical temp gauge | 100 - 250°F,<br>12V |      |

**Note:** 3 pin plug kit part no. 240.030 recommended. Not included in kit.

| Sender          |             |             |           |           |
|-----------------|-------------|-------------|-----------|-----------|
| Part No.        | Range       | Thread      | Terminal  | Body Type |
| 320.002         | 100 - 250°F | 1/8"-27NPTF | button    | a         |
| 320.093         | 100 - 250°F | 1/8"-27NPTF | M4 thread | b         |
| 323.801/005/001 | 100 - 250°F | 1/8"-27NPTF | button    | a         |
| 320.022         | 100 - 250°F | 1/2"-14NPTF | spade     | c         |
| 323801001006K   | 100 - 250°F | M14x1.5mm   | spade     | c         |
| 320.004         | 100 - 250°F | M16x1.5mm   | button    | a         |

**Note:** 40 - 120°C = 100 - 250°F  
For calibration specs, see page 92.



a.



b.



c.



# TEMPERATURE GAUGE, mechanical

Suitable for most vehicles.  
Process connection is via 1/2"-14NPTF wet bulb.  
Temperature is transmitted via capillary tube.  
Coil up excess capillary tubing - do not cut to shorten!  
Illumination 12V included.  
Adaptors are listed on page 80.

| Temperature Gauge - Water |                       |             | 52mm             |
|---------------------------|-----------------------|-------------|------------------|
| Part No.                  | Description           | Range       | Capillary Length |
| 180.204                   | Mechanical temp gauge | 120 - 260°F | 2438mm (96")     |





# VOLTMETER

Suitable for all engines.  
Illumination 12V or 24V included.



| Voltmeter |             | 52mm    |
|-----------|-------------|---------|
| Part No.  | Description | Voltage |
| 332.241   | Voltmeter   | 8 - 16V |

**Note:** 2 pin plug kit part no. 240.031 recommended. Not included in kit.

# INSTRUMENT KIT

| Cockpit White Kit |             |
|-------------------|-------------|
| Part No.          | Description |
| 740.104           | Gauge kit   |

**Note:** Wiring and terminals not included.



| Kit Contents - Gauges |                          |
|-----------------------|--------------------------|
| Part No.              | Description              |
| 350.240               | Oil Pressure (52mm)      |
| 310.239               | Water Temperature (52mm) |
| 301.216               | Fuel (52mm)              |
| 332.241               | Volt Meter (52mm)        |
| 333.255               | Tachometer (85mm)        |

| Kit Contents - Senders |                   |
|------------------------|-------------------|
| Part No.               | Description       |
| 360.001                | Oil Pressure      |
| 320.002                | Water Temperature |
| 220.003                | Fuel              |

**Note:** Speedo & other gauges not part of the kit and can be purchased separately.



Sender 360.001



Sender 320.002



Adjustable Float Arm Sender 220.003

## TACHOMETER, digital

Suitable for most petrol engines. Field programmable to suit 4, 6 or 8 cyl./4 stroke ignition.

| Tachometer |               | 52mm    |
|------------|---------------|---------|
| Part No.   | Specification | Voltage |
| 333.003    | 10K RPM       | 12V     |



## AIR FUEL RATIO GAUGE, digital

Suitable for monitoring engine performance.

Rich - Hard acceleration

Mid - Optimised engine response to acceleration

Lean - Better fuel economy

| Air Fuel Ratio Gauge |             |      | 52mm    |
|----------------------|-------------|------|---------|
| Part No.             | Range       | Size | Voltage |
| 301.401              | Lean - Rich | 52mm | 12V     |

| Air Fuel Ratio Gauge Kit |             |      | 52mm    |
|--------------------------|-------------|------|---------|
| Part No.                 | Range       | Size | Voltage |
| 301.402                  | Lean - Rich | 52mm | 12V     |

Complete kit consists of gauge, oxygen sensor and loom.



## PRESSURE GAUGE, digital

Suitable for most vehicles.

| Pressure Gauge - Oil |               | 52mm    |
|----------------------|---------------|---------|
| Part No.             | Specification | Voltage |
| 350.401              | 500 Kpa       | 12V     |

**Note:** Not recommended for petrol.

| Sender - 500Kpa |        |             | 10-180 ohms |
|-----------------|--------|-------------|-------------|
| Part No.        | Range  | Thread      | Terminal    |
| 360.001         | 500Kpa | 1/8"-27NPTF | Spade       |
| 360.004         | 500Kpa | 1/4"-18NPTF | Button      |
| 360.016         | 500Kpa | 1/8"-28BSBT | Button      |
| 360.018         | 500Kpa | 1/8"-27NPTF | M4 thread   |

**Note:** 500 Kpa = 5 Bar = 72.5 psi

Refer to your engine manufacturers manual for correct oil pressure ratings.

For thread adaptors see page 80. For additional pressure senders see page 73.

For calibration specs, see page 92.



Sender 360.001

## VOLTMETER, digital

Suitable for most engines/vehicles where battery and charging systems need to be monitored.

| Voltmeter |               | 52mm    |
|-----------|---------------|---------|
| Part No.  | Specification | Voltage |
| 332.401   |               | 8 - 18V |





a.



b.



c.



d.



e.



f.



## TEMPERATURE GAUGES, digital

Digital Water Temperature Gauges (40-120°C) & Digital Oil Temperature Gauges (50-150°C) display an LED light which is clear and easy to see in any time of the day or night.

| Temperature Gauge - Water |            | 52mm    |
|---------------------------|------------|---------|
| Part No.                  | Range      | Voltage |
| 310.401                   | 40 - 120°C | 12V     |

| Temperature Sender |            |             |           |           |
|--------------------|------------|-------------|-----------|-----------|
| Part No.           | Range      | Thread      | Terminal  | Body Type |
| 320.002            | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.093            | 40 - 120°C | 1/8"-27NPTF | M4 thread | b         |
| 323.801/005/001    | 40 - 120°C | 1/8"-27NPTF | button    | a         |
| 320.022            | 40 - 120°C | 1/2"-14NPTF | spade     | c         |
| 323801001006K      | 40 - 120°C | M14x1.5mm   | spade     | c         |
| 320.004            | 40 - 120°C | M16x1.5mm   | button    | a         |

**Note:** 40 - 120°C = 100 - 250°F  
For calibration specs, see page 92.

| Temperature Gauge - Oil |            | 52mm    |
|-------------------------|------------|---------|
| Part No.                | Range      | Voltage |
| 310.701                 | 50 - 150°C | 12V     |

| Temperature Sender |            |               |           |           |
|--------------------|------------|---------------|-----------|-----------|
| Part No.           | Range      | Thread        | Terminal  | Body Type |
| 320.021            | 50 - 150°C | 1/8"-27NPTF   | button    | a         |
| 320.028            | 50 - 150°C | 1/8"-27NPTF   | button    | d         |
| 320.092            | 50 - 150°C | 1/8"-27NPTF   | M4 thread | d         |
| 320.016            | 50 - 150°C | 1/2"-20Whit.S | spade 90° | c         |
| 320.023            | 50 - 150°C | 3/8"-BSPF     | spade     | c         |
| 320.010            | 50 - 150°C | M12x1.5mm     | button    | a         |
| 320.007            | 50 - 150°C | M14x1.5mm     | spade 90° | e         |

**Note:** 50 - 150°C = 120-300°F  
For calibration specs, see page 92.

## CLOCK, digital

| Clock    |             | 52mm    |
|----------|-------------|---------|
| Part No. | Description | Voltage |
| 370.701  | 12 Hr       | 12V     |

## CONFIGURATION OPTIONS

CANcockpit is the flexible system solution for processing data from various analogue and digital sensors via A master instrument connected to a CAN bus. It can be precision configured to meet specific needs, and is simple to expand up to 16 instruments which can be controlled by one master instrument, whenever required. In addition, this modular instrumentation solution may be integrated into existing VDO panel solutions.

CANcockpit, the flexible solution for a wide range of applications, offers numerous configuration and expansion options. It is based around a master instrument which can be either a Tachometer, Speedometer or Black box. The master instrument features two CAN inputs supporting different CAN protocols, two frequency inputs, three resistive inputs, one 4-20 mA input, plus one 0-5 V input. In addition, it is equipped with two switched outputs, a configurable digital display field, and more.

### MASTER GAUGE, TACHOMETER

#### Tachometer - Electronic

| Part No.    | Range               | Size | Voltage |
|-------------|---------------------|------|---------|
| A2C60000020 | 0 - 3*1000/min S tb | 80mm | 12/24V  |
| A2C60000070 | 0 - 3*1000rpm S tb  | 85mm | 12/24V  |

**Note:** S = Single scale      tb = Triangle black bezel



### MASTER GAUGE, SPEEDOMETER

#### Speedometer - Electronic

| Part No.    | Range            | Size  | Voltage |
|-------------|------------------|-------|---------|
| A2C60000024 | 0 - 200km/h S tb | 80mm  | 12/24V  |
| A2C60000025 | 0 - 80mph D tb   | 80mm  | 12/24V  |
| A2C60000072 | 0 - 120km/h S tb | 85mm  | 12/24V  |
| A2C60000073 | 0 - 80mph S tb   | 85mm  | 12/24V  |
| A2C60000129 | 0 - 120km/h S tb | 100mm | 12/24V  |

**Note:** S = Single scale      tb = Triangle black Bezel  
D = Double scale



Only available from VDO authorized Service Agents.

## SATELLITE GAUGES, TACHOMETER

### Tachometer - Analog indication

| Part No.    | Range               | Size  | Voltage |
|-------------|---------------------|-------|---------|
| A2C60000360 | 0 - 3*1000/min S tb | 100mm | 12/24V  |

**Note:** S = Single scale      tb = Triangle black bezel



## SATELLITE PRESSURE GAUGES

### Pressure Gauges - Engine Oil Pressure - Analog indication

| Part No.    | Range            | Size | Voltage |
|-------------|------------------|------|---------|
| A2C60000253 | 0 - 500Kpa S tb  | 52mm | 12/24V  |
| A2C60000254 | 0 - 1000Kpa S tb | 52mm | 12/24V  |

### Pressure Gauges - Break pressure - Dual line - Analog indication

| Part No.    | Range          | Size | Voltage |
|-------------|----------------|------|---------|
| A2C60000259 | 0 - 10bar S tb | 52mm | 12/24V  |
| A2C60000260 | 0 - 10bar S tb | 52mm | 12/24V  |

**Note:** S = Single scale      tb = Triangle black bezel  
D = Double scale      wo = Without ISO symbol



## SATELLITE TEMPERATURE GAUGES

### Temperature Gauges - Water - Analog indication

| Part No.    | Range            | Size | Voltage |
|-------------|------------------|------|---------|
| A2C60000273 | 40 - 120°C S tb  | 52mm | 12/24V  |
| A2C60000275 | 100 - 280°F D tb | 52mm | 12/24V  |

**Note:** S = Single scale      tb = Triangle black bezel  
D = Double scale      on = On-road ISO symbol  
wo = Without ISO symbol

## SATELLITE FUEL GAUGE

### Fuel Gauge - Analog indication

| Part No.    | Range      | Size | Voltage |
|-------------|------------|------|---------|
| A2C60000279 | E - F S tb | 52mm | 12/24V  |



## SATELLITE AdBlue GAUGE

### Fuel Gauge - Analog indication

| Part No.    | Range      | Size | Voltage |
|-------------|------------|------|---------|
| A2C60000299 | 0 - 1 S tb | 52mm | 12/24V  |



## SATELLITE VOLTMETER GAUGES

### Voltmeter - Analog indication

| Part No.    | Range         | Size | Voltage |
|-------------|---------------|------|---------|
| A2C60000282 | 8 - 16V S tb  | 52mm | 12/24V  |
| A2C60000284 | 18 - 32V S tb | 52mm | 12/24V  |

Only available from VDO authorized Service Agents.

## MASTER BLACK BOX

Usage instead of the master tachometer or speedometer

### Master Black Box

| Part No.    | Description   |
|-------------|---------------|
| A2C60500641 | CCM Black Box |



## CLAMP RINGS

### Clamp Ring

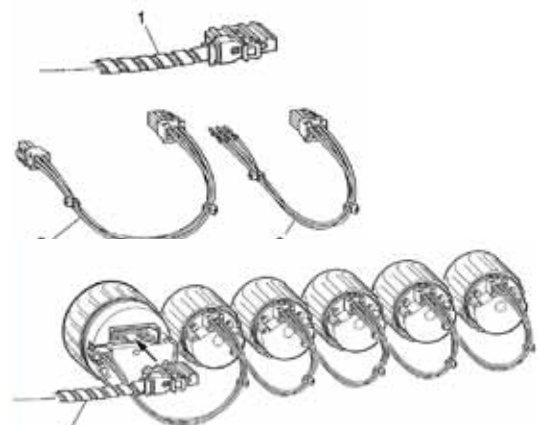
| Part No.    | Size | Drawing No. |
|-------------|------|-------------|
| 800.005.015 | 52mm | 1           |
| 800.005.005 | 80mm | 2           |



## WIRING HARNESSES

### Wiring Harnesses

| Part No.    | Description            | Size   | Drawing No. |
|-------------|------------------------|--------|-------------|
| A2C53041729 | Master main (26-pole)  | 3000mm | 1           |
| A2C53344035 | Master to Satellite    | 200mm  | 2           |
| A2C53344036 | Satellite to Satellite | 200mm  | 3           |



Wiring harness master

## SOFTWARE ACCESSORIES

### Software

| Part No.     | Description                              |
|--------------|------------------------------------------|
| X11602000009 | CANcockpit Interface (Wingauge CMD Line) |
| X11602000010 | CANcockpit Interface (Wingauge)          |

**Note:** Software only available for authorized and factory trained Regional Partners and OEM's.



Only available from VDO authorized Service Agents.



# TACHOMETERS

These tachometers reads 0-10,000 RPM, and also comes with plastic housing bezel and shift light accessory.



| Performance Tachometer |                       | 95mm    |
|------------------------|-----------------------|---------|
| Part No.               | Specification         | Voltage |
| 333.201                | 10K RPM W/shift light | 12V     |

**Note:** 8 pin plug kit part no. 340.824 recommended.



| Monster Tachometer |                       | 120mm   |
|--------------------|-----------------------|---------|
| Part No.           | Specifications        | Voltage |
| 333.001            | 10K RPM W/shift light | 12V     |



This four function gauge is used as a tachometer (0-10,000 RPM), voltmeter (8-16V), oil pressure gauge (0-100 PSI) and water temperature gauge (105F-250F) all in one. The housing color is black/titanium, and also comes with a shift light accessory and with 7 different illumination colour combinations.

Oil and temp senders are included in the kit.

| Monster Tachometer |                                     | 120mm   |
|--------------------|-------------------------------------|---------|
| Part No.           | Specifications                      | Voltage |
| 333.002            | 10K RPM Oil/Temp/Volt W/shift light | 12V     |

# OIL PUMP, electrical

Electric Oil pump used to pump engine or gear oil.



| Oil pump     |                         | 12V |
|--------------|-------------------------|-----|
| Part No.     | Description             |     |
| 405040001001 | 160 Litres per hour     |     |
| CSCS-9001    | Connector Loom Oil Pump |     |

**Note:** 100°C to 150°C working temperature, 4 bar pressure.  
Polarity is written on the socket.

## KIMAX I

The economical, easy-to-install instrument Kimax I gives you a simple and precise overview of axle pressure, both for individual and axle groups. It is in two different models available.

A cabin version intended for mounting inside the cabin of the vehicle or in a trailer version intended for mounting outside on the chassis on your vehicle.

The trailer version is splash water proof and are designed to withstand the environment conditions around a vehicle on the road all the year.

The hydraulic sensor for heavy load vehicles are suitable for vehicles which are equipped with hydraulic suspensions. Also for loading equipment such as forklifts.

Each model is offered in a single or a dual inlet version. Single air inlet is used on vehicles with combined level control for one or more axles. Dual air inlet is used either on vehicles with split level control for one or more axles. Or on vehicles with two or more individual axles arranged in a combined level control system.

### Kimax I - Cabin

| Part No.     | Description                  |
|--------------|------------------------------|
| X10732002003 | Cabin Version with 1 Sensor  |
| X10732002001 | Cabin Version with 2 Sensors |



Cabin Version

### Kimax I - Trailer

| Part No.     | Description                    |
|--------------|--------------------------------|
| X10732002004 | Trailer Version with 1 Sensor  |
| X10732002002 | Trailer Version with 2 Sensors |



Trailer Version

### Kimax I - Hydraulic Sensor

| Part No. | Description             |
|----------|-------------------------|
| 10172    | For heavy load vehicles |



Hydraulic Sensor

## KIMAX II

The universal system is designed for maximum flexibility. Kimax II can be tailored to provide you with detailed overview of your vehicle total weight, load and individual axle pressure. It also supplies you with weighing slips for easy documentation. Kimax II offers more combinations regarding setup on multiple suspension systems.

The DIN Radio Panel is an adaptable instrument for supervision of load on all axles on your carriages. Seamless fitting into your cabin. Customized for all Kimax accessories for your individual layout, including swapping between different trailer.

The Universal instrument is equal to DIN Radio Panel in functionality, however specially invented for panel mounting.

The sensor needs to be placed on the chassis sensor box. It enables easy communication with the DIN Radio Panel and Universal display instrument.



DIN Radio Panel 10117



Wireless Handheld 10119



Printer 10120



SG Sensor 10170

### Kimax II - DIN Radio Panel

| Part No. | Description                |
|----------|----------------------------|
| 10117    | For seamless cabin fitting |

### Kimax II - Universal

| Part No. | Description        |
|----------|--------------------|
| 10107    | For panel mounting |

### Kimax II - Sensor

| Part No. | Description                             |
|----------|-----------------------------------------|
| 10116    | For placement on the chassis sensor box |

### Kimax II - Accessories

| Part No. | Description                                                                       |
|----------|-----------------------------------------------------------------------------------|
| 10119    | Wireless Handheld                                                                 |
| 10120    | Printer for easy and effective documentation                                      |
| 10170    | SG Sensor for vehicles equipped with parable or leaf springs on one or more axles |

## CENTRAL LOCK UNIVERSAL REMOTE FOR KEYLESS ENTRY

This part converts cars with central locking to keyless entry. It has a great use for cars that have lost or broken factory remotes.

This kit contains 2 remote controls, indicator outputs, full relay outputs, vacuum control selectable and a boot release output.

### Universal remote keyless entry system

| Part No. | Description | Voltage |
|----------|-------------|---------|
| 880.770  | Kit         | 12V     |



## CENTRAL LOCK UNIVERSAL REMOTE FOR KEYLESS ENTRY WITH ALARM

This part converts cars with central locking to keyless entry. It has a great use for cars that have lost or broken factory remotes.

This kit contains universal remote control, immobilizer output and relay, shock sensor, also a door, boot and bonnet protection circuit, 2 black remote controls, 1 Pink remote control, indicator outputs, full relay outputs, vacuum control selectable, boot release output and a battery back up siren.

### Universal remote keyless entry system with Alarm

| Part No. | Description    | Voltage |
|----------|----------------|---------|
| 900.550  | Kit with alarm | 12V     |



## FLASH 2 OPEN - GARAGE DOOR OPENING SYSTEM

This is a significant step forward in convenience and security of entering and exiting your garage or property. With this system you have now fully integrated your car with your home by integrating the activation of your garage door opener remote into the high beam switch of your turn signal lever.

Benefits:

- No more broken remote controls
- No more fumbling in the dark to find remote controls
- Increase security by using your car to control the door

### Flash 2 Open - Kit

| Part No. | Description                  | Voltage |
|----------|------------------------------|---------|
| 880.660  | Head Light Flash remote door | 12V     |

**Note:** The Kit includes 1 Receiver for garage door motor, 2 Transmitters for in car use, 1 Handheld transmitter and Fitting hardware.

### Flash 2 Open - Accessories

| Part No. | Description                           |
|----------|---------------------------------------|
| F20-TX1  | Hand Held Transmitter Flash 2 Open    |
| F20-TXC  | Spare in Car Transmitter Flash 2 Open |
| F20-RX   | Spare Receiver for Flash 2 Open       |





## REMOTE CONTROLLED IMMOBILISER, Australian Standards Approved

The VDO Remote Controlled Immobiliser features a high level of security, with the added convenience of keyless entry where central locking is fitted to the vehicle. Features include 2 point on board immobilisation, all black wire harness, auto immobilisation, status LED, indicator lamps output, 2 code hopping remote transmitters, boot lease output and full central door locking relay output. Interfaces with VDO central locking part no. 880.700 and most factory central locking systems (some vehicles may require additional actuator part no. 880.003 for drivers door).

Upgradeable to full alarm systems by adding siren part no. 880.013, shock sensor part no. 880.007 and/or microwave sensor part no. 880.006.

| Remote Controlled Immobiliser |                              | 12V |
|-------------------------------|------------------------------|-----|
| Part No.                      | Description                  |     |
| 900.600                       | Universal Remote Immobiliser |     |



## REMOTE CONTROLLED ALARM SYSTEM Australian Standards Approved

The VDO Remote Controlled Alarm System is a universal alarm system with a built in immobiliser for added security.

Features include 2 point on board immobilisation, all black wire harness, auto immobilisation, built in, entry point protection, status LED, glass break sensor, indicator lamps output, 2 code hopping remote transmitters, sector diagnostics, options programmable using remote transmitter, battery backup minisiren, boot release output and full central door locking relay output. Interfaces with VDO central locking part no. 880.700 and most factory central locking systems (some vehicles may require additional actuator part no. 880.003 for drivers door). Compatible with microwave sensor part no. 880.006.

Horn output = 155 dB @ 1 metre.

| Remote Controlled Alarm System |                             | 12V |
|--------------------------------|-----------------------------|-----|
| Part No.                       | Description                 |     |
| 900.505                        | Universal Alarm/Immobiliser |     |

## REMOTE CONTROLLED CENTRAL LOCKING KIT

The VDO Remote Controlled Central Locking Kit is a universal kit which converts standard locks to transmitter operated central locking. Features indicator lamps output and an optional starter kill (use part no. 880.012), and boot release function (additional relays required.)

| Central Locking Kit |                   | 12V                                      |
|---------------------|-------------------|------------------------------------------|
| Part No.            | Description       | Specifications                           |
| 900.705             | Remote controlled | 4 Actuators<br>Central locking kit (key) |



## CENTRAL LOCKING KIT

The VDO Central Locking Kit is a universal kit which converts standard locks to key operated central locking, with master actuators for both front doors. This unit can be integrated with most remote controlled alarms and immobilisers for full keyless entry. The kit includes all necessary hardware, 4 actuators, wiring loom and control box. Can be integrated to VDO immobilisers part number: 900.600

| Central Locking Kit |                         | 12V                                     |
|---------------------|-------------------------|-----------------------------------------|
| Part No.            | Description             | Specifications                          |
| 880.700             | Central locking kit for | 4 Actuators<br>existing remote controls |



| Accessories |                                                   | 12V |
|-------------|---------------------------------------------------|-----|
| Part No.    | Description                                       |     |
| 880.003     | Slave locking actuator 2 wire                     |     |
| 880.004     | Master locking actuator 5 wire                    |     |
| 880.005     | Sliding door switch for vans                      |     |
| 880.006     | Microwave sensor. Suits 880.600 & 880.505         |     |
| 880.007     | Shock sensor. Suits 880.600, 880.400              |     |
| 880.008     | Central locking control box. Suits 880.700        |     |
| 880.012     | Electric boot release kit 12V                     |     |
| 880.013     | Battery backup siren                              |     |
| 880.015     | Remote transmitter. Suits 880.705 kit and 900.705 |     |
| 880.016     | Central locking control box. Suits 880.705 kit    |     |
| 880.017     | Remote transmitter. Suits 880.555                 |     |
| 880.020     | Remote 900.600 and 900.505                        |     |
| 880.021     | Code key 900.605                                  |     |



Control box 880.008



Slave locking actuator 880.003



Battery backup siren 880.013





## LOW WATER ALARM

The VDO Low Water Alarm Electronic Module monitors current continuity while the low water level probe is submerged in water. The location of the probe in the radiator or header tank determines the critical water level. Warning occurs within a few seconds of this level being reached. The flashing warning light and continuously activated buzzer can only be cancelled by switching off the engine. The circuit design features a functional check which is carried out every time the ignition is turned off. It also includes a delay action to avoid premature triggering.

**Note:** For aluminium core radiators, fit water level probe to vehicle thermostat housing.

### Low Water Alarm

| Part No. | Description           | Voltage |
|----------|-----------------------|---------|
| 410.007  | Low Water Warning Kit | 12/24V  |

### Specifications

Switch Point - when continuity broken  $R > 10K$

Probe Material - Stainless Steel

Operation - AC current to prevent Electrolysis

**Note:** Kit contents - Warning light, electronic module water level probe, buzzer adaptor, soldering bush, and all wiring plugs and sockets.

### Accessories

| Part No. | Description              | Specification        |
|----------|--------------------------|----------------------|
| 410.006  | Electronic Module        | 110 X 67 X 35mm      |
| 230.058  | Water level probe        | 30mm Long            |
| 230.059  | Water level probe        | 90mm Long            |
| 230.016  | Soldering Bush           |                      |
| 230.017  | Threaded Adaptor         | M14 X1.5 Round.      |
| 230.056  | 2 terminal Ceramic Probe | M14 X1.5             |
| 170.708  | Warning light            | 12 volt              |
| 240.022  | Buzzer 12/24V            | 40mm, 34mm deep 75dB |



## TYRE PRESSURE GAUGE

For the conscientious driver who likes to retain a consistent Tyre pressure. Supplied in a handy leather pouch. Dual scale bar/psi.

### Tyre Pressure Gauge

| Part No. | Range                  |
|----------|------------------------|
| 150.050  | 0 - 4.5bar (0 - 64psi) |

### Accessories

| Part No. | Description             |
|----------|-------------------------|
| 150.050S | Replacement rubber seal |

## SPEED ALERT

Avoid expensive speeding fines and license suspension by installing a VDO Speed Alert. Features include acoustic and visual warnings when set speed is exceeded, with 1 km/h increments for set speed. Headlight "on" alert provides acoustic and visual warning when headlights are left on and ignition is switched off. Suitable for both electronic and mechanical speedometers. Easy calibration for all cars. Double sided tape mounting with an external alarm output.

For mechanical speed application, add speed sensor, refer to pages 83.



| Speed Alert |                                                    | 12/24V     |
|-------------|----------------------------------------------------|------------|
| Part No.    | Description                                        | Size       |
| 124.130     | Speed Alert Kit<br>(Suits electronic speedometers) | 70x45x22mm |

## WARNING LIGHTS

| Warning Lights |             |                    |           |
|----------------|-------------|--------------------|-----------|
| Part No.       | Description | Specification      | Size      |
| 170.708        | Red Light   | Holder & 12V globe | 15mm hole |
| 170.709        | Amber light | Holder & 12V globe | 15mm hole |
| 170.712        | Green light | Holder & 12V globe | 15mm hole |
| 240.057        | Globe       | 24V                |           |
| 240.056        | Globe       | 12V                |           |



## WARNING BUZZERS

| Warning Lights |             |               |         |
|----------------|-------------|---------------|---------|
| Part No.       | Description | Specification | Voltage |
| 240.022        | Buzzer 75db | 50mA          | 12/24V  |



Warning buzzer base

# UNIVERSAL CRUISE CONTROL

Electronic cruise control suitable for petrol and diesel engines, automatic or manual transmission. Actuator & control box in one compact unit. Dip switch controls for quick calibration and fine tuning.



| Pacesetter Cruise Control |                                                                                                                                        | 12V |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----|
| Part No.                  | Description                                                                                                                            |     |
| X10397106825              | Cruise control, complete kit, includes part no. 412.029 stalk control, electric actuator, wiring loom, bowden cable and clutch switch. |     |



Universal Stalk Control  
X39737300006

| Accessories  |                         |
|--------------|-------------------------|
| Part No.     | Description             |
| 412.030      | Kit without stalk       |
| 412.029      | Stalk Control RF        |
| X39737300006 | Universal Stalk Control |

## VEHICLE APPLICATION LISTING

| ALFA ROMEO  |                    |       |                    |            |            |             |                 |
|-------------|--------------------|-------|--------------------|------------|------------|-------------|-----------------|
| Make/Series | Model              | Year  | Engine             | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| 75          | Tween-Spark        | 88-92 | 4 Cyl 06224        | 2.0L       | 231.085    |             |                 |
| 75          | AR162              | 86-92 | 6 Cyl 01911, 06174 | 2.5L, 3.0L | 231.085    |             |                 |
| 147         |                    | 00-On | 4 Cyl, 6 Cyl       | All        | 231.117    |             |                 |
| 156         |                    | 99-04 | 4 Cyl, 6 Cyl       | 2.0L, 2.5L | 231.117    |             |                 |
| 166         |                    | 99-01 | 6 Cyl              | 3.0L       | 231.117    |             |                 |
| GT          | 2D Coupe           | 04-on | 4 Cyl, 6 Cyl       | 2.0L, 3.0L | 231.117    |             |                 |
| GTV         | All                | 98-on | 4 Cyl, 6 Cyl       | 2.0L, 3.0L | 231.117    |             |                 |
| Spider      | JTS Lusso, Convert | 03-05 | 4 Cyl, 6 Cyl       | 2.0L       | 231.117    |             |                 |

| AUDI        |                              |       |        |          |            |             |                 |
|-------------|------------------------------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model                        | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| 80          | CC, 1.8E Quattro, 2.0 & 2.0S | 86-87 | 4 Cyl  | 1.8L     | 231.110    | 320.086     | 360.022         |
| 80          | CC, 1.8E Quattro             | 86-87 | 4 Cyl  | 1.8L     | 231.111    | 320.086     | 360.022         |
| 90          | Sport & Quattro              | 89-92 | 5 Cyl  | 2.3L     | 231.110    |             |                 |
| 100         | CD                           | 83-91 | 5 Cyl  | 2.1L     | 231.110    |             |                 |
| 100         | CD                           | 83-91 | 5 Cyl  | 2.1L     | 231.111    |             |                 |
| 200         | Turbo                        | 86-91 | 5 Cyl  | 2.2L     | 231.110    |             |                 |
| A3          | 4D Hatchback                 | 97-04 | 4 Cyl  | 1.6L     | 231.111    |             |                 |
| A3          | 4D Hatchback, Turbo          | 97-04 | 4 Cyl  | 1.8L     | 231.111    |             |                 |
| A4          | 4D Hatchback, Turbo          | 95-01 | 4 Cyl  | 1.8L     | 231.111    | 320.086     | 360.022         |
| A4          | 1.8T (incl. Quattro)         | 95-99 | 4 Cyl  | 1.8L     | 231.111    |             |                 |
| A4          | 2.4 V6                       | 98-01 | 6 Cyl  | 2.4L     | 231.110    |             |                 |
| A4          | 2.4 V6                       | 98-on | 6 Cyl  | 2.4L     | 231.111    |             |                 |
| A4          | 2.4 V6                       | 95-99 | 6 Cyl  | 2.6L     | 231.110    |             |                 |
| A4          | 2.6 V6                       | 95-99 | 6 Cyl  | 2.6L     | 231.110    |             |                 |
| A4          | 2.6 V6 Quattro               | 95-99 | 6 Cyl  | 2.4L     | 231.111    |             |                 |
| A4          | 2.6 V6 Quattro               | 94-97 | 6 Cyl  | 2.6L     | 231.111    |             |                 |
| A6          | 2.8 Quattro                  | 94-99 | 6 Cyl  | 2.8L     | 231.110    |             |                 |
| A8          | 3.7 V8                       | 96-99 | 6 Cyl  | 3.7L     | 231.110    |             |                 |
| A8          | 4.2 V8                       | 96-99 | 6 Cyl  | 4.2L     | 231.110    |             |                 |

| BMW           |          |       |        |            |            |             |                 |
|---------------|----------|-------|--------|------------|------------|-------------|-----------------|
| Make/Series   | Model    | Year  | Engine | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| 316i - 320i   | E36, E46 | 95-99 | 4 Cyl  | 1.6L       | 231.115    |             |                 |
| 318i, 319S    | E30      | 88-91 | 4 Cyl  | 1.8L       | 231.115    |             |                 |
| 318i          | E36, E46 | 94-98 | 4 Cyl  | 1.8L       | 231.115    |             |                 |
| 320i          | E30, E36 | 88-95 | 6 Cyl  | 2.0L       | 231.115    |             |                 |
| 320i          | E30      | 82-85 | 6 Cyl  | 2.3L       | 231.109    |             |                 |
| 323i - 323Ci  | E46      | 98-on | 6 Cyl  | 2.5L       | 231.115    |             |                 |
| 325i - 325e   | E30, E36 | 86-95 | 6 Cyl  | 2.5L, 2.7L | 231.115    |             |                 |
| 325Ti - 325Ci | E46      | 02-on | 6 Cyl  | 2.5L       | 231.115    |             |                 |
| 328i - 328Ci  | E36, E46 | 95-00 | 6 Cyl  | 2.8L       | 231.115    |             |                 |
| 330i - 330Ci  | E36      | 00-on | 6 Cyl  | 3.0L       | 231.115    |             |                 |
| 520i          | E28      | 83-85 | 6 Cyl  | 2.0L       | 231.109    |             |                 |
| 520i          | E34      | 90-96 | 6 Cyl  | 2.0L       | 231.115    |             |                 |
| 523i          | E39      | 96-00 | 6 Cyl  | 2.5L       | 231.115    |             |                 |

## VEHICLE APPLICATION LISTING

| BMW Continued |                |       |                        |                                |            |             |                 |
|---------------|----------------|-------|------------------------|--------------------------------|------------|-------------|-----------------|
| Make/Series   | Model          | Year  | Engine                 | Capacity                       | Oil Switch | Temp Sender | Pressure Sender |
| 525i          | E34            | 88-90 | 6 Cyl                  | 2.5L                           | 231.115    |             |                 |
| 528i          | E28            | 82-85 | 6 Cyl                  | 2.8L                           | 231.109    |             |                 |
| 528i          | E39            | 96-00 | 6 Cyl                  | 2.8L                           | 231.115    |             |                 |
| 530i          | E34            | 93-96 | 8 Cyl                  | 3.0L                           | 231.115    |             |                 |
| 530i          | E60            | 03-on | 6 Cyl                  | 3.0L                           | 231.115    |             |                 |
| 530i          | E28            | 86-88 | 6 Cyl                  | 3.4L                           | 231.109    |             |                 |
| 535i          | E28            | 86-88 | 6 Cyl                  | 3.4L                           | 231.109    |             |                 |
| 535i & 535iS  | E34            | 88-91 | 6 Cyl                  | 3.4L                           | 231.115    |             |                 |
| 535i          | E39            | 96-on | 8 Cyl                  | 3.5L                           | 231.115    |             |                 |
| 540i          | E34            | 94-96 | 8 Cyl                  | 4.0L                           | 231.115    |             |                 |
| 540i          | E39            | 96-03 | 8 Cyl                  | 4.0L                           | 231.115    |             |                 |
| 545i          | E39            | 03-on | 8 Cyl                  | 4.0L                           | 231.115    |             |                 |
| 730i          | E32            | 86-94 | 6 Cyl                  | 3.0L                           | 231.115    |             |                 |
| 730i          | E32 iL         | 91-94 | 8 Cyl                  | 3.0L                           | 231.115    |             |                 |
| 740iL         | E32, E38       | 92-on | 8 Cyl                  | 4.0L & 4.4L                    | 231.115    |             |                 |
| 745iL         | E66 LWB        | 02-on | 8 Cyl                  | 4.4L                           | 231.115    |             |                 |
| M3, M3R       | E36, E46       | 94-on | 6 Cyl                  | 3.0L & 3.2L                    | 231.115    |             |                 |
| X3, X5, Z3    | E83, E53, E36  | 97-on | 4 Cyl, 6 Cyl,<br>8 Cyl | 1.9L 2.0L,<br>3.0L, 4.4L, 4.6L | 231.115    |             |                 |
| Z4            | 2D Convertible | 03-on | 6 Cyl                  | 2.5L & 3.0L                    | 231.115    |             |                 |

| CHRYSLER    |        |       |              |            |            |             |                 |
|-------------|--------|-------|--------------|------------|------------|-------------|-----------------|
| Make/Series | Model  | Year  | Engine       | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| Valiant     | All    | 62-81 | 6 Cyl, 8 Cyl | All        | 231.083    | 320.002     | 360.001         |
| Charger     | All    | 62-81 | 6 Cyl, 8 Cyl | All        | 231.083    | 320.002     | 360.001         |
| Centura     | KB     | 75-77 | 4 Cyl        | 2.0L       | 230.089    |             |                 |
| Centura     | KB, KC | 75-78 | 6 Cyl        | 3.5L, 4.0L | 231.083    |             |                 |
| Galant      | All    | 71-77 | 4 Cyl        | All        | 231.083    |             |                 |

| DAEWOO      |                     |       |        |          |            |             |                 |
|-------------|---------------------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model               | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| 1.5i        |                     | 94-95 | 4 Cyl  | 1.5L     | 231.096    | 320.008     |                 |
| Cielo       | 1.5 SOHC            | 94-95 | 4 Cyl  | 1.5L     |            | 320.008     |                 |
| Cielo       | 1.5 SOHC, 1.5 DOHC  | 95-98 | 4 Cyl  | 1.5L     | 231.096    | 320.095     |                 |
| Espero      | 2.0L SOHC           | 95-97 | 4 Cyl  | 2.0L     | 231.096    |             |                 |
| Kalos       | 1.5L SOHC           | 03-04 | 4 Cyl  | 1.5L     | 231.098    | 320.098     |                 |
| Lacetti     | 1.8L DOHC           | 03-04 | 4 Cyl  | 1.8L     | 231.098    | 320.095     |                 |
| Lanos       | 1.5L SOHC, 1.6 DOHC | 97-03 | 4 Cyl  | 1.5L     | 231.114    | 320.095     |                 |
| Leganza     | 2.0L DOHC           | 97-99 | 4 Cyl  | 2.0L     | 231.114    | 320.095     |                 |
| Leganza     | 2.2L DOHC           | 99-02 | 4 Cyl  | 2.2L     | 231.114    | 320.095     |                 |
| Matiz       | KL M100 SOHC        | 99-01 | 3 Cyl  | 0.8L     | 231.089    | 320.095     |                 |
| Matiz       | KL M150 SOC         | 02-04 | 3 Cyl  | 0.8L     |            | 320.095     |                 |
| Musso       | 3.2L DOHC           | 98-02 | 6 Cyl  | 3.2L     | 231.094    |             |                 |
| Nubira      | J100                | 97-99 | 4 Cyl  | 1.6L     | 231.114    | 320.098     |                 |
| Nubira      | J100                | 97-99 | 4 Cyl  | 2.0L     | 231.114    | 320.099     |                 |
| Nubira      | J150                | 99-03 | 4 Cyl  | 2.0L     | 231.114    | 320.095     |                 |
| Tacuma      | Wagon 16DOHC        | 00-04 | 4 Cyl  | 2.0L     |            | 320.095     |                 |

## VEHICLE APPLICATION LISTING

| DAIHATSU    |                     |       |        |          |            |             |                 |
|-------------|---------------------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model               | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| Applause    | A101                | 89-99 | 4 Cyl  | 1.6L     | 231.084    |             |                 |
| Charade     | G10, G11, G11 Turbo | 80-87 | 3 Cyl  | 1.0L     | 231.084    | 320.040     |                 |
| Charade     | G100, G100 Turbo    | 87-93 | 3 Cyl  | 1.0L     | 231.084    | 320.040     |                 |
| Charade     | G102                | 88-93 | 4 Cyl  | 1.3L     | 231.084    | 320.040     |                 |

| FORD             |                                                                       |       |              |                     |            |                    |                 |
|------------------|-----------------------------------------------------------------------|-------|--------------|---------------------|------------|--------------------|-----------------|
| Make/Series      | Model                                                                 | Year  | Engine       | Capacity            | Oil Switch | Temp Sender        | Pressure Sender |
| Bronco           |                                                                       | 81-85 | 6 Cyl        | 4.1L                | 231.106    |                    |                 |
| Bronco           |                                                                       | 81-85 | 8 Cyl        | 5.8L                | 231.081    |                    |                 |
| Bronco           |                                                                       | 85-87 | 8 Cyl        | 4.9L                | 231.106    |                    |                 |
| Capri            | All                                                                   | 74-84 | 4 Cyl, 6 Cyl | 1.6L, 3.0L          | 231.107    | 360.067            |                 |
| Courier          | PC 4WD                                                                | 87-98 | 4 Cyl        | 2.6L                | 231.084    | 320.067            |                 |
| Courier          | PE, PG, PH                                                            | 99-on | 4 Cyl        | 2.6L                | 231.084    | 320.067            |                 |
| Courier          | PH                                                                    | 99-on | 4 Cyl        | 2.6L                | 231.084    | 320.067            |                 |
| Econovan         | 1.4L, 1.8L                                                            | 84-97 | 4 Cyl        | 1.4L, 1.8L          | 231.084    | 320.041            |                 |
| Econovan         | 1.6L                                                                  | 84-97 | 4 Cyl        | 1.6L                | 231.084    | 320.068            |                 |
| Econovan         | 1.8L, 2.0L                                                            | 03-on | 4 Cyl        | 1.8L, 2.0L          | 231.089    | 320.067            |                 |
| Econovan         | Diesel                                                                | 81-84 | 4 Cyl        | 2.2L                | 231.084    | 320.068            |                 |
| Econovan         | Diesel                                                                | 84-90 | 4 Cyl        | 2.2L                | 231.084    | 320.041            |                 |
| Econovan         | Diesel                                                                | 90-97 | 4 Cyl        | 2.2L                | 231.084    | 320.067            |                 |
| Escort           | All, Mk1, Mk2                                                         | 68-82 | 4 Cyl        | 1.6L, 2.0L          | 231.107    | 320.003            |                 |
| Explorer         | UN, UP, UQ, US                                                        | 96-01 | 6 Cyl        | 4.0L                |            |                    | 360.033         |
| F100, F250, F350 | RWD, 4WD                                                              | 70-90 | 6 Cyl        | 4.1L                | 231.106    | 320.101            |                 |
| F100             | 4WD EFI, RWD EFI                                                      | 85-87 | 8 Cyl        | 4.9L                |            | 320.101            | 231.106         |
| F150             | 4WD EFI, RWD EFI,                                                     | 87-90 | 8 Cyl        | 4.9L                |            | 320.101<br>320.102 | 231.106         |
| F250             | RWD Carb,                                                             | 87-90 | 8 Cyl        | 4.9L                |            | 320.101            | 231.106         |
| F350             | RM RWD EFI                                                            | 01-02 | 8 Cyl        | 5.4L                |            | 320.103            |                 |
| F100, F350       | 4WD Carb, RWD Carb                                                    | 78-85 | 8 Cyl        | 5.8L                |            | 320.101            | 360.033         |
| F150             | 4WD EFI, RWD EFI,                                                     | 90-92 | 8 Cyl        | 5.8L                |            |                    | 360.033         |
| F250, F350       | RWD Carb, 4WD EFI                                                     | 91-93 | 8 Cyl        | 5.8L                |            | 320.102            | 360.033         |
| F350             | RWD Turbo Diesel                                                      | 01-03 | 8 Cyl        | 7.3L                |            | 320.103            |                 |
| Fairlane         | ZA, ZG                                                                | 67-76 | 6 Cyl, 8 Cyl | 4.1L, 4.9L          | 231.081    | 320.003            |                 |
| Fairlane         | ZJ, ZK, EFI, Carb.                                                    | 79-83 | 6 Cyl, 8 Cyl | 4.1L, 4.9L          | 231.106    |                    |                 |
| Fairlane         | ZH                                                                    | 76-79 | 8 Cyl        | 4.9L, 5.8L          | 231.081    |                    | 360.003         |
| Fairlane         | ZL Leaded                                                             | 84-86 | 6 Cyl        | 4.1L                | 231.106    | 320.003            |                 |
| Fairlane         | ZL Unleaded                                                           | 86-88 | 6 Cyl        | 4.1L                | 231.106    | 320.003            |                 |
| Fairlane         | NA, NC, NF, NL                                                        | 88-98 | 6 Cyl        | 3.9L, 4.0L          | 231.081    | 320.065            |                 |
| Fairlane         | NC, NF, NL                                                            | 91-98 | 8 Cyl        | 5.0L                | 231.106    |                    |                 |
| Fairlane         | NU, NU II                                                             | 99-02 | 6 Cyl        | 3.9L, 4.0L          | 231.081    |                    |                 |
| Fairlane         | BA, BF, XR6, XR8, UTE                                                 | 03-on | 6 Cyl, 8 Cyl | 4.0L, 5.0L          | 231.100    |                    | 360.001         |
| Falcon           | XK, XP, XR, XT, XW, XY                                                | 60-72 | 6 Cyl, 8 Cyl | All                 | 231.081    |                    |                 |
| Falcon           | XL, XM,                                                               | 61-65 | 6 Cyl        | All                 | 231.081    |                    |                 |
| Falcon           | XT Carb, XW Carb, XW GTHO<br>Phase 1 & 2, XY Carb,<br>XY GTHO Phase 3 | 69-71 | 8 Cyl        | 5.0L, 5.8L,<br>4.9L | 231.081    |                    |                 |



## VEHICLE APPLICATION LISTING

| FORD Continued |                                             |       |              |                        |                    |             |                 |
|----------------|---------------------------------------------|-------|--------------|------------------------|--------------------|-------------|-----------------|
| Make/Series    | Model                                       | Year  | Engine       | Capacity               | Oil Switch         | Temp Sender | Pressure Sender |
| Falcon         | XA, XB, XC, XC Carb                         | 72-79 | 6 Cyl, 8 Cyl | All                    | 231.081            | 320.003     | 360.003         |
| Falcon         | XD, XE, UTE                                 | 79-84 |              | 3.3L, 4.1L             | 231.106            | 320.011     | 360.013         |
| Falcon         | XF, UTE, EFI Carb                           | 84-88 | 6 Cyl        | 4.1L                   | 231.106            | 320.011     | 360.013         |
| Falcon         | EA, EA II, EB, ED                           | 89-94 | 6 Cyl, 8 Cyl | 3.2L, 3.9L, 4.0L, 5.0L | 231.106            | 320.065     | 360.013         |
| Falcon         | EF, EFII, EL                                | 94-98 | 6 Cyl        | 4.0L                   | 231.106            | 320.065     | 360.045         |
| Falcon         | EF, EFII, EL                                | 94-98 | 8 Cyl        | 5.0L                   | 231.106            |             | 360.045         |
| Falcon         | AU, AUII, AUIII, UTE, XR6, XR6 UTE          | 98-02 | 6 Cyl,       | 4.0L                   | 231.106            |             | 360.045         |
| Falcon         | AU, AUII, AUIII, XR8, UTE, XR8 UTE, AU TE50 | 98-02 | 8 Cyl        | 5.0L                   | 231.106            |             | 360.045         |
| Falcon         | BA, XR6 Turbo, RTV, Ute                     | 02-05 | 6 Cyl        | 4.0L                   | 231.100            |             | 360.045         |
| Falcon         | BA SOHC, XR8 DOHC, Pursuit Ute DOHC         | 02-05 | 8 Cyl        | 5.4L                   | 231.100            |             |                 |
| Falcon         | BF SOHC/DOHC                                | 05-06 | 6 Cyl, 8 Cyl | 4.0L, 5.4L             | 231.100            |             |                 |
| Falcon         | BF Turbo                                    | 05-06 | 6 Cyl        | 4.0L                   | 231.100            |             |                 |
| Falcon         | BF MKII                                     | 05-06 | 6 Cyl        | 4.0L                   | 231.100            |             |                 |
| Falcon         | BF MKII                                     | 06-08 | 8 Cyl        | 5.4L                   | 231.100            |             |                 |
| Falcon         | FG, FG G6 (LPG), FG F6E (Turbo)             | 08-on | 6 Cyl        | 4.0L                   | 231.100            |             |                 |
| Falcon         | FG XR8                                      | 08-on | 8 Cyl        | 5.4L                   | 231.100            |             |                 |
| Falcon         | XH Ute / Van                                | 96-98 | 6 Cyl, 8 Cyl | 4.0L, 5.0L             | 231.106            |             |                 |
| Festiva        | WA                                          | 91-93 | 4 Cyl        | 1.3L                   | 231.084            |             |                 |
| Festiva        | WA                                          | 93-94 | 4 Cyl        | 1.3L                   | 231.084            |             |                 |
| Festiva        | WB, WD                                      | 94-97 | 4 Cyl        | 1.3L                   | 231.102            |             |                 |
| Festiva        | WF                                          | 94-03 | 4 Cyl        | 1.3L                   | 231.084<br>231.102 |             |                 |
| Festiva        | WD, WF                                      | 97-01 | 4 Cyl        | 1.5L                   | 231.102            |             |                 |
| Fiesta         | WP, LX, Zetc, Ghia                          | 04-05 | 4 Cyl        | 1.6L, 2.0L             | 231.107            |             |                 |
| Fiesta         | WQ, LX, Zetec, Ghia                         | 06-08 | 4 Cyl        | 1.6L, 2.0L             | 231.107            |             |                 |
| Fiesta Turbo   | WS Turbo Diesel, WT Turbo Diesel            | 09-on | 4 Cyl        | 1.6L                   | 231.097            |             |                 |
| Focus          | LT, LV Turbo Diesel                         | 07-on | 4 Cyl        | 2.0L                   | 231.097            |             |                 |
| Ka             | TA                                          | 99-02 | 4 Cyl        | 1.3L                   | 231.107            |             |                 |
| Laser          | KA, KB, KC, KF, TX3, 4WD                    | 81-91 | 4 Cyl        | 1.6L                   | 231.084            | 320.067     |                 |
| Laser          | KC, KH, KJ, TX3                             | 91-99 | 4 Cyl        | 1.6L                   | 231.082            |             |                 |
| Laser          | KA, KB Incl Turbo                           | 81-85 | 4 Cyl        | 1.3L, 1.5L             | 231.099            | 320.041     |                 |
| Laser          | KC, KC Carb                                 | 85-87 | 4 Cyl        | 1.3L, 1.6L             | 231.099            | 320.041     |                 |
| Laser          | KC Carb                                     | 85-90 | 4 Cyl        | 1.6L                   | 231.084            | 320.041     |                 |
| Laser          | KE Carb                                     | 87-90 | 4 Cyl        | 1.3L                   | 231.099            | 320.041     |                 |
| Laser          | KE Carb, EFI                                | 87-89 | 4 Cyl        | 1.6L                   | 231.084            | 320.041     |                 |
| Laser          | KE Carb, EFI                                | 89-90 | 4 Cyl        | 1.6L                   | 231.084            | 320.067     |                 |
| Laser          | KE EFI Turbo, EFI 16V 4x4 Turbo             | 87-88 | 4 Cyl        | 1.6L                   | 231.099            | 320.041     |                 |
| Laser          | KE EFI Turbo, EFI 16V 4x4 Turbo             | 88-90 | 4 Cyl        | 1.6L                   | 231.099            | 320.067     |                 |
| Laser          | KF Carb, EFI, EFI 16V                       | 90-91 | 4 Cyl        | 1.6L, 1.8L             | 231.089            | 320.097     |                 |
| Laser          | KF EFI Turbo                                | 90-91 | 4 Cyl        | 1.8L                   | 231.102            | 320.097     |                 |
| Laser          | KH, TX3 EFI                                 | 91-94 | 4 Cyl        | 1.6L, 1.8L             | 231.089            | 320.097     |                 |
| Laser          | KH TX3 EFI Turbo                            | 91-93 | 4 Cyl        | 1.8L                   | 231.084<br>231.102 | 320.097     |                 |

## VEHICLE APPLICATION LISTING

| FORD Continued |                                                                                 |       |              |                  |            |             |                 |
|----------------|---------------------------------------------------------------------------------|-------|--------------|------------------|------------|-------------|-----------------|
| Make/Series    | Model                                                                           | Year  | Engine       | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| Laser          | KJ EFI                                                                          | 94-96 | 4 Cyl        | 1.6L             | 231.089    | 320.097     |                 |
| Laser          | KJ EFI                                                                          | 96-98 | 4 Cyl        | 1.6L, 1.8L       | 231.089    |             |                 |
| Laser          | KJ EFI                                                                          | 94-96 | 4 Cyl        | 1.8L             | 231.089    | 320.097     |                 |
| Laser          | KN                                                                              | 99-01 | 4 Cyl        | 1.6L             | 231.089    |             |                 |
| Laser          | KN                                                                              | 99-01 | 4 Cyl        | 1.8L             | 231.089    |             |                 |
| Laser          | KQ                                                                              | 01-02 | 4 Cyl        | 1.6L, 1.8L, 2.0L | 231.089    |             |                 |
| LTD            | FD                                                                              | 83-84 | 6 Cyl        | 4.1L             | 231.106    |             |                 |
| LTD            | FE                                                                              | 84-88 | 6 Cyl        | 4.1L             | 231.106    |             |                 |
| LTD            | DA (MPI)                                                                        | 88-91 | 6 Cyl        | 3.9L             | 231.106    |             |                 |
| LTD            | DC                                                                              | 91-94 | 6 Cyl, 8 Cyl | 4.0L, 5.0L       | 231.106    |             |                 |
| LTD            | DF                                                                              | 94-96 | 6 Cyl, 8 Cyl | 4.0L, 5.0L       | 231.106    |             |                 |
| LTD            | DL                                                                              | 96-98 | 6 Cyl, 8 Cyl | 4.0L, 5.0L       | 231.106    |             |                 |
| LTD            | AU                                                                              | 98-02 | 6 Cyl, 8 Cyl | 4.0L, 5.0L       | 231.106    |             |                 |
| LTD            | BA                                                                              | 03-05 | 6 Cyl, 8 Cyl | 4.0L, 5.4L       | 231.100    |             |                 |
| Maverick       | (Carb)                                                                          | 88-93 | 6 Cyl        | 4.2L             | 231.116    |             |                 |
| Meteor         | GA, GB, GC                                                                      | 82-85 | 4 Cyl        | 1.5L, 1.6L       | 231.084    |             |                 |
| Meteor         | GC                                                                              | 85-87 | 4 Cyl        | 1.6L             | 231.084    |             |                 |
| Mondeo         | HA, HB, HC                                                                      | 95-98 | 4 Cyl        | 2.0L             | 231.107    |             |                 |
| Probe          | ST, SU, SV                                                                      | 94-98 | V6           | 2.5L             | 231.089    |             |                 |
| Raider         | UV                                                                              | 91-96 | 4 Cyl        | 2.6L             | 231.089    |             |                 |
| Spectron       | 2XLT                                                                            | 84-90 | 4 Cyl        | 1.8L, 2.0L       | 231.107    |             |                 |
| Taurus         | DN, DP                                                                          | 96-98 | V6           | 3.0L             | 231.107    |             |                 |
| Telstar        | AR (Carb), AT (Carb)                                                            | 83-89 | 4 Cyl        | 2.0L             | 231.084    | 320.067     |                 |
| Telstar        | AS Inc TX5, Turbo                                                               | 85-87 | 4 Cyl        | 2.0L             | 231.084    | 320.067     |                 |
| Telstar        | AT EFI Inc TX5, Turbo                                                           | 87-89 | 4 Cyl        | 2.2L             | 231.084    | 320.067     |                 |
| Telstar        | AV, AV EFI-Turbo                                                                | 90-92 | 4 Cyl        | 2.2L             | 231.089    |             |                 |
| Telstar        | AX DOHC, AY DOHC                                                                | 92-96 | 4 Cyl, 6 Cyl | 2.0L, 2.5L       | 231.089    |             |                 |
| Territory      | SX TX, SY TX, SY SR, Ghia, Ghia Turbo, SY TS MKII, SY TX MKII, SY MKII GHIA RWD | 04-on | 6 Cyl        | 4.0L             | 231.100    |             |                 |
| Trader         | 0409, 0509                                                                      | 79-89 | 4 Cyl        | 2.0L, 3.0L, 3.5L | 231.084    |             |                 |
| Trader         | 0711, 0811 Diesel                                                               | 81-95 | 4 Cyl        | 4.1L             | 231.084    |             |                 |
| Trader         | 0811, 0812, Turbo Diesel                                                        | 87-92 | 4 Cyl        | 3.5L             | 231.084    |             |                 |
| Transit        |                                                                                 | 73-81 | 6 Cyl        | 4.1L             | 231.081    |             |                 |
| Transit        | VF, VG                                                                          | 96-01 | 4 Cyl        | 2.0L             | 231.107    |             |                 |
| Transit        | VH, VJ                                                                          | 01-05 | 4 Cyl        | 2.3L             | 231.107    |             |                 |

| HOLDEN      |              |       |        |                  |            |             |                 |
|-------------|--------------|-------|--------|------------------|------------|-------------|-----------------|
| Make/Series | Model        | Year  | Engine | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| Apollo      | JK, JL Carb  | 89-93 | 4 Cyl  | 2.0L             | 231.102    |             |                 |
| Apollo      | JK, JL (EFI) | 89-91 | 4 Cyl  | 2.0L             | 231.102    |             |                 |
| Apollo      | JM, JP       | 93-97 | 4 Cyl  | 2.2L             | 231.104    |             |                 |
| Apollo      | JM, JP       | 93-95 | 6 Cyl  | 3.0L             | 231.104    |             |                 |
| Astra       | LB, LC       | 84-89 | 4 Cyl  | 1.5L, 1.6L       | 231.087    | 320.039     |                 |
| Astra       | LD           | 87-89 | 4 Cyl  | 1.6L             | 231.087    | 320.039     |                 |
| Astra       | TR           | 96-98 | 4 Cyl  | 1.6L, 1.8L, 2.0L | 231.114    |             |                 |
| Astra       | TS           | 98-04 | 4 Cyl  | 1.8L             | 231.114    |             |                 |

## VEHICLE APPLICATION LISTING

| HOLDEN Continued |                                                                               |       |              |                     |            |             |                    |
|------------------|-------------------------------------------------------------------------------|-------|--------------|---------------------|------------|-------------|--------------------|
| Make/Series      | Model                                                                         | Year  | Engine       | Capacity            | Oil Switch | Temp Sender | Pressure Sender    |
| Astra            | AH                                                                            | 04-on | 4 Cyl        | 1.8L                | 231.114    |             |                    |
| Barina           | MB, MF, ML                                                                    | 85-91 | 4 Cyl        | 1.3L                | 231.084    |             |                    |
| Barina           | MH                                                                            | 91-94 | 4 Cyl        | 1.3L                | 231.084    |             |                    |
| Barina           | SB, Gsi                                                                       | 94-00 | 4 Cyl        | 1.2L, 1.4L, 1.6L    | 231.114    |             |                    |
| Barina           | XC, Sri, Combo                                                                | 01-on | 4 Cyl        | 1.4L, 1.6L, 2.0L    | 231.114    |             |                    |
| Calibra          | YE, Ecotec, Turbo, YE95 DOHC                                                  | 91-97 | 4 Cyl, 6 Cyl | 2.0L, 2.5L          | 231.114    |             |                    |
| Camira           | JB, JD, JE                                                                    | 82-89 | 4 Cyl        | 1.6L, 1.8L, 2.0L    | 231.087    | 320.033     |                    |
| Captiva          | CG                                                                            | 06-on | 6 Cyl        | 3.2L                |            |             | 360.015            |
| Captiva Maxx     | CG                                                                            | 07-on | 6 Cyl        | 3.2L                |            |             | 360.015            |
| Captiva Diesel   | CG (SX, CX, LX)                                                               | 07-on | 4 Cyl        | 2.0L                | 231.114    |             |                    |
| Colorado         | RC                                                                            | 08-on | 6 Cyl        | 3.6L                |            |             | 360.015            |
| Colorado         | RC                                                                            | 08-on | 4 Cyl        | 2.4L                | 231.114    |             |                    |
| Commodore        | VC, VH                                                                        | 80-81 | 4 Cyl        | 1.9L                | 231.081    | 320.032     |                    |
| Commodore        | VB, VC, VH, VK EFI                                                            | 78-86 | 6 Cyl        | 2.8L, 3.3L          | 231.081    | 320.032     | 360.004            |
| Commodore        | VB, VC, VH, VK EFI                                                            | 78-86 | 8 Cyl        | 3.3L                | 231.081    | 320.024     |                    |
| Commodore        | VL, VL Turbo                                                                  | 86-88 | 6 Cyl        | 3.0L                | 231.089    |             |                    |
| Commodore        | VN, VP, VQ, VR                                                                | 88-95 | 6 Cyl, 8 Cyl | 3.8L, 5.0L          | 231.088    | 320.033     |                    |
| Commodore        | VS, VS Supercharged, Ute                                                      | 95-00 | 6 Cyl        | 3.8L,               | 231.088    | 320.033     |                    |
| Commodore        | VS Series II                                                                  | 98-01 | 8 Cyl        | 5.0L                | 213.088    | 320.033     |                    |
| Commodore        | VT, VT I Supercharged, GTS                                                    | 90-99 | 6 Cyl        | 3.8L,               |            | 320.033     |                    |
| Commodore        | VT                                                                            | 90-99 | 8 Cyl        | 5.0L                | 231.088    | 320.033     |                    |
| Commodore        | VT II                                                                         | 99-00 | 8 Cyl        | GENIII LS1,<br>5.7L |            |             | 360.009<br>for ecu |
| Commodore        | Ute VG, VX, VY,                                                               | 97-04 | 6 Cyl, 8 Cyl | 3.8L, 5.0L          | 231.088    |             |                    |
| Commodore        | VX, VX Supercharged                                                           | 00-01 | 6 Cyl        | 3.8L                | 231.088    |             |                    |
| Commodore        | VX                                                                            | 00-01 | 8 Cyl        | 5.7L                |            |             | 360.009<br>for ecu |
| Commodore        | VX II, VX II Supercharged                                                     | 01-02 | 6 Cyl        | 3.8L                | 231.088    |             |                    |
| Commodore        | VX II                                                                         | 01-02 | 8 Cyl        | 5.7L                |            |             | 360.009<br>for ecu |
| Commodore        | VX II                                                                         | 02-03 | 6 Cyl        | 3.8L                | 231.088    |             |                    |
| Commodore        | VX II                                                                         | 02-03 | 8 Cyl        | 5.7L                |            |             | 360.009<br>for ecu |
| Commodore        | VU Ute                                                                        | 01-02 | 6 Cyl        | 3.8L                | 231.088    |             |                    |
| Commodore        | VU Ute                                                                        | 01-02 | 8 Cyl        | 5.7L                |            |             | 360.009<br>for ecu |
| Commodore        | VZ incl<br>Crewman S, Crewman Cross 6,<br>SV6, Adventra                       | 04-07 | 6 Cyl        | 3.6L                |            |             | 360.015<br>for ecu |
| Commodore        | VZ incl<br>Crewman Cross8, Crewman SS                                         | 04-07 | 8 Cyl        | 5.7L, 6.0L          |            |             | 360.009<br>for ecu |
| Commodore        | VY, VYII, S/C                                                                 | 02-04 | 6 Cyl        | 3.8L                | 231.088    |             |                    |
| Commodore        | VY I, VYII, HSV, Crewman SS,<br>Adventra CX8, Adventra LX8,<br>Crewman Cross8 | 02-06 | 8 Cyl        | 5.7L                |            |             | 360.009<br>for ecu |
| Commodore        | VE                                                                            | 07 on | 6 Cyl        | 3.6L                | ECU Data   |             | 360.015<br>for ecu |
| Commodore        | VE                                                                            | 07 on | 8 Cyl        | 6.0L                | ECU Data   |             | 360.009<br>for ecu |

## VEHICLE APPLICATION LISTING

| HOLDEN Continued          |                             |       |              |                  |            |             |                 |
|---------------------------|-----------------------------|-------|--------------|------------------|------------|-------------|-----------------|
| Make/Series               | Model                       | Year  | Engine       | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| Commodore                 | VE                          | 07 on | 8 Cyl        | 6.0L             | ECU Data   |             | 360.009 for ecu |
| Commodore                 | VE                          | 08-on | 8 Cyl        | 6.2L             | ECU Data   |             | 360.009 for ecu |
| Epica                     | EP - Turbo Diesel           | 08-on | 4 Cyl        | 2.0L             | 231.114    |             |                 |
| Epica                     | EP                          | 07-on | 6 Cyl        | 2.0L, 2.5L       | 231.114    |             |                 |
| Gemini                    | TX, TC, TE, TF, TG          | 75-85 | 4 Cyl        | 1.6L, 1.8L D     | 231.084    | 320.047     | 360.011         |
| Gemini                    | RB FWD                      | 75-85 | 4 Cyl        | 1.6L, 1.8L D     | 231.084    | 320.047     | 360.011         |
| Drover                    | QB                          | 85-87 | 4 Cyl        | 1.3L             | 231.089    | 320.038     |                 |
| Holden                    | EH, HD, HR, HK, HT          | 53-68 | 6 Cyl        | All              | 231.084    | 320.002     |                 |
| Holden                    | HK, HT, HG, HQ              | 68-76 | 6 Cyl        | All              | 231.084    | 320.002     | 360.004         |
| Holden                    | HJ, HX, HZ, WB              | 76-85 | 8 Cyl        | All              | 231.081    | 320.003     | 360.005         |
| Frontera                  | UES30                       | 98-04 | 4 Cyl        | 2.2L             | 231.114    |             |                 |
| Jackaroo                  | UBS16, UBS17 Petrol, Diesel | 85-92 | 4 Cyl        | 2.6L             | 231.084    |             |                 |
| Jackaroo                  | UBS81, UBS521 Turbo Diesel  | 81-88 | 4 Cyl        | 2.2L             | 231.084    |             |                 |
| Jackaroo                  | UBS55 Turbo Diesel          | 88-92 | 4 Cyl        | 2.8L             | 231.084    |             |                 |
| Jackaroo                  | UBS69 Turbo Diesel          | 92-98 | 4 Cyl        | 3.1L             | 231.084    |             |                 |
| Jackaroo                  | UBS73 Turbo Diesel          | 98-04 | 4 Cyl        | 3.0L             | 231.084    |             |                 |
| Monaro                    | VX, VY, CV6 Supercharged    | 01-04 | 6 Cyl        | 3.8L             | 231.088    | 320.032     | 360.004         |
| Monaro                    | VY                          | 02-04 | 8 Cyl        | GENIII LS1, 5.7  | ECU Data   |             | 360.009 for ecu |
| Monaro                    | VZ                          | 05-08 | 8 Cyl        | GENIII LS1, 5.7  | ECU Data   |             | 360.009 for ecu |
| Nova                      | LE, LF, EFI                 | 89-94 | 4 Cyl        | 1.4L, 1.6L, 1.8L | 231.084    |             |                 |
| Rodeo                     | KB25, KB26, KB40, KB41      | 78-82 | 4 Cyl        | 1.4L, 1.6L       | 231.084    | 320.032     |                 |
| Rodeo                     | KB47, KB48, KB49            | 83-84 | 4 Cyl        | 1.8L, 1.9L, 2.3L | 231.084    | 320.032     |                 |
| Rodeo                     | KB43, KB49                  | 85-88 | 4 Cyl        | 2.3L             | 231.084    |             |                 |
| Rodeo                     | TFR54, TFS54                | 88-93 | 4 Cyl        | 2.5L             | 231.084    |             |                 |
| Rodeo                     | TFR25                       | 98-98 | 4 Cyl        | 2.3L             | 231.084    |             |                 |
| Rodeo                     | TFR26                       | 98-03 | 4 Cyl        | 2.2L             | 231.114    |             |                 |
| Rodeo                     | Diesel                      | 79-82 | 4 Cyl        | 2.0L             | 231.084    |             |                 |
| Rodeo                     | KBD42, KBD43, KBD47         | 83-88 | 4 Cyl        | 2.0L             | 231.084    | 320.067     |                 |
| Rodeo                     | KBD27, KBD28                | 83-88 | 4 Cyl        | 2.2L             | 231.084    |             |                 |
| Rodeo                     | Diesel                      | 91-01 | 4 Cyl        | 2.8L             | 231.084    | 320.042     |                 |
| Rodeo                     | RA03                        | 03-on | 4 Cyl        | 3.0L             | 231.084    |             |                 |
| Rodeo                     | RA                          | 03-06 | 4 cyl        | 2.4L             | 231.114    |             |                 |
| Rodeo                     | RA Turbo Diesel             | 03-06 | 4 cyl        | 3.0L             | 231.084    |             |                 |
| Rodeo                     | RA                          | 03-06 | 6 cyl        | 3.5L             | 231.086    | 320.038     |                 |
| Rodeo                     | RA                          | 06-08 | 6 cyl        | 3.6L             |            |             | 360.015         |
| Rodeo                     | RA07                        | 07-08 | 4 Cyl        | 2.4L             | 231.114    |             |                 |
| Rodeo                     | RA07                        | 07-08 | 6 Cyl        | 3.6L             |            |             | 360.015         |
| Statesman                 | VQ                          | 90-94 | 8 Cyl        | 5.0L             | 231.088    |             |                 |
| Statesman                 | VR                          | 93-95 | 6 Cyl, 8 Cyl | 3.8L, 5.0L, 5.7L | 231.088    |             |                 |
| Statesman                 | VS                          | 95-99 | 6Cyl, 8Cyl   | 3.8L, 5.0L, 5.7L | 231.088    |             |                 |
| Statesman                 | WH                          | 00-03 | 6 Cyl        | 3.8L             | 231.088    |             |                 |
| Statesman<br>(Inc Grange) | WH                          | 99-01 | 8 Cyl        | GENIII LS1, 5.7  | 231.088    |             | 360.009 for ecu |
| Statesman<br>(Inc Grange) | WH                          | 01-03 | 8 Cyl        | GENIII LS1, 5.7  | 231.088    |             |                 |
| Statesman                 | WK                          | 03-04 | 6 Cyl        | 3.8L             | 231.088    |             |                 |

## VEHICLE APPLICATION LISTING

| HOLDEN Continued |                    |       |              |            |            |             |                    |
|------------------|--------------------|-------|--------------|------------|------------|-------------|--------------------|
| Make/Series      | Model              | Year  | Engine       | Capacity   | Oil Switch | Temp Sender | Pressure Sender    |
| Statesman        | WK                 | 03-04 | 8 Cyl        | 5.7L       | 231.088    |             | 360.009<br>for ecu |
| Statesman        | WL                 | 04-06 | 6 Cyl        | 3.6L       | 231.088    |             | 360.015            |
| Statesman        | WL                 | 04-06 | 8 Cyl        | 5.7L       | 231.088    |             | 360.009<br>for ecu |
| Statesman        | WL                 | 04-06 | 8 Cyl        | 6.0L       | 231.088    |             | 360.009<br>for ecu |
| Statesman        | WM                 | 07-08 | 6 Cyl        | 3.6L       | 231.088    |             | 360.015            |
| Statesman        | WM                 | 07-on | 8 Cyl        | 6.0L, 6.2L | 231.088    |             | 360.009<br>for ecu |
| Suburban         | FK1                | 01-02 | 8 Cyl        | 5.7L       |            |             |                    |
| Sunbird          | LX, UC             | 76-80 | 4 Cyl        | 1.9L       | 231.081    | 320.004     |                    |
| Tigra            | XC                 | 05-on | 4 Cyl        | 1.8L       |            |             |                    |
| Torana           | LH, LX             | 74-76 | 4 Cyl        | 1.9L       | 231.087    | 320.003     |                    |
| Torana           | LC, LH, LJ, LX, UC | 69-79 | 6 Cyl        | All        | 231.081    |             |                    |
| Torana           | LH, LX             | 69-79 | 8 Cyl        | All        | 231.081    |             | 360.005            |
| Vectra           | JR                 | 97-98 | 4 Cyl, 6 Cyl | 2.0L, 2.5L | 231.114    |             |                    |
| Vectra           | JS                 | 98-00 | 4 Cyl        | 2.0L, 2.2L | 231.114    |             |                    |
| Vectra           | JS                 | 98-00 | 6 Cyl        | 2.5L       | 231.114    |             |                    |
| Vectra           | JS II              | 00-01 | 4 Cyl, 6 Cyl | 2.2L, 2.6L | 231.114    |             |                    |
| Vectra           | ZC                 | 03-05 | 4 Cyl, 6 Cyl | 2.2L, 3.2L | 231.114    |             |                    |
| Zafira           | TT                 | 00-05 | 4 Cyl        | 2.2L       | 231.114    |             |                    |

| HONDA       |               |       |        |            |            |             |                 |
|-------------|---------------|-------|--------|------------|------------|-------------|-----------------|
| Make/Series | Model         | Year  | Engine | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| Accord      | SJD, SJFR     | 77-78 | 4 Cyl  | 1.6L       | 231.086    | 320.040     |                 |
| Civic       | ED, EE        | 87-91 | 4 Cyl  | 1.5L       | 231.086    | 320.040     |                 |
| Civic       | EG, EH        | 91-95 | 4 Cyl  | 1.5L, 1.6L | 231.086    | 320.040     |                 |
| Civic       | EK4, VTi R    | 91-95 | 4 Cyl  | 1.5L, 1.6L | 231.086    | 320.040     |                 |
| Concerto    | MA EX-I       | 88-93 | 4 Cyl  | 1.6L       | 231.086    | 320.040     |                 |
| Legend      | KA7, KA8, KA9 | 91-96 | 6 Cyl  | 2.7L, 3.2L | 231.102    | 320.040     |                 |
| Legend      | KA9           | 96-05 | 6 Cyl  | 3.5L       | 231.102    |             |                 |
| Odyssey     | RA1           | 95-97 | 4 Cyl  | 2.2L       | 231.086    | 320.040     |                 |
| Prelude     | BA8, BB2      | 91-96 | 4 Cyl  | 2.2L, 2.3L | 231.086    | 320.040     |                 |

| HYUNDAI        |             |       |           |            |            |             |                 |
|----------------|-------------|-------|-----------|------------|------------|-------------|-----------------|
| Make/Series    | Model       | Year  | Engine    | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| Accent         |             | 00-02 | 4 Cyl     | 1.5L       | 231.089    | 320.067     |                 |
| Accent         | LC,LS       | 00-06 | 4 Cyl     | 1.6L       | 231.089    |             |                 |
| Accent         | MC          | 06-09 | 4 Cyl VVT | 1.6L       | 231.089    |             |                 |
| Coupe RD, RDII | FX, SX, SFX | 96-02 | 4 Cyl     | 1.8L, 2.0L | 231.089    | 320.067     |                 |
| Elantra        | XD          | 00-03 | 4 Cyl     | 1.8L, 2.0L | 231.089    |             |                 |
| Elantra        | XD MY04     | 03-06 | 4 Cyl     | 2.0L       | 231.089    |             |                 |
| Elantra Elite  | HD          | 06-on | 4 Cyl VVT | 2.0L       | 231.089    |             |                 |
| Elantra        | Lavita      | 01-03 | 4 Cyl     | 1.8L       | 231.089    |             |                 |
| Excel          | X1 (Carb)   | 86-89 | 4 Cyl     | 1.5L       | 231.089    | 320.067     |                 |
| Excel          | X2,         | 90-94 | 4 Cyl     | 1.5L       | 231.089    | 320.067     |                 |
| Excel          | X3 SOHC     | 94-98 | 4 Cyl     | 1.5L       | 231.089    | 320.067     |                 |

## VEHICLE APPLICATION LISTING

| HYUNDAI Continued |             |       |                    |            |            |             |                 |
|-------------------|-------------|-------|--------------------|------------|------------|-------------|-----------------|
| Make/Series       | Model       | Year  | Engine             | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| Excel             | X3, DOHC    | 98-00 | 4 Cyl              | 1.4L       | 231.089    |             |                 |
| Getz              | TB          | 02-05 | 4 Cyl              | 1.5L       | 231.089    | 320.067     |                 |
| Getz              | TB          | 03-05 | 4 Cyl              | 1.3L       | 231.089    |             |                 |
| Getz              | TB MY06     | 05-07 | 4 Cyl              | 1.4L       | 231.089    |             |                 |
| Getz              | TB MY06     | 05-on | 4 Cyl              | 1.6L       | 231.089    |             |                 |
| Getz              | TB SXi      | 06-on | 4 Cyl              | 1.6L       | 231.089    |             |                 |
| Lantra            | KF2, KF3    | 91-95 | 4 Cyl              | 1.6L, 1.8L | 231.107    | 320.038     |                 |
| Lantra            | J2          | 95-98 | 4 Cyl              | 1.8L       | 231.107    | 320.038     |                 |
| Lantra            | L3          | 99-00 | 4 Cyl              | 1.8L, 2.0L | 231.089    | 320.067     |                 |
| Santa - Fe        | CM          | 06-09 | 4 Cyl Turbo Diesel | 2.2L       | 231.089    |             |                 |
| S-Coupe           | UE2, UE3    | 90-91 | 4 Cyl              | 1.5L       | 231.107    | 320.038     |                 |
| S-Coupe           | UE3, UE4    | 92-95 | 4 Cyl              | 1.5L       | 231.107    | 320.038     |                 |
| S-Coupe           | UE3, UE4    | 92-95 | 4 Cyl              | 1.5L       | 231.089    | 320.038     |                 |
| Sonata            | AF2, AF3    | 89-92 | 4 Cyl              | 2.4L       | 231.089    | 320.067     |                 |
| Sonata            | AF2, AF3    | 90-93 | 4 Cyl              | 2.4L       | 231.089    | 320.038     |                 |
| Sonata            | DF2, DF4    | 93-96 | 4 Cyl              | 2.0L       | 213.107    | 320.038     | 320.038         |
| Sonata            | DF3, DF4    | 93-98 | 6 Cyl              | 3.0L       | 231.121    | 320.038     |                 |
| Sonata            | EF          | 98-00 | 4 Cyl              | 2.0L       | 231.089    | 320.067     |                 |
| Sonata            | EF          | 98-01 | 6 Cyl              | 2.5L       | 231.089    | 320.067     |                 |
| Sonata            | EF-B        | 01-05 | 4 Cyl              | 2.4L       |            | 320.038     |                 |
| Trajet            | GLS Wagon   | 00-07 | 6 Cyl              | 2.7L       | 231.089    |             |                 |
| Tucson            | Elite Wagon | 04-on | 4 Cyl, 6 Cyl       | 2.0L, 2.7L | 231.089    |             |                 |

| KIA         |            |       |        |          |            |             |                 |
|-------------|------------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model      | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| Carens      | DOHC Wagon | 00-02 | 4 Cyl  | 1.8L     | 231.102    |             |                 |
| Carnival    | UP         | 99-06 | 6 Cyl  | 2.5L     | 231.121    | 320.067     |                 |
|             |            |       |        |          | 231.102    |             |                 |
| Credos      | GC         | 98-01 | 4 Cyl  | 2.0L     | 231.102    | 320.067     |                 |
| Pregio Van  |            | 02-on | 4 Cyl  | 2.7L     | 231.089    | 320.067     |                 |
| Rio         | BC         | 00-on | 4 Cyl  | 1.5L     | 231.102    |             |                 |
| Shuma       | FB         | 99-01 | 4 Cyl  | 1.8L     | 231.102    | 320.067     |                 |
| Spectra     | 5D Hatch   | 01-04 | 4 Cyl  | 1.8L     | 231.102    |             |                 |
| Sportage    | JA         | 96-04 | 4 Cyl  | 2.0L     | 231.102    | 320.067     |                 |

| LAND ROVER  |                   |       |        |          |            |             |                 |
|-------------|-------------------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model             | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| Defender    | 110 Turbo-Diesel  | 92-99 | 4 Cyl  | 2.5L     | 231.120    |             |                 |
| Defender    | 90, 110, 130, TD5 | 99-on | 5 Cyl  | 2.5L     | 231.116    |             |                 |
| Discovery   | TDi BF, MF        | 92-98 | 4 Cyl  | 2.5L     | 231.120    |             |                 |
| Freelander  | 1.8L              | 98-03 | 4 Cyl  | 1.8L     | 231.115    |             |                 |
| Freelander  | 1.8L, 2.5L        | 98-03 | 6 Cyl  | 2.5L     | 231.115    |             |                 |
| Range Rover | 2.4 TD4           | 89-90 | 4 Cyl  | 2.4L     | 231.120    |             |                 |
| Range Rover | SE, HSE, TD6      | 02-on | 6 Cyl  | 2.6L     | 231.115    |             |                 |
| Range Rover | HSE, Vogue        | 02-on | 8 Cyl  | 4.4L     | 231.115    |             |                 |



## VEHICLE APPLICATION LISTING

| LEXUS       |                |       |        |          |            |             |                 |
|-------------|----------------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model          | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| ES300       | VCV10R         | 92-96 | 6 Cyl  | 3.0L     | 231.104    | 320.067     |                 |
| ES300       | MCV20R         | 96-on | 6 Cyl  | 3.0L     | 231.104    | 320.088     |                 |
| GS300       | JZS160R        | 97-05 | 6 Cyl  | 3.0L     | 231.104    |             |                 |
| IS200       | GXE10R         | 99-on | 6 Cyl  | 2.0L     | 231.104    |             |                 |
| LS400       | UCF10R, UCF20R | 90-00 | 8 Cyl  | 4.0L     | 231.104    |             |                 |
| LS430       |                | 00-on | 8 Cyl  | 4.3L     | 231.104    |             |                 |
| RX330       | MCU38R         | 03-on | 8 Cyl  | 3.3L     | 231.104    |             |                 |

| MAZDA        |                                |        |              |                  |            |             |                 |
|--------------|--------------------------------|--------|--------------|------------------|------------|-------------|-----------------|
| Make/Series  | Model                          | Year   | Engine       | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| 1.2L - 1.8L, |                                | 68-77  | 4 Cyl        | 1.5L, 1.6L, 1.8L | 231.084    |             |                 |
| B1500, B1600 | Petrol                         | 70-82  | 4 Cyl        | 1.5L, 1.6L, 1.8L | 231.084    |             |                 |
| B1800        | Petrol                         | 70-82  | 4 Cyl        | 1.5L, 1.6L, 1.8L | 231.084    |             |                 |
| B2000        | Petrol                         | 82-88  | 4 Cyl        | 2.0L             | 231.084    |             |                 |
| B2200        | Bravo Incl. MANUAL (Carb)      | 88-93  | 4 Cyl        | 2.2L             | 231.102    |             |                 |
| B2200        | Bravo Incl. AUTO               | 88 -91 | 4 Cyl        | 2.2L             | 231.102    |             |                 |
| B2500, B2600 | RWD, 4WD, Diesel, Turbo Diesel | 96-on  | 4 Cyl        | 2.5L, 2.6L       | 231.102    |             |                 |
| B2600 EFI    | Bravo, 4WD                     | 90-02  | 4 Cyl        | 2.6L             | 231.084    |             |                 |
| Capella      |                                | 70-78  | 4 Cyl        | 1.6L             | 231.084    |             |                 |
| E1300, E1400 |                                | 78-86  | 4 Cyl        | 1.3L, 1.5L       | 231.084    |             |                 |
| E1600        |                                | 78-86  | 4 Cyl        | 1.6L             | 231.084    |             |                 |
| E2000        |                                | 98-on  | 4 Cyl        | 2.0L             | 231.102    |             |                 |
| E2500        |                                | 97-on  | 4 Cyl        | 2.5L             | 231.102    |             |                 |
| 121          | CD2                            | 76-79  | 4 Cyl        | 1.8L             | 231.084    | 320.068     |                 |
| 121          | DA                             | 87-90  | 4 Cyl        | 1.3L             | 231.102    | 320.088     |                 |
| 121          | DB1031,                        | 90-97  | 4 Cyl        | 1.3L             | 231.102    | 320.088     |                 |
| 323          | FA, BD, BF, BW, 4WD, Turbo     | 77-89  | 4 Cyl        | 1.3L, 1.5L, 1.6L | 231.102    |             |                 |
| 323          | BG, BJ, Astina, Protege`       | 89-04  | 4 Cyl        | 1.6L, 1.8L       | 231.102    | 320.067     |                 |
| 626          | CB2                            | 78-83  | 4 Cyl        | 2.0L             | 231.084    | 320.041     |                 |
| 626          | GC Diesel, GD-Turbo            | 84-91  | 4 Cyl        | 2.0L, 2.2L       | 231.084    | 320.041     |                 |
| 626          | GV10-Wagon, GE, GF             | 88-02  | 4 Cyl        | 2.0L, 2.2L       | 231.102    | 320.067     |                 |
| 626          | GE                             | 92-97  | 6 Cyl        | 2.5L             | 231.102    | 320.067     |                 |
| 808          |                                | 72-78  | 4 Cyl        | 1.3L, 1.6L       | 231.084    |             |                 |
| 929          | HBSHE                          | 82-87  | 4 Cyl        | 2.0L             | 231.084    | 320.041     |                 |
| 929          | HC10E1, HC10E2                 | 87-91  | 6 Cyl        | 3.0L             | 231.084    | 320.041     |                 |
| 929          | HC10E2 - 4WS                   | 90-96  | 6 Cyl        | 3.0L             | 231.102    | 320.067     |                 |
| MPV          | LV                             | 93-94  | 6 Cyl        | 3.0L             | 231.084    | 320.067     |                 |
| MPV          | LV II                          | 94-99  | 6 Cyl        | 3.0L             | 231.084    | 231.067     |                 |
| MX5          | NA (DOHC)                      | 93-98  | 4 Cyl        | 1.8L             | 231.102    | 320.067     |                 |
| MX5          | NB (DOHC), Incl Turbo          | 98-05  | 4 Cyl        | 1.8L             | 231.102    | 320.067     |                 |
| MX6          | GD Turbo, 2WD, 4WD             | 87-97  | 4 Cyl, 6 Cyl | 2.0L, 2.2L, 2.5L | 231.102    | 320.067     |                 |
| MX6          | GE10, GE20, 2WD, 4WD           | 94-97  | 4 Cyl, 6 Cyl | 2.0L, 2.2L, 2.5L | 231.102    | 320.067     |                 |
| Premacy      | CP Wagon                       | 01-03  | 4 Cyl        | 1.8L             | 231.102    |             |                 |
| R100         |                                | 69-71  | Rotary Eng   |                  | 231.084    |             |                 |
| RX2, 3, 4, 5 |                                | 70-79  | Rotary Eng   | 1.1L, 1.3L       | 231.084    |             |                 |
| RX7          | SA22 Series 1, 2, 3            | 79-85  | Rotary Eng   | 1.1L             | 231.084    |             |                 |
| RX7          | FC10 IV                        | 86-89  | Rotary Eng   | 1.3L             |            | 320.067     |                 |

## VEHICLE APPLICATION LISTING

## MAZDA Continued

| Make/Series  | Model                 | Year  | Engine       | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
|--------------|-----------------------|-------|--------------|------------|------------|-------------|-----------------|
| T2000        |                       | 81-82 | 4 Cyl        | 2.0L       | 231.089    | 320.067     |                 |
| T3500, T4000 | Diesel, Turbo         | 84-00 | 4 Cyl, 6 Cyl | 3.5L, 4.0L | 231.084    | 320.067     |                 |
| T4100        | Diesel                | 84-91 | 4 Cyl        | 4.0L, 4.1L | 231.089    | 320.067     |                 |
| T4600        | Diesel                | 92-on | 4 Cyl        | 4.6L       | 231.084    | 320.067     |                 |
| Traveller    | L, LX, LT, 1800, 2000 | 86-88 | 4 Cyl        | 1.8L       | 231.089    |             |                 |

## EUNOS-MAZDA

| Make/Series | Model         | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
|-------------|---------------|-------|--------|----------|------------|-------------|-----------------|
| 30X         | EC DOHC       | 96-97 | 6 Cyl  | 1.8L     | 231.102    | 320.067     |                 |
| 500         | CA            | 92-96 | 6 Cyl  | 2.0L     | 231.102    | 320.038     |                 |
| 500         | CA            | 96-99 | 6 Cyl  | 2.0L     | 231.102    | 320.067     |                 |
| 800         | TA            | 94-96 | 6 Cyl  | 2.5L     | 231.089    | 320.038     |                 |
| 800M        | TA            | 94-96 | 6 Cyl  | 2.3L     |            | 320.038     |                 |
| 800M        | TA3, TA5, TB3 | 96-00 | 6 Cyl  | 2.3L     | 231.102    | 320.067     |                 |
| Millenia    |               | 00-02 | 6 Cyl  | 2.3L     | 231.102    | 320.067     |                 |

## MERCEDES-BENZ

| Make/Series                | Model               | Year  | Engine | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
|----------------------------|---------------------|-------|--------|------------------|------------|-------------|-----------------|
| 190                        | E 1.8, E 2.0, E 2.3 | 82-87 | 4 Cyl  | 1.8L, 2.0L, 2.3L | 231.087    | 320.035     | 360.021         |
| 190, 190D                  | E 1.8, E 2.0, E 2.3 | 88-93 | 4 Cyl  | 1.8L, 2.0L, 2.3L | 231.087    | 320.035     | 360.021         |
| 200D, 220D, 240D, 140, 160 | E, CE, TD, TE       | 74-86 | 4 Cyl  | 1.8L, 2.0L, 2.3L | 231.087    | 320.002     | 360.021         |

## MG

| Make/Series | Model | Year  | Engine       | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
|-------------|-------|-------|--------------|------------------|------------|-------------|-----------------|
| MG, MGA     |       | 45-62 | 4 Cyl, 6 Cyl | 1.6L, 1.8L       | 231.083    | 320.046     |                 |
| MGB, MGC    |       | 61-79 | 6 Cyl, 8 Cyl | 1.8L, 3.0L, 3.5L | 231.083    | 320.046     |                 |
| MGF         | TF    | 97-on | 4 Cyl        | 1.8L             | 231.115    |             |                 |

## MITSUBISHI

| Make/Series  | Model                       | Year  | Engine | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
|--------------|-----------------------------|-------|--------|------------|------------|-------------|-----------------|
| 3000 GT      |                             | 92-96 | 6 Cyl  | 3.0L       | 231.102    | 320.038     |                 |
| Fuso Canter  | FC212, FC432                | 81-92 | 4 Cyl  | 2.6L       | 230.089    | 320.067     |                 |
| Challenger   |                             | 98-on | 6 Cyl  | 3.0L, 3.5L | 230.089    | 320.067     |                 |
| Colt         | RA, RB, RC                  | 80-84 | 4 Cyl  | 1.4L, 1.5L | 230.089    | 320.036     |                 |
| Colt         | RC, RD, RE                  | 84-90 | 4 Cyl  | 1.4L, 1.5L | 231.102    | 320.036     |                 |
| Galant       | HG                          | 89-90 | 4 Cyl  | 2.0L       | 231.102    | 320.038     |                 |
| L200         | MA, MB, MD 4WD              | 79-86 | 4 Cyl  | 2.0L, 2.3L | 230.089    |             |                 |
| L200         | MC, MD                      | 82-86 | 4 Cyl  | 1.6L       | 231.102    |             |                 |
| L300 Express | SA, SB, SC, SD, SE 4WD      | 80-86 | 4 Cyl  | 1.6L, 1.8L | 231.102    |             |                 |
| Starwagon    | SJ, 4WD, EFI, Diesel        | 86-94 | 4 Cyl  | 2.0L, 2.4L | 231.102    |             |                 |
| Starwagon    | SF (EFI), SG (EFI), SH(EFI) | 86-94 | 4 Cyl  | 2.4L       | 231.102    |             |                 |

## VEHICLE APPLICATION LISTING

| MITSUBISHI Continued |                                  |        |              |                  |            |             |                 |
|----------------------|----------------------------------|--------|--------------|------------------|------------|-------------|-----------------|
| Make/Series          | Model                            | Year   | Engine       | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| Express / Starwagon  | SF, SG, SH, SJ, 4WD, EFI, Diesel | 86-94  | 4 Cyl        | 2.0L, 2.4L       | 231.102    |             |                 |
| Express/ Starwagon   | SJ                               | 94-04  | 4 Cyl        | 2.0L, 2.4L       | 231.102    | 320.038     |                 |
| Express/ Starwagon   | WA, EFI                          | 94-98  | 4 Cyl, 6 Cyl | 2.0L, 2.4L, 3.0L | 231.102    | 320.038     |                 |
| Lancer               | CA, CB, CC                       | 88-96  | 4 Cyl        | 1.5L, 1.6L, 1.8L | 231.102    | 320.038     |                 |
| Lancer               | CC                               | 92-96  | 4 Cyl        | 1.8L             | 231.102    | 320.067     |                 |
| Lancer               | CE, CG                           | 96-04  | 4 Cyl        | 1.5L, 1.6L, 1.8L | 231.102    | 320.067     |                 |
| Magna                | TM, TN, TP, TR                   | 85-94  | 4 Cyl        | 2.6L             | 231.084    | 320.067     |                 |
| Magna                | TM, TN, TP, TR                   | 85-94  | 6 Cyl        | 3.0L             | 231.102    | 320.067     |                 |
| Magna                | TS Carb, TS EFI                  | 94-97  | 4 Cyl        | 2.6L             | 231.084    | 320.038     |                 |
| Magna                | TS, EFI                          | 94-97  | 6 Cyl        | 3.0L             | 231.102    | 320.038     |                 |
| Magna                | TE, TF, EFI                      | 96-97  | 4 Cyl        | 2.4L             | 231.089    | 320.067     |                 |
| Magna                | TF, EFI                          | 97-99  | 6 Cyl        | 3.0L             | 231.102    | 320.067     |                 |
| Magna                | TH, TJ                           | 99-03  | 6 Cyl        | 3.0L, 3.5L       | 231.102    | 320.067     |                 |
| Magna                | TL, TW                           | 03-04  | 6 Cyl        | 3.0L             | 231.102    | 320.067     |                 |
| Mirage               | CE                               | 96-05  | 4 Cyl        | 1.5L             | 231.089    | 320.067     |                 |
| Nimbus               | UA, UB                           | 84-87  | 4 Cyl        | 2.0L             | 231.102    | 320.038     |                 |
| Nimbus               | UC                               | 87-92  | 4 Cyl        | 2.0L             | 231.089    | 320.038     |                 |
| Nimbus               | UC                               | 87-92  | 4 Cyl        | 2.0L             | 231.102    | 320.038     |                 |
| Nimbus               | UF                               | 92-98  | 4 Cyl        | 2.4L             | 231.102    | 320.038     |                 |
| Nimbus               | UG                               | 98-04  | 4 Cyl        | 2.4L             | 231.089    | 320.067     |                 |
| Outlander            | ZE, LS-XLS                       | 03-04  | 4 Cyl        | 2.4L             | 231.089    | 320.067     |                 |
| Pajero               | NA, NB, NC, ND                   | 83-87  | 4 Cyl        | 2.6L             | 231.102    |             |                 |
| Pajero               | ND Auto                          | 86-87  | 4 Cyl        | 2.6L             | 231.102    | 320.038     |                 |
| Pajero               | NE, NF, NG                       | 87-91  | 4 Cyl        | 2.6L             | 231.102    | 320.038     |                 |
| Pajero               | NK,                              | 96-00  | 6 Cyl        | 3.5L             | 231.102    | 320.067     |                 |
| Pajero               | NL                               | 96 -00 | 6 Cyl        | 3.0L, 3.5L       | 231.102    | 320.067     |                 |
| Pajero               | NJ                               | 93-96  | 6 Cyl        | 2.8L             | 231.102    | 320.038     |                 |
| Pajero               | NH, Intercooler                  | 91-93  | 6 Cyl        | 2.5L             | 231.102    |             |                 |
| Pajero iO            | QA                               | 99-03  | 4 Cyl        | 1.8L             | 231.102    |             |                 |
| Scorpion             | GE                               | 78-79  | 4 Cyl        | 2.0L             | 231.089    |             |                 |
| Scorpion             | GJ, GK, GL                       | 80-85  | 4 Cyl        | 2.6L             | 231.089    |             |                 |
| Sigma                | GE, GH, GJ, GK                   | 77-85  | 4 Cyl        | 1.6L, 2.0L       | 231.102    |             |                 |
| Sigma                | GK, GN                           | 84-87  | 4 Cyl        | 1.6L, 2.0L       | 231.102    |             |                 |
| Triton               | ME, MF, MG, MH, MJ, Petrol       | 86-94  | 4 Cyl        | 2.6L             | 231.102    |             |                 |
| Triton               | ME, MF, MG, MH, MJ, Diesel       | 86-96  | 4 Cyl, 6 Cyl | 2.5L, 3.0L       | 231.102    |             |                 |
| Triton               | MH, MJ, 4WD                      | 90-96  | 6 Cyl        | 3.0L             | 231.102    | 320.038     |                 |
| Triton               | MK, 4WD                          | 96-05  | 6 Cyl        | 3.0L             | 231.089    | 320.067     |                 |
| Verada               | KR, KS                           | 91-94  | 6 Cyl        | 3.0L             | 231.102    |             |                 |
| Verada               | KE, KF, KH, KJ, KL, KW           | 96-05  | 6 Cyl        | 3.0L, 3.5L       | 231.089    |             |                 |

## VEHICLE APPLICATION LISTING

| NISSAN        |                                    |       |        |                        |            |             |                 |
|---------------|------------------------------------|-------|--------|------------------------|------------|-------------|-----------------|
| Make/Series   | Model                              | Year  | Engine | Capacity               | Oil Switch | Temp Sender | Pressure Sender |
| 120Y          | B210                               | 74-79 | 4 Cyl  | 1.2L                   | 231.086    |             |                 |
| 180B, 200B    | 610, 810                           | 72-81 | 4 Cyl  | 1.8L                   | 231.086    |             |                 |
| 240, 260, 280 | C, K, Z, ZX                        | 70-84 | 6 Cyl  | 2.4L, 2.6L, 2.8L       | 231.086    |             |                 |
| 300ZX         | Z31 Turbo                          | 84-89 | 6 Cyl  | 3.0L                   | 231.086    |             |                 |
| 520, 620, 720 | RWD, FWD, Petrol, Diesel           | 71-85 | 4 Cyl  | 1.5L, 1.8L, 2.2L, 2.3L | 231.086    |             |                 |
| Bluebird      | Series I, II                       | 81-85 | 4 Cyl  | 2.0L                   | 231.089    |             |                 |
| Gazelle       | S12                                | 84-88 | 4 Cyl  | 2.0L                   | 231.086    |             |                 |
| Infinity      | Q45                                | 93-97 | 8 Cyl  | 4.5L                   | 231.093    | 320.039     |                 |
| Maxima        | J30 SOHC FWD                       | 90-92 | 6 Cyl  | 3.0L                   | 231.093    |             |                 |
| Maxima        | A31 SOHC FWD                       | 93-95 | 6 Cyl  | 3.0L                   | 231.093    | 320.039     |                 |
| Maxima        | A32 DOHC FWD                       | 95-99 | 6 Cyl  | 3.0L                   | 231.093    | 320.096     |                 |
| Maxima        | A33 DOHC FWD                       | 99-03 | 6 Cyl  | 3.0L                   | 231.093    | 320.096     |                 |
| Micra         | K11E                               | 95-97 | 4 Cyl  | 1.3L                   | 231.093    |             |                 |
| Navara        | 2X4, 4X4, Petrol, Diesel           | 86-88 | 4 Cyl  | 2.0L, 2.4L             | 231.086    |             |                 |
| Navara        | D21 Diesel DI 4WD, RWD             | 86-98 | 4 Cyl  | 2.5L                   | 231.101    | 320.104     |                 |
| Navara        | D21 RWD                            | 86-95 | 4 Cyl  | 2.0L                   | 231.093    | 320.104     | 360.029         |
| Navara        | D21 Carb 4WD, RWD                  | 86-92 | 4 Cyl  | 2.4L                   | 231.093    | 320.039     | 360.029         |
| Navara        | D22 Diesel RWD, 4WD                | 97-99 | 4 Cyl  | 3.2L                   | 231.093    | 320.096     |                 |
| Navara        | D22 DIESEL RWD                     | 97-99 | 4 Cyl  | 2.7L                   | 231.093    | 320.096     |                 |
| Navara        | D22 SOHC                           | 97-99 | 4 Cyl  | 2.4L                   | 231.093    | 320.096     | 360.029         |
| Navara        | D21 SOHC 4WD, RWD EFI              | 92-97 | 4 Cyl  | 2.4L                   | 231.093    | 320.039     | 360.029         |
| Navara        | D21 Diesel DI 4WD, RWD             | 88-92 | 4 Cyl  | 2.5L                   | 231.093    | 320.039     |                 |
| Navara        | D21 Diesel DI 4WD, RWD             | 88-97 | 4 Cyl  | 2.7L                   | 231.093    | 320.039     |                 |
| Navara        | D21 SOHC MPFI                      | 92-97 | 6 Cyl  | 3.0L                   |            | 320.039     |                 |
| Navara        | D22 Series II 4WD, RWD             | 99-01 | 4 Cyl  | 2.4L                   | 231.093    | 320.096     |                 |
| Navara        | D22 Series II Diesel 4WD, RWD      | 99-01 | 4 Cyl  | 3.2L                   | 231.093    | 320.096     |                 |
| Navara        | D22                                | 99-01 | 6 Cyl  | 3.0L                   |            | 320.096     |                 |
| Navara        | D22 Diesel Turbo                   | 01-on | 4 Cyl  | 3.0L                   |            | 320.096     |                 |
| Navara        | D22 SOHC                           | 03-06 | 6 Cyl  | 3.3L                   |            | 320.096     |                 |
| Nomad         | GC22                               | 97-92 | 4 Cyl  | 2.4L                   | 231.093    |             |                 |
| NX/NX-R       | B13                                | 91-95 | 4 Cyl  | 2.0L                   | 231.093    | 320.039     |                 |
| Pathfinder    | Carb                               | 86-92 | 4 Cyl  | 2.4L                   | 231.093    | 320.039     | 360.029         |
| Pathfinder    | D21 Carb 4WD MPFI                  | 92-95 | 6 Cyl  | 3.0L                   | 231.093    |             | 360.029         |
| Pathfinder    | R50 Series I                       | 95-98 | 6 Cyl  | 3.3L                   | 231.093    | 320.096     | 360.029         |
| Pathfinder    | R50 Series II                      | 99-05 | 6 Cyl  | 3.3L                   | 231.093    | 320.096     | 360.029         |
| Patrol        | G60, MQ                            | 65-87 | 6 Cyl  | 2.8L, 4.0L             | 231.086    |             | 320.039         |
| Patrol        | G60, MQ, Turbo                     | 80-87 | 6 Cyl  | 3.3L                   | 231.086    | 320.090     |                 |
| Patrol        | GQ OHV Diesel Series I             | 87-93 | 6 Cyl  | 4.2L                   | 231.093    |             |                 |
| Patrol        | GQ OHV Diesel, Series I, Series II | 88-97 | 6 Cyl  | 4.2L                   | 231.093    |             |                 |
| Patrol        | GQ OHC Carb                        | 88-95 | 6 Cyl  | 4.2L                   | 231.093    |             | 360.029         |
| Patrol        | GQ OHC Carb                        | 92-99 | 6 Cyl  | 4.2L                   | 231.093    |             |                 |
| Patrol        | GQ Series II OHV EFI               | 92-97 | 6 Cyl  | 4.2L                   | 231.093    | 320.039     | 360.029         |
| Patrol        | GQ Series II SOHC Carb             | 92-97 | 6 Cyl  | 3.0L                   | 231.093    |             |                 |
| Patrol        | GQ Series II SOHC Turbo Diesel     | 95-97 | 6 Cyl  | 2.8L                   | 231.093    | 320.039     | 360.029         |
| Patrol        | GU OHV Diesel                      | 99-00 | 6 Cyl  | 4.2L                   | 231.093    |             |                 |
| Patrol        | GU SOHC MPFI                       | 97-00 | 6 Cyl  | 4.5L                   | 231.093    |             |                 |
| Patrol        | GU SOHC Turbo Diesel               | 98-00 | 6 Cyl  | 2.8L                   | 231.093    | 320.096     | 360.029         |
| Pintara       | R31 Sedan RWD                      | 86-90 | 4 Cyl  | 2.0L                   | 231.093    | 320.096     |                 |
| Pintara       | U12 Sedan FWD                      | 89-92 | 4 Cyl  | 2.0L                   | 231.093    | 320.096     |                 |

## VEHICLE APPLICATION LISTING

| NISSAN Continued |                       |       |        |            |            |             |                 |
|------------------|-----------------------|-------|--------|------------|------------|-------------|-----------------|
| Make/Series      | Model                 | Year  | Engine | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| Pintara          | U12 SOHC              | 89-92 | 4 Cyl  | 2.4L       | 231.093    |             |                 |
| Prairie          | M10 SOHC Carb         | 82-86 | 4 Cyl  | 1.5L       | 231.084    | 320.039     |                 |
| Pulsar           | N10                   | 80-81 | 4 Cyl  | 1.4L       | 231.086    |             |                 |
| Pulsar           | N12, EXA - ET         | 83-87 | 4 Cyl  | 1.5L       | 231.102    |             |                 |
| Silvia           | Imported S12 Turbo    | 84-88 | 4 Cyl  | 1.8L       | 231.089    |             |                 |
| Skyline          | C210                  | 78-81 | 6 Cyl  | 2.4L       | 231.086    |             |                 |
| Stanza           | A10                   | 78-83 | 4 Cyl  | 1.6L       | 231.086    |             |                 |
| Terrano II       | R20, R20 Turbo Diesel | 97-00 | 4 Cyl  | 2.4L, 2.7L | 231.093    |             |                 |
| Urvan            | E20, E23              | 74-82 | 4 Cyl  | 1.6L, 2.0L | 231.086    |             |                 |
| Urvan            | E24, Diesel           | 87-92 | 4 Cyl  | 2.7L       | 231.086    |             |                 |
| X Trail          | T30 DOHC              | 01-03 | 4 Cyl  | 2.5L       |            | 320.096     |                 |

| PEUGEOT     |          |       |        |          |            |             |                 |
|-------------|----------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model    | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| 205         | Gti SOHC | 87-90 | 4 Cyl  | 1.9L     | 231.108    |             |                 |
| 205         | S        | 90-94 | 4 Cyl  | 1.6L     | 231.108    |             |                 |

| PORSCHE        |         |       |        |                  |            |             |                 |
|----------------|---------|-------|--------|------------------|------------|-------------|-----------------|
| Make/Series    | Model   | Year  | Engine | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| 924, 924S, 944 | + Turbo | 79-89 | 4 Cyl  | 2.0L, 2.5L, 2.7L | 231.085    |             |                 |
| 928, 928S      |         | 77-85 | 8 Cyl  | 4.5L, 4.7L       | 231.085    |             |                 |

| SAAB        |       |       |        |          |            |             |                 |
|-------------|-------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| 99          |       | 71-73 | 4 Cyl  | 1.9L     | 231.085    |             |                 |
| 900         | EFI   | 79-88 | 4 Cyl  | 2.0L     | 231.085    |             |                 |

| SEAT        |       |       |        |          |            |             |                 |
|-------------|-------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series | Model | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| Cordoba     | GLX   | 95-98 | 4 Cyl  | 1.8L     | 231.110    |             |                 |

| SUBARU        |             |       |        |                  |            |             |                 |
|---------------|-------------|-------|--------|------------------|------------|-------------|-----------------|
| Make/Series   | Model       | Year  | Engine | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| Brumby        |             | 78-94 | 4 Cyl  | 1.6L, 1.8L       | 231.102    | 320.043     |                 |
| DL, GL, Leone |             | 76-95 | 4 Cyl  | 1.6L, 1.8L       | 231.102    | 320.043     |                 |
| Fiori         |             | 89-92 | 4 Cyl  |                  | 231.102    |             |                 |
| Forester      |             | 97-02 | 4 Cyl  | 2.0L             | 231.102    | 320.067     |                 |
| Impreza       | LX, GX, AWD | 93-98 | 4 Cyl  | 1.6L, 1.8L       | 231.102    | 320.067     |                 |
| Impreza       | GX, RV, RX  | 00-on | 4 Cyl  | 2.0L             | 231.102    | 320.067     |                 |
| Impreza       | WRX, Turbo  | 94-on | 4 Cyl  | 2.0L             | 231.102    | 320.067     |                 |
| Liberty       | All         | 91-03 | 4 Cyl  | 2.0L, 2.2L, 2.5L | 231.102    | 320.067     |                 |
| Liberty       | BC/BD       | 89-97 | 4 Cyl  | 2.2L             | 231.102    | 320.067     |                 |
| Liberty       | BD/BF Turbo | 92-93 | 4 Cyl  | 2.0L             | 231.102    | 320.067     |                 |
| Liberty       | BD/BG       | 96-00 | 4 Cyl  | 2.5L             | 231.102    | 320.067     |                 |
| Liberty       |             | 98-on | 4 Cyl  | 2.0L             | 231.102    | 320.067     |                 |

## VEHICLE APPLICATION LISTING

| SUBARU Continued |           |       |        |          |            |             |                 |
|------------------|-----------|-------|--------|----------|------------|-------------|-----------------|
| Make/Series      | Model     | Year  | Engine | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| Liberty          |           | 98-on | 4 Cyl  | 2.5L     | 231.102    | 320.067     |                 |
| Outback          |           | 96-00 | 4 Cyl  | 2.5L     | 231.102    | 320.067     |                 |
| Vortex           | XT, Turbo | 85-89 | 4 Cyl  | 1.8L     | 231.102    | 320.043     |                 |

| SUZUKI      |                             |       |              |          |            |             |                 |
|-------------|-----------------------------|-------|--------------|----------|------------|-------------|-----------------|
| Make/Series | Model                       | Year  | Engine       | Capacity | Oil Switch | Temp Sender | Pressure Sender |
| Sierra      | SJ413                       | 84-98 | 4 Cyl        | 1.3L     | 231.089    | 320.038     |                 |
| Carry       | ST80, ST90                  | 78-85 | 4 Cyl        |          | 231.089    | 320.068     |                 |
| Swift       | SOHC, GTi, Carb. & EFI, 4WD | 84-00 | 3 Cyl, 4 Cyl | All      | 231.089    | 320.038     |                 |
| Vitara      | SOHC, Carb. & EFI           | 88-98 | 4 Cyl        | 1.6L     | 231.089    | 320.038     |                 |
| X90         | 4X4 EL                      | 96-98 | 4 Cyl        | 1.6L     | 231.089    | 320.067     |                 |

| TOYOTA        |                               |       |        |                  |            |             |                 |
|---------------|-------------------------------|-------|--------|------------------|------------|-------------|-----------------|
| Make/Series   | Model                         | Year  | Engine | Capacity         | Oil Switch | Temp Sender | Pressure Sender |
| 4Runner       | YN60, YN63, YN130             | 84-90 | 4 Cyl  | 2.0L, 2.2L       | 231.089    | 320.044     |                 |
| 4Runner       | RN130R                        | 90-96 | 4 Cyl  | 2.4L             | 231.104    | 320.044     | 360.027         |
| 4Runner       | LN60, LN61, Diesel            | 84-89 | 4 Cyl  | 2.4L, 2.8L       | 231.084    | 320.044     |                 |
| 4 Runner      | VZN130                        | 90-91 | 6 Cyl  | 3.0L             |            |             | 360.027         |
| Camry         | SV11, SV20                    | 83-89 | 4 Cyl  | 1.8L, 2.0L       | 231.102    | 320.044     |                 |
| Camry         | SV21, SV22                    | 87-91 | 4 Cyl  | 2.0L             | 231.102    | 320.067     |                 |
| Camry         | SDV10, SXV10                  | 93-98 | 4 Cyl  | 2.2L             | 231.104    | 320.036     |                 |
| Camry         | SXV20, ACV36R                 | 97-on | 4 Cyl  | 2.2L, 2.4L       | 231.104    |             |                 |
| Camry         | VZV20, VZV21                  | 88-93 | 6 Cyl  | 2.5L             | 231.102    |             |                 |
| Camry         | VDV10, MCV20R, MCV36R         | 93-on | 6 Cyl  | 3.0L             | 231.104    |             |                 |
| Camry Avensis | ACM20R                        | 01-on | 4 Cyl  | 2.0L, 2.4L       | 231.104    |             |                 |
| Camry Vienta  | VZV20, VZV21                  | 88-93 | 6 Cyl  | 2.5L             | 231.102    |             |                 |
| Camry Vienta  | VDV10R, MCV20R                | 93-00 | 6 Cyl  | 3.0L             | 231.104    |             |                 |
| Celica        | RA23, RA28, TA22, TA23        | 71-77 | 4 Cyl  | 1.6L, 2.0L       | 231.089    | 320.043     |                 |
| Celica        | RA60R, SA63                   | 81-84 | 4 Cyl  | 2.0L             | 231.089    | 320.044     |                 |
| Celica        | ST184R                        | 89-94 | 4 Cyl  | 2.2L             | 231.102    | 320.036     |                 |
| Celica        | ST185R                        | 90-92 | 4 Cyl  | 2.0L             | 231.102    | 320.044     |                 |
| Celica        | ST204R, SX, ZR                | 94-99 | 4 Cyl  | 2.2L             | 231.104    | 320.088     |                 |
| Celica        | ST205, GT                     | 94-94 | 4 Cyl  | 2.0L             | 231.089    | 320.036     |                 |
| Corolla       | KE10                          | 66-70 | 4 Cyl  | 1.1L             | 231.089    | 320.043     |                 |
| Corolla       | KE20                          | 70-74 | 4 Cyl  | 1.2L             | 231.102    | 320.043     |                 |
| Corolla       | KE30, KE35, KE36, KE50        | 74-78 | 4 Cyl  | 1.2L             | 231.102    | 320.043     |                 |
| Corolla       | KE38, KE55                    | 78-79 | 4 Cyl  | 1.3L             | 231.102    | 320.043     |                 |
| Corolla       | KE38, KE55, KE70R             | 78-85 | 4 Cyl  | 1.3L             | 231.102    | 320.044     |                 |
| Corolla       | AE71, AE80, AE82, DOHC        | 78-89 | 4 Cyl  | 1.3L, 1.6L       | 231.102    |             |                 |
| Corolla       | AE90                          | 89-92 | 4 Cyl  | 1.4L             | 231.089    |             |                 |
| Corolla       | AE92, Carb                    | 89-92 | 4 Cyl  | 1.4L             | 231.084    | 320.067     |                 |
| Corolla       | AE92, AE92R, EFI, 4WD         | 89-94 | 4 Cyl  | 1.6L             | 231.084    | 320.067     |                 |
| Corolla       | AE93                          | 92-94 | 4 Cyl  | 1.8L             | 231.104    | 320.088     |                 |
| Corolla       | AE95R, 4WD                    | 88-95 | 4 Cyl  | 1.6L             | 231.084    | 320.067     |                 |
| Corolla       | AE101R, AE102R, AE102X, AE112 | 94-01 | 4 Cyl  | 1.8L             | 231.104    | 320.088     |                 |
| Corolla       | ZZE122R, ZZE123, Sportivo     | 01-on | 4 Cyl  | 1.8L             | 231.104    |             |                 |
| Corona        | RT40, RT72, RT80, RT81        | 64-74 | 4 Cyl  | 1.5L, 1.6L, 1.9L | 231.084    | 320.043     |                 |
| Corona        | MX10, MX13, MX22, MX23, RT104 | 72-79 | 4 Cyl  | 2.0L, 2.3L, 2.6L | 231.084    | 320.043     |                 |



## VEHICLE APPLICATION LISTING

| TOYOTA Continued     |                                    |       |             |                        |            |             |                 |
|----------------------|------------------------------------|-------|-------------|------------------------|------------|-------------|-----------------|
| Make/Series          | Model                              | Year  | Engine      | Capacity               | Oil Switch | Temp Sender | Pressure Sender |
| Corona               | RT104, RT118, XT130                | 77-83 | 4 Cyl       | 2.0L, 2.3L, 2.6L       | 231.084    | 320.043     |                 |
| Corona               | RT132                              | 79-82 | 4 Cyl       | 2.0L                   | 231.089    | 320.044     |                 |
| Corona               | RT133                              | 82-83 | 4 Cyl       | 2.0L                   | 231.102    | 320.044     |                 |
| Cressida             | MX73R                              | 84-85 | 6 Cyl       | 2.8L                   | 231.084    | 320.044     |                 |
| Cressida             | MX73R-DOHC                         | 85-88 | 6 Cyl       | 2.8L                   | 231.084    | 320.044     |                 |
| Cressida             | MX83R                              | 90-93 | 6 Cyl       | 3.0L                   | 231.084    | 320.044     |                 |
| Crown                | RS56, MS65, MS83, MS85, MS111      | 68-80 | 4Cyl, 6 Cyl | 2.0L, 2.8L             | 231.089    | 320.043     |                 |
| Crown                | MS112                              | 80-83 | 6 Cyl       | 2.8L                   | 231.084    | 320.044     |                 |
| Crown                | MS123                              | 83-87 | 6 Cyl       | 2.8L                   | 231.084    | 320.044     |                 |
| Crown                | MS125                              | 83-88 | 6 Cyl       | 2.8L                   | 231.084    | 320.044     |                 |
| Echo                 | NCP10R, NCP12R, NCP13R             | 99-on | 4 Cyl       | 1.3L, 1.5L             | 231.104    |             |                 |
| Estima               | TCR10W, TCR11W, TCR20W             | 93-99 | 4 Cyl       | 2.4L                   | 231.104    | 320.036     |                 |
| Hi-Ace               | RH: 10, 11, 15, 16, 20, 30, 32     | 67-85 | 4 Cyl       | 1.5L, 1.6L             | 231.089    | 320.043     |                 |
| Hi-Ace               | YH: 50, 51, 53, 60, 61, 63, 71, 73 | 83-89 | 4 Cyl       | 1.8L, 2.0L, 2.2L       | 231.089    | 320.044     |                 |
| Hi-Ace               | RZH103, RZH113                     | 89-98 | 4 Cyl       | 2.4L                   | 231.104    | 320.036     |                 |
| Hi-Ace               | RZH103R, RXZH113R, EFI             | 98-05 | 4 Cyl       | 2.4L                   | 231.089    | 320.036     |                 |
| Hi-Ace - Diesel      | LH: 20, 30, 50, 51, 60, 61, 70, 71 | 81-89 | 4 Cyl       | 2.2L, 2.4L             | 231.089    | 320.044     |                 |
| Hi-Ace - Diesel      | LH103R, LH113R, LH125R             | 89-00 | 4 Cyl       | 2.8L                   | 231.084    | 320.036     |                 |
| Hi-Ace - Diesel      | LHR172R, LHR184R                   | 99-05 | 4 Cyl       | 3.0L                   | 231.084    | 320.036     |                 |
| Hi-Lux               | YN: 55, 56, 57, 58, 65, 67         | 83-88 | 4 Cyl       | 1.6L, 1.8L, 2.0L, 2.2L | 231.089    | 320.044     |                 |
| Hi-Lux               | YN85R                              | 88-97 | 4 Cyl       | 1.8L                   | 231.104    |             |                 |
| Hi-Lux               | RN85R, RN90R, RN105R               | 90-92 | 4 Cyl       | 2.4L                   | 231.102    |             |                 |
| Hi-Lux               | RN85R, RN90R, RN105R               | 88-97 | 4 Cyl       | 2.4L                   | 231.104    |             | 360.027         |
| Hi-Lux               | RN106R, RN110                      | 88-97 | 4 Cyl       | 2.4L                   | 231.104    | 320.036     | 360.027         |
| Hi-Lux               | RZN147R, EFI,                      | 97-05 | 4 Cyl       | 2.0L, 2.7L             | 231.104    | 320.036     |                 |
| Hi-Lux               | VZN167R, VZN172R                   | 01-05 | 6 Cyl       | 3.4L                   | 231.104    | 320.036     |                 |
| Hi-Lux - Diesel      | All 2.2L engines                   | 78-83 | 4 Cyl       | 2.2L                   | 231.089    | 320.036     |                 |
| Hi-Lux - Diesel      | All 2.4L engines                   | 83-91 | 4 Cyl       | 2.4L                   | 231.084    | 320.044     |                 |
| Hi-Lux - Diesel      | LN86R, LN106R, LN 107R             | 88-97 | 4 Cyl       | 2.8L                   | 231.084    | 320.044     |                 |
| Hi-Lux - Diesel      | LN147R, LN167R, LN172R             | 97-05 | 4 Cyl       | 3.0L                   | 231.084    | 320.044     |                 |
| Kluger               | MCU28R                             | 03-on | 6 Cyl       | 3.3L                   | 231.104    |             |                 |
| Landcruiser          | FJ: 40, 45, 55, FJ60               | 79-82 | 6 Cyl       | 3.0L                   | 231.089    | 320.043     | 360.027         |
| Landcruiser          | FJ: 40, 45, 55, FJ60               | 83-84 | 6 Cyl       | 3.0L                   | 231.089    | 320.043     | 360.028         |
| Landcruiser - Petrol | FJ60                               | 80-84 | 6 Cyl       | 4.2L                   |            |             | 360.027         |
| Landcruiser - Diesel | HJ60 Diesel                        | 81    | 6 Cyl       | 4.0L                   |            |             | 360.027         |
| Landcruiser - Diesel | BJ60 Diesel                        | 91-87 | 6 Cyl       | 3.4L                   |            |             | 360.027         |
| Landcruiser          | FJ62                               | 84-90 | 6 Cyl       | 4.0L                   | 320.067    | 320.044     | 360.028         |
| Landcruiser          | FJ70,FJ73, FJ80                    | 84-91 | 6 Cyl       | 4.0L                   | 231.084    | 320.044     | 360.028         |
| Landcruiser          | FZJ80R                             | 92-98 | 6 Cyl       | 4.5L                   |            | 320.036     | 360.028         |
| Landcruiser          | UZJ100R                            | 00-on | 8 Cyl       | 4.7L                   | 231.104    | 320.088     |                 |
| Landcruiser          | UZJ100                             | 04-05 |             |                        |            |             | 360.026         |
| Landcruiser          | HZJ75RV                            | 90-91 | 6 Cyl       | 4.2L                   |            |             | 360.028         |
| 70 Series            |                                    |       |             |                        |            |             |                 |
| Landcruiser          | HZJ78R, HZJ79R                     | 04-on | 6 Cyl       | 4.2L, 4.2LT            |            |             | 360.025         |
| 78 Series            |                                    |       |             |                        |            |             |                 |

## VEHICLE APPLICATION LISTING

| TOYOTA Continued             |                                   |       |        |                       |            |             |                 |
|------------------------------|-----------------------------------|-------|--------|-----------------------|------------|-------------|-----------------|
| Make/Series                  | Model                             | Year  | Engine | Capacity              | Oil Switch | Temp Sender | Pressure Sender |
| Landcruiser<br>GXL 80 Series | FZJ80, HZJ80, HDJ80               | 95-98 | 6 Cyl  | 4.5L, 4.2L,<br>4.2LDT |            | 320.094     |                 |
| Landcruiser<br>100 Series    | FZJ105,                           | 98-07 | 6 Cyl  | 4.5L                  |            | 320.094     |                 |
| Landcruiser<br>100 Series    | HZJ105 Diesel                     | 98-07 | 6 Cyl  | 4.2L                  |            | 320.094     | 360.025         |
| Landcruiser<br>Prado         | RZJ95R, RZJ120R                   | 96-04 | 4 Cyl  | 2.7L                  | 231.104    | 320.088     |                 |
| Landcruiser<br>Prado         | VZJ95R, GRJ120R                   | 99-04 | 6 Cyl  | 3.4L, 4.0L            | 231.104    |             |                 |
| Landcruiser<br>Prado         | KZJ95R, KZJ120R                   | 99-04 | 6 Cyl  | 3.4L, 4.0L            | 231.104    |             |                 |
| Landcruiser<br>Turbo Diesel  | VDJ76R                            | 07-on | 8 Cyl  | 4.5L                  |            |             | 360.030         |
| Landcruiser<br>Turbo Diesel  | VDJ78R/VDJ79R                     | 07-on | 8 Cyl  | 4.5L                  | 231.104    |             | 360.030         |
| Landcruiser                  | UZJ200/VDJ200                     | 07-on | 8 Cyl  | 4.7L, 4.5LTD          |            |             | 360.026         |
| Lexen                        | VN I                              | 89-90 | 6 Cyl  | 3.8L                  | 231.088    |             |                 |
| Lexen                        | VN II                             | 90-91 | 6 Cyl  | 3.8L                  | 231.088    | 320.033     |                 |
| Lexen                        | VP                                | 91-93 | 6 Cyl  | 3.8L                  | 231.088    | 320.033     |                 |
| Lexen                        | VR                                | 93-95 | 6 Cyl  | 3.8L                  | 231.088    | 320.033     |                 |
| Lexen                        | VS                                | 95-97 | 6 Cyl  | 3.8L                  | 231.088    |             |                 |
| Light Ace                    | KM20, KM36                        | 80-92 | 4 Cyl  | 1.3L, 1.5L            | 231.102    | 320.044     |                 |
| Light Ace                    | YM21, YM30, YM40, YM41            | 84-88 | 4 Cyl  | 1.8L, 2.0L            | 231.102    | 320.044     |                 |
| Light Ace<br>Diesel          | 1C engines                        | 83-92 | 4 Cyl  | 1.8L                  | 231.084    | 320.044     |                 |
| MR2                          | SW20R                             | 90-94 | 4 Cyl  | 2.0L                  | 231.102    | 320.044     |                 |
| MR2                          | SW20R                             | 95-99 | 4 Cyl  | 2.0L                  | 231.102    | 320.036     |                 |
| MR2                          | ZZW30R                            | 00-on | 4 Cyl  | 2.0L                  | 231.104    |             |                 |
| Paseo                        | EL44R, EL54R                      | 91-95 | 4 Cyl  | 1.5L                  | 231.104    | 320.067     |                 |
| Paseo                        | EL44R, EL54R                      | 95-99 | 4 Cyl  | 1.5L                  | 231.104    | 320.088     |                 |
| Prius                        | NHW11R, NHW20R                    | 01-on | 4 Cyl  | 1.5L                  | 231.104    |             |                 |
| RAV4                         | SX10R, SXA11R                     | 94-00 | 4 Cyl  | 2.0L                  | 231.104    | 320.036     |                 |
| RAV4                         | ACA20R, ACA21R, ACA22R,<br>ACA23R | 94-00 | 4 Cyl  | 2.0L, 2.4L            | 231.104    |             |                 |
| Soarer                       | JZZ30, JZZ31                      | 91-00 | 6 Cyl  | 2.5L, 3.0L            | 231.104    |             |                 |
| Soarer                       | UZZ30, UZZ31, UZZ32               | 91-00 | 8 Cyl  | 2.5L, 3.0L, 4.0L      | 231.104    |             |                 |
| Spacia                       | YR22R                             | 93-98 | 4 Cyl  | 2.2L                  | 231.104    | 320.036     |                 |
| Spacia                       | SR40R                             | 98-01 | 4 Cyl  | 2.0L                  | 231.104    |             |                 |
| Starlet                      | EP91R                             | 96-99 | 4 Cyl  | 1.3L                  | 231.104    | 320.067     |                 |
| Tarago                       | YR20                              | 83-84 | 4 Cyl  | 1.8L                  | 231.089    | 320.044     |                 |
| Tarago                       | ACR30R                            | 00-on | 4 Cyl  | 2.4L                  | 231.104    | 320.036     |                 |
| Tarago - Diesel              | CR21                              | 83-88 | 4 Cyl  | 2.0L                  | 231.084    | 320.044     |                 |
| Tarago                       | TCR10R, TCR11R                    | 90-00 | 4 Cyl  | 2.4L                  | 231.104    | 320.036     |                 |
| Tarago                       | TCR20R, TCR21R                    | 90-03 | 4 Cyl  | 2.4L                  | 231.102    | 320.044     |                 |
| Toyo Ace -<br>Diesel         | LY30, LY31                        | 82-85 | 4 Cyl  | 2.2L, 2.4L            | 231.089    | 320.044     |                 |

## VEHICLE APPLICATION LISTING

| VOLVO              |            |       |              |            |            |             |                 |
|--------------------|------------|-------|--------------|------------|------------|-------------|-----------------|
| Make/Series        | Model      | Year  | Engine       | Capacity   | Oil Switch | Temp Sender | Pressure Sender |
| 240, 242, 244, 245 |            | 81-83 | 4 Cyl        | 2.3L       | 231.113    |             |                 |
| 360, 740           | incl.Turbo | 84-91 | 4 Cyl        | 2.0L, 2.3L | 231.113    |             |                 |
| 850                | incl.Turbo | 92-97 | 4 Cyl        | 2.3L, 2.5L | 231.113    |             |                 |
| 940, 960           |            | 90-97 | 4 Cyl, 6 Cyl | 2.3L, 2.5L | 231.113    |             |                 |
| C70                |            | 99-04 | 5 Cyl        | 2.3L, 2.5L | 231.113    |             |                 |
| S40, V40           | incl.Turbo | 97-04 | 4 Cyl        | 1.8L       | 231.104    |             |                 |
| S40, V40           | incl.Turbo | 97-04 | 4 Cyl        | 2.0L       | 231.113    |             |                 |
| S60, S60R          |            | 02-04 | 5 Cyl        | 2.3L, 2.4L | 231.113    |             |                 |
| S70, V70           | incl.Turbo | 97-03 | 5 Cyl        | 2.3L, 2.4L | 231.113    |             |                 |
| S70R               | Turbo      | 03-04 | 5 Cyl        | 2.3L       | 231.113    |             |                 |
| S80                | TS95, TS97 | 98-03 | 6 Cyl        | 2.9L       | 231.113    |             |                 |
| S90, V90           |            | 97-98 | 6 Cyl        | 2.9L       | 231.113    |             |                 |
| XC70, XC90         |            | 03-on | 6 Cyl        | 2.9L       | 231.113    |             |                 |

**Note:** All care has been taken in preparing and compiling this senders' application list, although if errors are detected, please report them by phone (03) 9468 1151 or fax (03) 9468 1502 to VDO, Customer Service department.

## MERCHANDISERS

All merchandisers consist of the following as well as the contents:  
8 peg rack, measuring 400 x 400mm, header card, & application list.

## FAST MOVERS

| Fast Movers |                                              |
|-------------|----------------------------------------------|
| Part No.    | Description                                  |
| 740.012     | Mixed sensor & adaptors (most commonly used) |

| Merchandise Contents |                                                  |      |
|----------------------|--------------------------------------------------|------|
| Part No.             | Description                                      | Qty. |
| 231.081              | Oil Pressure Switch N/C 25Kpa 1/4"-18NPTF 12/24V | 2    |
| 231.084              | Oil Pressure Switch N/C 21Kpa 1/8"-28BSPT 12/24V | 3    |
| 231.086              | Oil Pressure Switch N/C 21Kpa 1/8"-28BSPT 12/24V | 3    |
| 231.088              | Oil Pressure Switch N/C 21Kpa 1/4"-18NPTF 12/24V | 3    |
| 320.002              | Temperature Sender Water STD. 1/8"-27NPTF        | 2    |
| 320.003              | Temperature Sender Water 73-10 OHM 1/8"-27NPTF   | 2    |
| 320.032              | Temperature Sender Water 282-40 OHM 1/8"-27NPTF  | 2    |
| 320.053              | Adaptor 1/2"-14NPTF TO 1/8"-27NPTF               | 2    |



## OIL PRESSURE SWITCHES

Oil switch merchandisers have 8 of the fastest moving numbers.

| Oil Pressure Switches |                                  |
|-----------------------|----------------------------------|
| Part No.              | Description                      |
| 740.007               | Oil Pressure Switch Merchandiser |

| Merchandise Contents |                                                  |      |
|----------------------|--------------------------------------------------|------|
| Part No.             | Description                                      | Qty. |
| 231.081              | Oil Pressure Switch N/C 25Kpa 1/4"-18NPTF 12/24V | 3    |
| 231.082              | Oil Pressure Switch N/C 21Kpa 1/8"-27NPTF 12/24V | 2    |
| 231.083              | Oil Pressure Switch N/C 55Kpa 1/8"-27NPTF 12/24V | 2    |
| 231.084              | Oil Pressure Switch N/C 21Kpa 1/8"-28BSPT 12/24V | 3    |
| 231.086              | Oil Pressure Switch N/C 21Kpa 1/8"-28BSPT 12/24V | 3    |
| 231.087              | Oil Pressure Switch N/C 21Kpa M14 x 1.5 12/24V   | 2    |
| 231.088              | Oil Pressure Switch N/C 21Kpa 1/4"-18NPTF 12/24V | 3    |
| 231.089              | Oil Pressure Switch N/C 21Kpa 1/8"-28BSPT 12/24V | 2    |



## WATER TEMPERATURE SWITCHES

Temperature switch merchandiser has 6 of the fastest moving numbers.

| Water Temperature Switches |                                 |
|----------------------------|---------------------------------|
| Part No.                   | Description                     |
| 740.003                    | Temperature Switch Merchandiser |

| Merchandise Contents |                                         |      |
|----------------------|-----------------------------------------|------|
| Part No.             | Description                             | Qty. |
| 230.045              | Temperature Switch N/O 96°C 1/8"-27NPTF | 4    |
| 230.046              | Temperature Switch N/O 90°C M10x1.5     | 1    |
| 232.011/005/017D     | Temperature Switch N/O 145°C M10x1.5    | 4    |
| 230.048              | Temperature Switch N/O 170°C M10x1.5    | 1    |
| 230.051              | Temperature Switch N/O 95°C 1/2"-14NPTF | 1    |





## OIL PRESSURE SENDERS

Oil sender merchandisers have 8 of the fastest moving numbers.

| Oil Pressure Senders |                                  |  |
|----------------------|----------------------------------|--|
| Part No.             | Description                      |  |
| 740.009              | Oil Pressure Sender Merchandiser |  |

| Merchandiser Contents |                                                   |      |
|-----------------------|---------------------------------------------------|------|
| Part No.              | Description                                       | Qty. |
| 360.001               | Oil Pressure Sender 10-180 OHM 500Kpa 1/8"27NPTF  | 2    |
| 360.002               | Oil Pressure Sender 10-180 OHM 1000Kpa 1/8"27NPTF | 2    |
| 360.003               | Oil Pressure Sender 73-10 OHM 700Kpa 1/4"18NPTF   | 2    |
| 360.004               | Oil Pressure Sender 10-180 OHM 500Kpa 1/4"18NPTF  | 2    |
| 360.005               | Oil Pressure Sender 73-10 OHM 500Kpa 1/4"18NPTF   | 1    |
| 360.013               | Oil Pressure Sender 10-180 OHM 700Kpa 1/4"18NPTF  | 1    |
| 360.014               | Oil Pressure Sender 10-180 OHM 600Kpa 1/8"27NPTF  | 1    |
| 360081030015C         | Oil Pressure Sender 10-180 OHM 1000Kpa 1/8"27NPTF | 1    |

## WATER TEMPERATURE SENDERS

Temperature sender merchandisers have 8 of the fastest moving numbers.



| Oil Pressure Senders |                                       |  |
|----------------------|---------------------------------------|--|
| Part No.             | Description                           |  |
| 740.009              | Water Temperature Sender Merchandiser |  |

| Merchandiser Contents |                                                  |      |
|-----------------------|--------------------------------------------------|------|
| Part No.              | Description                                      | Qty. |
| 320.002               | Temperature Sender Water STD. 1/8"-27NPTF        | 2    |
| 320.003               | Temperature Sender Water 73-10 OHM 1/8"-27NPTF   | 2    |
| 320.011               | Temperature Sender Water STD. 1/8"-27NPTF Short  | 2    |
| 320.032               | Temperature Sender Water 282-40 OHM 1/8"-27NPTF  | 2    |
| 320.033               | Temperature Sender Water 282-40 OHM 1/8"-27 NPTF | 2    |
| 320.043               | Temperature Sender Water 184-17 OHM M16x1.5      | 2    |
| 320.044               | Temperature Sender Water 313-22 OHM M16x1.5      | 2    |
| 320.067               | Temperature Sender Water 232-22 OHM M8x0.75      | 2    |

## T-PIECE & ADAPTORS

T-piece and Adaptor merchandiser have 4 of each fast moving adaptors and T-piece.



| Oil Pressure Senders |                                |  |
|----------------------|--------------------------------|--|
| Part No.             | Description                    |  |
| 740.011              | T-Piece & Adaptor Merchandiser |  |

| Merchandiser Contents |                                        |      |
|-----------------------|----------------------------------------|------|
| Part No.              | Description                            | Qty. |
| 230.031               | T-Piece 1/8"-27NPTF(M&F)-1/8"-27NPTF   | 2    |
| 230.032               | T-Piece 1/4"-18NPTF(M&F)-1/8"-27NPTF   | 2    |
| 230.035               | T-Piece M14x1.5 (M&F) -1/8"-27NPTF     | 2    |
| 230.036               | T-Piece 1/8" -28BSPT(M&F) -1/8"-27NPTF | 2    |
| 320.050               | Adaptor 1/4" -18NPTF TO 1/8"-27NPTF    | 3    |
| 320.051               | Adaptor 3/8"-18NPTF TO 1/8"-27NPTF     | 3    |
| 320.053               | Adaptor 1/2"-14NPTF TO 1/8"-27NPTF     | 3    |
| 320.055               | Adaptor M16x1.5 TO 1/8"-27NPTF         | 1    |



## PRESSURE SENDERS &amp; SWITCHES

| Pressure Sender - Oil / Air |                 |             |                        | Single Station |            |
|-----------------------------|-----------------|-------------|------------------------|----------------|------------|
| Part No.                    | Range Bar (Psi) | Thread Size | Switch Point Bar (Psi) | Picture        | Ohms Range |
| 360081032025C               | 0 - 2 Bar (30)  | 1/8"-27NPTF | ---                    | B              | 10 - 180   |
| 360081032011C               | 0 - 2 Bar (30)  | M 12x1.5    | ---                    | B              | 10 - 180   |

| Pressure Sender - Oil / Air |                 |             |                        | Single Station |            |
|-----------------------------|-----------------|-------------|------------------------|----------------|------------|
| Part No.                    | Range Bar (Psi) | Thread Size | Switch Point Bar (Psi) | Picture        | Ohms Range |
| 360.001                     | 0 - 5 Bar (75)  | 1/8"-27NPTF | ---                    | A              | 10 - 180   |
| 360.004                     | 0 - 5 Bar (75)  | 1/4"-18NPTF | ---                    | A              | 10 - 180   |
| 360.016                     | 0 - 5 Bar (75)  | 1/8"-28BSPT | ---                    | A              | 10 - 180   |
| 360.018                     | 0 - 5 Bar (75)  | 1/8"-27NPTF | ---                    |                |            |
| 360081032001C               | 0 - 5 Bar (75)  | 1/8"-27NPTF | ---                    | B              | 10 - 180   |
| 360081032002C               | 0 - 5 Bar (75)  | M10x1.0     | ---                    | B              | 10 - 180   |

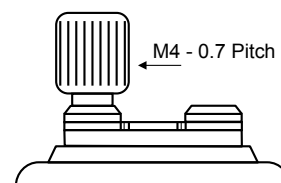
| Pressure Sender & Switch - Oil / Air |                 |             |                        | Single Station |            |
|--------------------------------------|-----------------|-------------|------------------------|----------------|------------|
| Part No.                             | Range Bar (Psi) | Thread Size | Switch Point Bar (Psi) | Picture        | Ohms Range |
| 360081030001K                        | 0 - 5 Bar (75)  | M10x1.0     | 0.25 Bar (3.5)         | C              | 10 - 180   |
| 360081030002K                        | 0 - 5 Bar (75)  | M10x1.0     | 0.5 Bar (7)            | C              | 10 - 180   |
| 360081030028K                        | 0 - 5 Bar (75)  | M14x1.5     | 0.5 Bar (7)            | C              | 10 - 180   |
| 360081030049K                        | 0 - 5 Bar (75)  | 1/8"-27NPTF | 0.5 Bar (7)            | C              | 10 - 180   |
| 360081030014C                        | 0 - 5 Bar (75)  | M10x1.0     | 0.6 bar (8.5)          | C              | 10 - 180   |
| 360081030010C                        | 0 - 5 Bar (75)  | 1/8"-27NPTF | 1.4 Bar (11.5)         | C              | 10 - 180   |
| 360081039002C                        | 0 - 5 Bar (75)  | 1/8"-27NPTF | 11.5 Psi               | D              | 10 - 180   |
| 360081039004C                        | 0 - 5 Bar (75)  | 1/8"-27NPTF | 10 Psi                 | D              | 10 - 180   |

| Pressure Sender & Switch - Oil / Air |                  |             |                        | Single Station |            |
|--------------------------------------|------------------|-------------|------------------------|----------------|------------|
| Part No.                             | Range Bar (Psi)  | Thread Size | Switch Point Bar (Psi) | Picture        | Ohms Range |
| 360081030009K                        | 0 - 10 Bar (150) | M10x1.0     | 0.5 Bar (7)            | C              | 10 - 180   |
| 360081030022C                        | 0 - 10 Bar (150) | M12x1.5     | 0.5 Bar (7)            | C              | 10 - 180   |
| 360081030052C                        | 0 - 10 Bar (150) | 1/8"-27NPTF | 0.5 Bar (7)            | C              | 10 - 180   |
| 360081030039C                        | 0 - 10 Bar (150) | M10x1.0     | 0.75 Bar (10.7)        | C              | 10 - 180   |
| 360081030015C                        | 0 - 10 Bar (150) | 1/8"-27NPTF | 0.8 Bar (11.5)         | C              | 10 - 180   |
| 360081030017C                        | 0 - 10 Bar (150) | M10x1.0     | 0.9 Bar (12)           | C              | 10 - 180   |
| 360081039003                         | 0 - 10 Bar (150) | 1/8"-27NPTF | 0.8 Bar (11.5)         | D              | 10 - 180   |

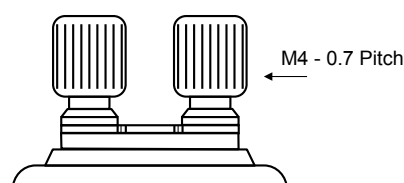
| Pressure Sender - Oil / Air |                  |             |                        | Single Station |            |
|-----------------------------|------------------|-------------|------------------------|----------------|------------|
| Part No.                    | Range Bar (Psi)  | Thread Size | Switch Point Bar (Psi) | Picture        | Ohms Range |
| 360.017                     | 0 - 6 Bar (85)   | 1/8"-27NPTF | ---                    |                | 10 - 180   |
| 360081038008C               | 0 - 8 Bar (120)  | 1/8"-27NPTF | ---                    |                | 10 - 180   |
| 360081032014C               | 0 - 10 Bar (150) | 1/8"-27NPTF | ---                    | B              | 10 - 180   |
| 360081038003C               | 0 - 25 Bar (360) | 1/8"-27NPTF | ---                    | B              | 10 - 180   |
| 360.086                     | 0 - 7 Bar (100)  | 1/8"-27NPTF | ---                    |                | 10 - 184   |
| 360.002                     | 0 - 10 Bar (145) | 1/8"-27NPTF | ---                    |                | 10 - 184   |
| 360.019                     | 0 - 10 Bar (145) | 1/8"-27NPTF | ---                    |                | 10 - 184   |

| Pressure Sender - Oil / Air |                  |             |                        | Dual Station |            |
|-----------------------------|------------------|-------------|------------------------|--------------|------------|
| Part No.                    | Range Bar (Psi)  | Thread Size | Switch Point Bar (Psi) | Picture      | Ohms Range |
| 362081001001K               | 0 - 5 Bar (75)   | 1/8"-27NPTF | ---                    | B            | 5 - 90     |
| 362081001002K               | 0 - 10 Bar (150) | 1/8"-27NPTF | ---                    | B            | 5 - 90     |
| 362081003002K               | 0 - 10 Bar (150) | 1/8"-27NPTF | ---                    | A            | 5 - 90     |
| 362081002001K               | 0 - 25 Bar (350) | 1/8"-27NPTF | ---                    | B            | 5 - 90     |
| 362081004001C               | 0 - 25 Bar (350) | 1/8"-27NPTF | ---                    | A            | 5 - 90     |

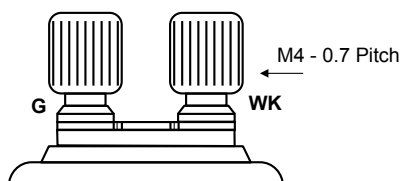
A



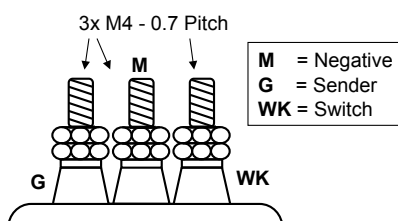
B



C



D





## PRESSURE SWITCHES



231.081



231.082



231.083



231.085



231.086



231.088



231.087

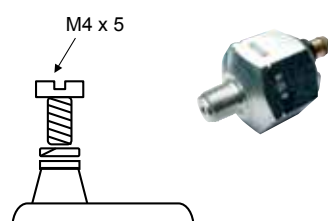


231.089

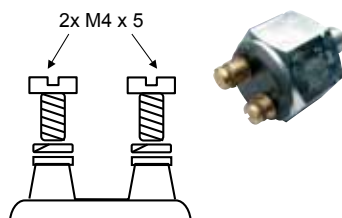
## Pressure Switches - Light Duty

| Part No. | Range | Thread Size | Terminals Contact | Switch |
|----------|-------|-------------|-------------------|--------|
| 231.081  | 25Kpa | 1/4"-18NPTF | button            | N/C    |
| 231.082  | 21Kpa | 1/8"-27NPTF | spade             | N/C    |
| 231.083  | 55Kpa | 1/8"-27NPTF | button            | N/C    |
| 231.084  | 21Kpa | 1/8"-28BSPT | button            | N/C    |
| 231.085  | 25Kpa | M10x1.0mm   | spade             | N/C    |
| 231.086  | 21Kpa | 1/8"-28BSPT | bullet            | N/C    |
| 231.087  | 21Kpa | M14x1.5mm   | spade             | N/C    |
| 231.088  | 21Kpa | 1/4"-18NPT  | 3 terminals       | N/C    |
| 231.089  | 21Kpa | 1/8"-28BSPT | spade             | N/C    |

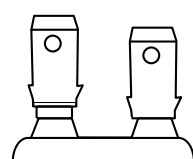
M



N



O



## Pressure Switches - Heavy Duty

| Part No.     | Switch Point Bar (Psi)  | Thread Size | Terminals Contact             | Picture | Switch |
|--------------|-------------------------|-------------|-------------------------------|---------|--------|
| 230112005006 | 0.5 Bar (7) Fixed       | 1/8"-27NPTF | Screw x 2<br>Insulated Return | N       | N/C    |
| 230.044      | 0.5 Bar (7) Fixed       | 1/8"-27NPTF | Screw x 2<br>Insulated Return | N       | N/C    |
| 230213002004 | 4.5 Bar (64) Fixed      | M10 x 1     | Screw x 2<br>Insulated Return | N       | N/C    |
| 230213002001 | 7.5 Bar (64) Fixed      | 1/8"-27NPTF | Screw x 2<br>Insulated Return | N       | N/C    |
| 230.041      | 0.7 Bar (10) Fixed      | 1/8"-27NPTF | Screw x 1<br>Earth Return     | M       | N/C    |
| 230.043      | 0.7 Bar (10) Fixed      | 1/8"-27NPTF | Screw x 1<br>Earth Return     | M       | N/O    |
| 230.701      | 1.05 Bar (15) Fixed     | 1/8"-27NPTF | Screw x 2<br>Insulated Return | N       | N/C    |
| 230.050      | 0.5 Bar (7) Fixed       | 1/8"-27NPTF | Screw x 2<br>Insulated Return | N       | N/O    |
| 230.990      | 7 - 25 Psi Adjustable   | 1/8"-27NPTF | Screw x 2<br>Insulated Return | O       | N/C    |
| 230.993      | 15 - 150 Psi Adjustable | 1/8"-27NPTF | Screw x 2<br>Insulated Return | O       | N/C    |

## OIL PRESSURE SENDER SPECIFICATIONS

Oil Pressure Sender Specifications

| Part No. | Range          | Ohms   | Thread         | Body Type |
|----------|----------------|--------|----------------|-----------|
| 360.001  | 500 Kpa        | 10-180 | 1/8" - 27 NPTF | F         |
| 360.002  | 1000 Kpa       | 10-199 | 1/8" - 27 NPTF | F         |
| 360.003  | 700 Kpa        | 73-10  | 1/4" - 18 NPTF | F         |
| 360.004  | 500 Kpa        | 10-180 | 1/4" - 18 NPTF | G         |
| 360.005  | 500 Kpa        | 73-13  | 1/4" - 18 NPTF | G         |
| 360.006  | 600 Kpa        | 292-39 | 1/8" - 28 BSPT | F         |
| 360.020* | 600 Kpa        | 10-180 | 1/8" - 27 NPTF |           |
| 360.008  | 800 Kpa        | 0-90   | 1/8" - 27 NPTF | K         |
| 360.010  | 500 Kpa        | 0-88   | 1/8" - 27 NPTF | K         |
| 360.013  | 700 Kpa        | 20-183 | 1/4" x 18 NPTF | G         |
| 360.014  | 600 Kpa        | 10-184 | 1/8" - 27 NPTF | F         |
| 360.016  | 500 Kpa        | 10-180 | 1/8" - 28 BSPT | G         |
| 360.017  | 600 Kpa/ 7 psi | 10-180 | 1/8" - 28 BSPT | J         |
| 360.018  | 500 Kpa        | 10-183 | 1/8" - 27 NPTF | G         |
| 360.019  | 1000 Kpa       | 10-199 | 1/8" - 27 NPTF | K         |
| 360.020  | 600 Kpa        | 10-184 | 1/8"-27 NPTF   | K         |
| 360.031  | 500 Kpa/ 7 psi | 10-180 | 1/8"-27 NPTF   | B         |
| 360.041  | 1000 Kpa       | 110-7  | 1/8" - 28 BSPT | F         |
| 360.042  | 800 Kpa        | 10-180 | 1/8" - 28 BSPT | D         |
| 360.008* | 800 Kpa        | 0-90   | 1/8" - 27 NPTF |           |
| 360.086  | 100 psi        | 10-180 | 1/8" - 28 BSPT | K         |
| 360.406  | 400 psi        | 10-180 | 1/8" - 28 BSPT | K         |

For connector types, refer page 80.

**Note:** Kpa/psi = Switch Point  
Use 360.020 sender with 320.057 adaptor  
Use 360.008 sender with 320.050 adaptor

## OIL LINE KITS and related components

Suitable for mechanical pressure gauges.

Oil Line Kits & Accessories

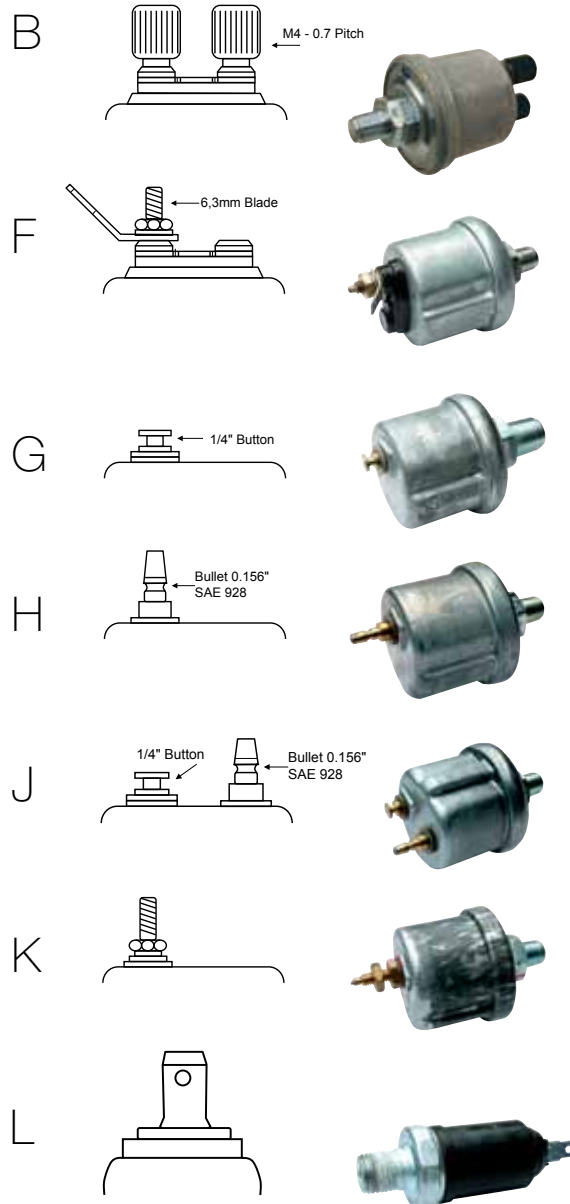
| Part No. | Description                     | Size        |
|----------|---------------------------------|-------------|
| 230.008  | Nut and cone for 3/16" PVC      | Tubing      |
| 230.025  | Adaptor, nut and cone for gauge | 1/8"-27NPTF |
| 230.024  | Adaptor for oil line kit        | 1/8"-27NPTF |
| 230.012  | Oil line kit 1.8m               |             |
| 230.013  | Oil line kit 5.0m               |             |

**Note:** An oil line kit consists of a length (1.6 or 5.m) of 3/6" PVC tubing and the engine side fitting 230.024

Accessories

| Part No. | Description            | Note                    |
|----------|------------------------|-------------------------|
| 180.059  | Thermowell 1/8"-27NPTF | Suits adaptors #320.xxx |

**Note:** Refer page 80 for adaptors.



Oil line kit 230.012



Thermowell 180.059

## PRESSURE SWITCHES for a range of applications

The VDO Pressure Switches are robust, compact and designed to operate in harsh environments at various pressures and in extended duty applications.

Because of its special internal design, this switch can tolerate high pressure spikes inherent in many pressure systems. The switch is factory calibrated but in the case that adjustment is needed in the field, the switch offers an adjustment screw to facilitate any fine tuning required within the given set point range. The standard polyimide diaphragm (Kapton), makes it compatible with many gases, oils, jet fuels and similar hydrocarbons media. Standard screw type electrical terminals are available. Also included with the switch are screw to blade converters.

The overall ruggedness of the VDO Pressure Switch makes it a popular choice for many OEM and aftermarket applications.

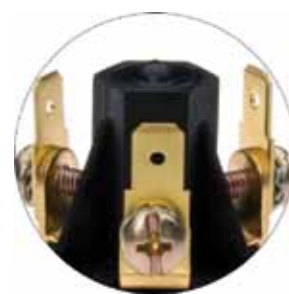
| Pressure Switches - Fuel / Oil / Air |                                      |        |                 |             |                       |
|--------------------------------------|--------------------------------------|--------|-----------------|-------------|-----------------------|
| Part No.                             | Description<br>Pressure Switch Brass | Preset | Range           | Thread Type | Terminals             |
| 330.101                              | Press Sw 2 Term N/O 0.5 - 1psi       | 1psi   | 0.5 - 1psi N/O  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.101C                             | Press Sw 2 Term N/C 0.5 - 1psi       | 1psi   | 0.5 - 1psi N/C  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.102                              | Press Sw 2 Term N/O 1.1 - 3psi       | 2psi   | 1.1 - 3psi N/O  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.102C                             | Press Sw 2 Term N/C 1.1 - 3psi       | 2psi   | 1.1 - 3psi N/C  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.104                              | Press Sw 2 Term N/O 3.1 - 7psi       | 4psi   | 3.1 - 7psi N/O  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.104C                             | Press Sw 2 Term N/C 3.1 - 7psi       | 4psi   | 3.1 - 7psi N/C  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.110                              | Press Sw 2 Term N/O 8 - 13psi        | 10psi  | 8 - 13psi N/O   | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.110C                             | Press Sw 2 Term N/C 8 - 13psi        | 10psi  | 8 - 13psi N/C   | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.1150                             | Press Sw 2 Term N/O 14 - 24psi       | 15psi  | 14 - 24psi N/O  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.115C                             | Press Sw 2 Term N/C 14 - 24psi       | 15psi  | 14 - 24psi N/C  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.135                              | Press Sw 2 Term N/O 25 - 50psi       | 35psi  | 25 - 50psi N/O  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.135C                             | Press Sw 2 Term N/C 25 - 50psi       | 35psi  | 25 - 50psi N/C  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.160                              | Press Sw 2 Term N/O 51 - 90psi       | 60psi  | 51 - 90psi N/O  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.160C                             | Press Sw 2 Term N/C 51 - 90psi       | 60psi  | 51 - 90psi N/C  | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.110                              | Press Sw 2 Term N/O 91 - 150psi      | 100psi | 91 - 150psi N/O | 1/8"-27NPFT | 2 x Screw + 2 x Spade |
| 330.1100C                            | Press Sw 2 Term N/C 91 - 150psi      | 100psi | 91 - 150psi N/C | 1/8"-27NPFT | 2 x Screw + 2 x Spade |



330.102C



430.104



| Pressure Switches - universal - Fuel / Oil / Air |                                      |        |             |             |                       |
|--------------------------------------------------|--------------------------------------|--------|-------------|-------------|-----------------------|
| Part No.                                         | Description<br>Pressure Switch Brass | Preset | Range       | Thread Type | Terminals             |
| 430.101                                          | Press Sw 3 Term NC/NO 0.5 - 1psi     | 1psi   | 0.5 - 1psi  | 1/8"-27NPFT | 3 x Screw + 3 x Spade |
| 430.102                                          | Press Sw 3 Term NC/NO 1.1 - 3psi     | 2psi   | 1.1 - 3psi  | 1/8"-27NPFT | 3 x Screw + 3 x Spade |
| 430.104                                          | Press Sw 3 Term NC/NO 3.1 - 7psi     | 4psi   | 3.1 - 7psi  | 1/8"-27NPFT | 3 x Screw + 3 x Spade |
| 430.110                                          | Press Sw 3 Term NC/NO 8 - 13psi      | 10psi  | 8 - 13psi   | 1/8"-27NPFT | 3 x Screw + 3 x Spade |
| 430.115                                          | Press Sw 3 Term NC/NO 14-24 psi      | 15psi  | 14 - 24psi  | 1/8"-27NPFT | 3 x Screw + 3 x Spade |
| 430.135                                          | Press Sw 3 Term NC/NO 25-50 psi      | 35psi  | 25 - 50psi  | 1/8"-27NPFT | 3 x Screw + 3 x Spade |
| 430.160                                          | Press Sw 3 Term NC/NO 51-90 psi      | 60psi  | 51 - 90psi  | 1/8"-27NPFT | 3 x Screw + 3 x Spade |
| 430.110                                          | Press Sw 3 Term NC/NO 91-150 psi     | 100psi | 91 - 150psi | 1/8"-27NPFT | 3 x Screw + 3 x Spade |

## TEMPERATURE SWITCHES

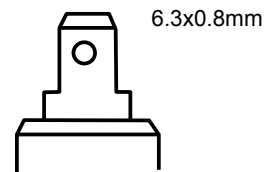
| Temp Switch - Normally Open Contact - Single Terminal |              |               |      | 3 Watt      |          |       |
|-------------------------------------------------------|--------------|---------------|------|-------------|----------|-------|
| Part No.                                              | Switch Point | Thread Size   | Term | Body Length | Max Temp | Diam. |
| 232011017148D                                         | 35±3°C       | M14x1.5       | P    | 29 mm       | 120      | 9.7   |
| 232011017087D                                         | 40±3°C       | M14x1.5       | T    | 29 mm       | 120      | 10    |
| 232011017038D                                         | 55±3°C       | M14x1.5       | P    | 29 mm       | 120      | 10    |
| 232011017017D                                         | 85±3°C       | M14x1.5       | P    | 29 mm       | 120      | 10    |
| 230.046                                               | 90±3°C       | M10x1.5       | Q    | 38.5 mm     | 120      | 6.9   |
| 232011017009D                                         | 90±3°C       | M14x1.5       | P    | 29 mm       | 120      | 10    |
| 232011017016D                                         | 95±3°C       | M14x1.5       | P    | 29 mm       | 150      | 10    |
| 230.051                                               | 95±3°C       | 1/2-14 NPTF   | P    | 29 mm       | 120      | 10    |
| 230.045                                               | 96±3°C       | 1/8-27 NPTF   | Q    | 33 mm       | 120      | 10    |
| 232011017080D                                         | 97±3°C       | M14x1.5       | P    | 29 mm       | 120      | 10    |
| 232011017099D                                         | 98±3°C       | 5/8-18 UNF-2A | P    | 29 mm       | 120      | 10    |
| 232011017034D                                         | 100±3°C      | M14x1.5       | P    | 29 mm       | 160      | 10    |
| 232011017131D                                         | 103±3°C      | 1/2-14 NPTF   | P    | 29 mm       | 160      | 10    |
| 232.011/017/041                                       | 105±3°C      | 1/2-14 NPTF   | P    | 29 mm       | 120      | 10    |
| 232011017010D                                         | 110±3°C      | M14x1.5       | P    | 29 mm       | 160      | 10    |
| 232011017032D                                         | 120±3°C      | M14x1.5       | P    | 29 mm       | 130      | 10    |
| 232011017103D                                         | 130±3°C      | M14x1.5       | P    | 29 mm       | 150      | 10    |
| 232011017004D                                         | 140±10°C     | M14x1.5       | P    | 29 mm       | 150      | 10    |
| 232011005027D                                         | 150±5°C      | M10x1.5       | R    | 38.5 mm     | 200      | 6.9   |
| 232011005017D                                         | 150±5°C      | M10x1.5       | Q    | 38.5 mm     | 200      | 6.9   |
| 232011005004D*                                        | 170±5°C      | M10x1.5       | Q    | 38.5 mm     | 220      | 6.9   |
| 232011005030D                                         | 185±5°C      | M10x1.5       | Q    | 38.5 mm     | 230      | 6.9   |
| 232011019003D                                         | 195±10°C     | M10x1.5       | Q    | 38.5 mm     | 250      | 6.9   |

**Note:** 232011005004D = 230.048

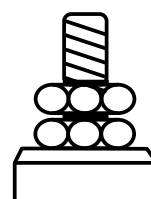
| Temp Switch - Normally Open Contact - Dual Terminal |              |             |      | 100 Watt    |          |       |
|-----------------------------------------------------|--------------|-------------|------|-------------|----------|-------|
| Part No.                                            | Switch Point | Thread Size | Term | Body Length | Max Temp | Diam. |
| X10232001001                                        | 64±3°C       | M14x1.5     | Y    | 35.5 mm     | 110      | 8     |
| X10232001002                                        | 82±3°C       | M18x1.5     | Y    | 35.5 mm     | 110      | 8     |
| X10232001003                                        | 86±3°C       | M18x1.5     | Y    | 35.5 mm     | 110      | 8     |
| X10232001004                                        | 92±3°C       | M18x1.5     | Y    | 35.5 mm     | 110      | 8     |
| X10232001005                                        | 96±3°C       | M18x1.5     | Y    | 35.5 mm     | 110      | 8     |
| X10232001006                                        | 96±3°C       | 1/2-14 NPTF | Y    | 43.5 mm     | 110      | 8     |
| X10232001007                                        | 96±3°C       | M14x1.5     | Y    | 35.5 mm     | 110      | 8     |
| X10232001008                                        | 96±3°C       | M22x1.5     | Z    | 35.5 mm     | 110      | 8     |
| X10232001009                                        | 100±3°C      | M18x1.5     | Y    | 35.5 mm     | 110      | 8     |
| 230.093                                             | 105±3°C      | 1/8-27NPTF  | Y    | 33 mm       | 120      | 6.9   |
| X10232001010                                        | 105±3°C      | M18x1.5     | Y    | 35.5 mm     | 160      | 8     |

| Temp Control Switch |              |             |      | 100 Watt    |          |       |
|---------------------|--------------|-------------|------|-------------|----------|-------|
| Part No.            | Switch Point | Thread Size | Term | Body Length | Max Temp | Diam. |
| 230.079             | 95±3°C       | 1/2-14 BSP  | Y    | 13 mm       | 120      | 12    |
| 230.080             | 102±3°C      | 1/2-14 BSP  | Y    | 13 mm       | 120      | 12    |

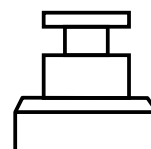
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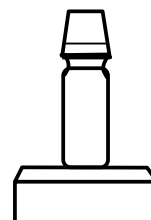
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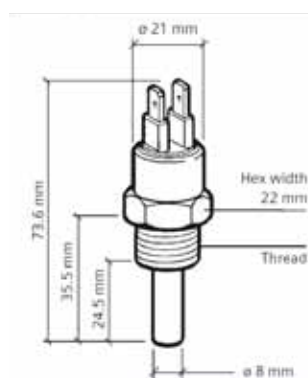
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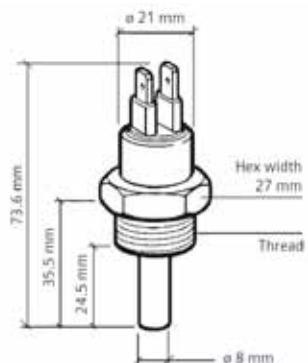
T



Y

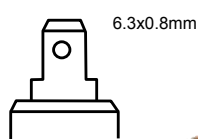


Z

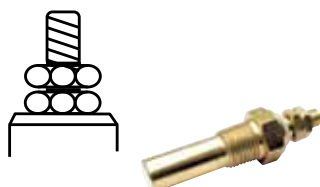


## TEMPERATURE SENDERS &amp; SWITCHES

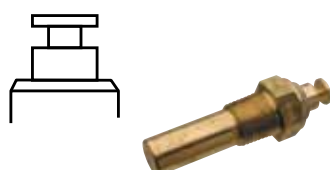
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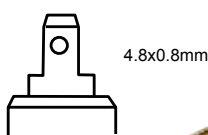
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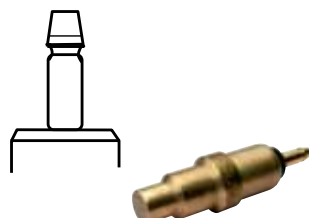
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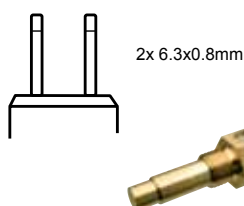
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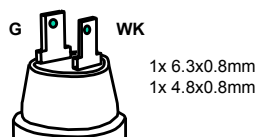
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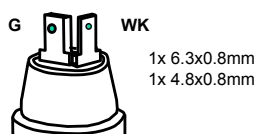
U



V



X



**Note:** Images shown are an example of terminals shape only.

| Temp Sender    |              |               |      | 40 - 120 Deg. C |                 |
|----------------|--------------|---------------|------|-----------------|-----------------|
| Part No.       | Switch Point | Thread Size   | Term | Body Length     | °C > Ohms       |
| 323801001006K  | -            | M14x1.5       | P    | 29mm            | 90 > 51.2 ± 5.3 |
| 323801001040N  | -            | M16x1.5       | P    | 29mm            | 90 > 51.2 ± 5.3 |
| 323801001022K  | -            | M18x1.5       | P    | 29mm            | 90 > 51.2 ± 5.3 |
| 323801001010K* | -            | 1/2-14 NPTF   | P    | 29mm            | 90 > 51.2 ± 5.3 |
| 323801001009N  | -            | 1/4-18 NPTF   | P    | 29mm            | 90 > 51.2 ± 5.3 |
| 320.011        | -            | 1/8-27 NFTP   | P    | 22mm            | 90 > 51.2 ± 5.3 |
| 323801001007N  | -            | 3/8-18 NPTF   | P    | 29mm            | 90 > 51.2 ± 5.3 |
| 323801001008N  | -            | 5/8-18 UNF-3A | P    | 29mm            | 90 > 51.2 ± 5.3 |
| 320.004        | -            | M16x1.5       | R    | 29mm            | 90 > 51.2 ± 5.3 |
| 320.002        | -            | 1/8-27 NTPF   | R    | 29mm            | 90 > 51.2 ± 5.3 |
| 320.093        | -            | 1/8-27 NTPF   | Q    | 29mm            | 90 > 51.2 ± 5.3 |
| 323805001001K  | -            | M14x1.5       | U    | 29mm            | 90 > 51.2 ± 5.3 |
| 323805001015N  | -            | M18x1.5       | U    | 29mm            | 90 > 51.2 ± 5.3 |
| 323805001004K  | -            | 1/2-14 NPTF   | U    | 29mm            | 90 > 51.2 ± 5.3 |
| 323805001007N  | -            | 1/4-18 NPTF   | U    | 29mm            | 90 > 51.2 ± 5.3 |
| 323805001005N  | -            | 3/8-18 NPTF   | U    | 29mm            | 90 > 51.2 ± 5.3 |
| 323805001002C  | -            | 5/8-18 UNF-3A | U    | 29mm            | 90 > 51.2 ± 5.3 |
| 325801002002D  | -            | M18x1.5       | P    | 29mm            | 90 > 36.5 ± 2.7 |
| 325805003001C  | -            | 1/4-18 NPTF   | U    | 29mm            | 90 > 36.5 ± 2.7 |
| 325805003002C  | -            | 5/8-18 UNF-2A | U    | 29mm            | 90 > 36.5 ± 2.7 |

**Note:** 323801001010K = 320.022

| Temp Sender   |              |             |      | 50 - 150 Deg. C |                  |
|---------------|--------------|-------------|------|-----------------|------------------|
| Part No.      | Switch Point | Thread Size | Term | Body Length     | °C > Ohms        |
| 323801010001D | -            | M10x1.5     | U    | 29mm            | 120 > 36.5 ± 2.7 |
| 323805003001N | -            | M14x1.5     | U    | 29mm            | 90 > 36.5 ± 2.7  |
| 323805003002N | -            | 1/4-18 NPTF | U    | 29mm            | 90 > 36.5 ± 2.7  |

| Temp Sender & Switch |              |             |      | 40 - 120 Deg. C |                 |
|----------------------|--------------|-------------|------|-----------------|-----------------|
| Part No.             | Switch Point | Thread Size | Term | Body Length     | °C > Ohms       |
| 323803001004D        | 90±3°C       | M14x1.5     | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803001006D        | 96±3°C       | M14x1.5     | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803001008D        | 110±3°C      | M14x1.5     | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803001011D        | 95±3°C       | 5/8-18 NF-3 | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803001002D        | 98±3°C       | 5/8-18 NF-3 | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803001012D        | 100±3°C      | 5/8-18 NF-3 | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803001019D        | 95±3°C       | 1/2-14 NPTF | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803001013D        | 106±3°C      | M14x1.5     | V    | 40mm            | 90 > 51.2 ± 5.3 |
| 323803004002D        | 105±3°C      | M14x1.5     | X    | 40mm            | 90 > 51.2 ± 5.3 |

| Temp Sender & Switch - Dual Station (2 Gauges) |              |             |      | 40 - 120 Deg. C |                  |
|------------------------------------------------|--------------|-------------|------|-----------------|------------------|
| Part No.                                       | Switch Point | Thread Size | Term | Body Length     | °C > Ohms        |
| 325805003001C                                  | 130±3°C      | 1/4-18NPTF  | R    | 40mm            | 90 > 25.6 ± 2.65 |

| Temp Sender & Switch |              |             |      | 50 - 150 Deg. C |                 |
|----------------------|--------------|-------------|------|-----------------|-----------------|
| Part No.             | Switch Point | Thread Size | Term | Body Length     | °C > Ohms       |
| 323805002007D        | 130±3°C      | 1/2-14NPTF  | X    | 24mm            | 90 > 36.5 ± 5.7 |



## TEMPERATURE SENDER SPECIFICATION

| Temp Sender   |          |                   |                  |              |             |           |          |
|---------------|----------|-------------------|------------------|--------------|-------------|-----------|----------|
| Part No.      | Range    | Ohms ( $\Omega$ ) | $\Omega$ @ 100°C | Thread       | Body Length | Insulator | Terminal |
| 320.002       | 40-120°C | 287-23            | 38.6             | 1/8"-27 NPTF | 29.0mm      | white     | button   |
| 320.003       | 40-120°C | 73-10             | 17.5             | 1/8"-27 NPTF | 29.0mm      | blue      | button   |
| 320.004       | 40-120°C | 287-23            | 38.6             | M16x1.5      | 29.0mm      | white     | button   |
| 320.006       | 60-200°C | 550-14            | 148.8            | 1/8"-27 NPTF | 29.0mm      | red       | button   |
| 320.007       | 50-150°C | 323-18            | 62.2             | M14x1.5      | 29.0mm      | white     | spade    |
| 320.009       | 40-120°C | 282-40            | 77.4             | 5/8"-18 UNF  | 29.0mm      | white     | spade    |
| 320.010       | 50-150°C | 323-18            | 62.2             | M12x1.5      | 10.5mm      | -         | button   |
| 320.011       | 40-120°C | 287-23            | 38.6             | 1/8"-27 NPTF | 22.0mm      | yellow    | thread   |
| 320.012       | 40-120°C | 282-40            | 77.4             | M16x1.5      | 18.0mm      | black     | spade    |
| 320.016       | 50-150°C | 323-18            | 62.2             | 1/2" UNF     | 29.0mm      | white     | spade    |
| 320.020       | 60-200°C | 550-14            | 148.8            | 1/8"-27 NPTF | 10.5mm      | black     | button   |
| 320.021       | 50-150°C | 323-18            | 62.2             | 1/8"-27 NPTF | 29.0mm      | yellow    | button   |
| 320.022       | 40-120°C | 287-23            | 38.6             | 1/2"-14 NPTF | 29.0mm      | white     | spade    |
| 320.023       | 50-150°C | 323-18            | 62.2             | 3/8"16 UNF   | 29.0mm      | yellow    | spade    |
| 320.024       | 40-120°C | 282-40            | 77.4             | M12x1.25     | 23.0mm      | black     | spade    |
| 320.026       | 40-120°C | 323-18            | 77.4             | M16x1.5      | 23.0mm      | black     | spade    |
| 320.028       | 50-150°C | 323-18            | 62.2             | 1/8"-27 NPTF | 10.5mm      | yellow    | button   |
| 320.030       | -25-40°C | 5780-371          | 0°C = 4082       | M10x1.0      | 50.0mm      | black     | thread   |
| 323803001002D | -25-40°C | 5780-371          | 0°C = 1893       | M10x1.0      | 22.0mm      | black     | thread   |
| 320.032       | 40-120°C | 282-40            | 77.4             | 1/8"-27 NPTF | 29.0mm      | black     | button   |
| 320.033       | 40-120°C | 282-40            | 77.4             | 1/8"-27 NPTF | 29.0mm      | white     | button   |
| 323801001006K | 40-120°C | 287-23            | 38.6             | M14x1.5      | 29.0mm      | white     | spade    |
| 320.036       | 40-120°C | 287-23            | 38.6             | M16x1.5      | 29.0mm      | black     | button   |
| 320.038       | 40-120°C | 313-22            | 41.2             | M16x1.5      | 27.0mm      | black     | spade    |
| 320.039       | 40-120°C | 145-17            | 31.5             | use old nut  | 17.0mm      | black     | bullet   |
| 320.040       | 40-120°C | 175-20            | 31.5             | M16x1.5      | 22.0mm      | black     | bullet   |
| 320.041       | 40-120°C | 495-38            | 78.8             | M16x1.5      | 22.0mm      | black     | bullet   |
| 320.042       | 40-120°C | 395-40            | 83.2             | M8x0.75      | 22.0mm      | black     | bullet   |
| 320.043       | 40-120°C | 184-17            | 32.0             | M16x1.5      | 22.0mm      | black     | spade    |
| 320.044       | 40-120°C | 313-22            | 41.2             | M16x1.5      | 27.0mm      | black     | spade    |
| 320.045       | 40-120°C | 380-30            | 83.2             | 5/8"-18 UNF  | 27.0mm      | red       | spade    |
| 320.046       | 40-120°C | 380-30            | 54.0             | 5/8"-18 UNF  | 29.0mm      | red       | spade    |
| 320.047       | 40-120°C | 353-24            | 51.9             | M16x1.5      | 24.0mm      | black     | bullet   |
| 320.048       | 40-120°C | 432-30            | -                | 5/8"-18 UNF  | -           | black     | spade    |
| 320.049       | 40-120°C | 375-29            | -                | 1/2"-14 NPTF | -           | black     | spade    |
| 320.060       | 40-120°C | 341-24            | 45.0             | 1/8"-27 NPTF | 20.0mm      | black     | bullet   |
| 320.061       | 40-120°C | 157-24            | -                | 5/8"-18 UNF  | -           | white     | spade    |
| 320.062       | 40-120°C | 208-18            | 31.5             | M16x1.5      | 27.0mm      | black     | spade    |
| 320.065       | 40-120°C | 282-40            | 75.0             | 1/8"-27 NPTF | 22.0mm      | yellow    | spade    |
| 320.067       | 40-120°C | 232-22            | 65.9             | M8x0.75      | 22.0mm      | black     | bullet   |
| 320.068       | 40-120°C | 175-20            | 32.4             | M16x1.5      | 22.0mm      | black     | bullet   |
| 320.092       | 50-150°C | 323-18            | 62.2             | 1/8"-27NPTF  | 29.0mm      | green     | thread   |
| 320.093       | 40-120°C | 287-23            | 62.2             | 1/8"-27NPTF  | 29.0mm      | black     | thread   |

**Note:** Not all the above temperature senders are suitable for the cockpit gauges.  
Some temp senders are used in OEM applications.



Sender 320.002



Sender 320.023



Sender 323803001002D



Sender 320.039

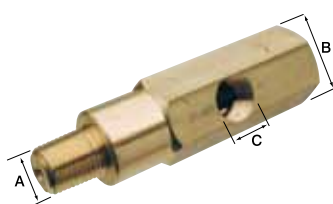


Sender 320.028



Sender 320.039





Neoprene Rubber Gasket 36373/9A

Welding Flange 22502641141

Flange Mounting Kit N05801432  
Suits 220.003 / 220.004 / 220.005  
and Tubular T / U Senders

## ADAPTORS, brass

Suitable for pressure & temperature senders & switches with 1/8"-27NPTF thread. Mechanical temperature gauges with 1/8"-27NPTF thermowell (180.059). Oil line kits (230.012 & 230.013) for mechanical pressure gauges.

### Adaptors Brass

| Part No. | Internal Thread | External Thread | Overall Length |
|----------|-----------------|-----------------|----------------|
| 320.050  | 1/8"-27NPTF     | 1/4"-18NPTF     | 20mm           |
| 320.051  | 1/8"-27NPTF     | 3/8"-18NPTF     | 20mm           |
| 320.052  | 1/8"-27NPTF     | 5/8"-18UNF      | 20mm           |
| 320.053  | 1/8"-27NPTF     | 1/2"-14NPTF     | 20mm           |
| 320.054  | 1/8"-27NPTF     | M14x1.5         | 20mm           |
| 320.055  | 1/8"-27NPTF     | M16x1.5         | 20mm           |
| 320.056  | 1/8"-27NPTF     | M18x1.5         | 20mm           |

### Adaptors Brass

| Part No. | Internal Thread | External Thread | Overall Length |
|----------|-----------------|-----------------|----------------|
| 320.058  | 5/8"-18UNF      | 1/2"-14NPTF     | 20mm           |
| 320.064  | 1/4"-18UNF      | 5/8"-18UNF      | 17mm           |

### Adaptors Brass

| Part No. | Internal Thread | External Thread         | Overall Length |
|----------|-----------------|-------------------------|----------------|
| 180.059  | Thermowell      | 1/8"-27NPTF             | 20mm           |
| 320.053  | Adaptor         | 1/2"-14NPTF to 1/8"-NPT |                |

### Adaptors Stainless Steel

| Part No. | Internal Thread | External Thread | Overall Length |
|----------|-----------------|-----------------|----------------|
| 320.074  | 1/8"-27NPTF     | 1/8"BSPT        |                |
| 320.075  | 1/4"-18NPTF     | 3/8"BSPT        |                |
| 320.076  | 1/8"-27NPT      | M12x1.25        |                |

## T-PIECE ADAPTORS, brass

Suits oil line kits and oil pressure sender units with 1/8"-27 NPTF male thread, while at the same time retaining the existing oil warning light switch.

### Adaptors Brass

| Part No. | Thread A    | Thread B    | Thread C    | Length |
|----------|-------------|-------------|-------------|--------|
| 230.031  | 1/8"-27NPTF | 1/8"-27NPTF | 1/8"-27NPTF | 66mm   |
| 230.032  | 1/4"-18NPTF | 1/4"-18NPTF | 1/8"-27NPTF | 66mm   |
| 230.033  | M10x1.0     | M10x1.0     | 1/8"-27NPTF | 66mm   |
| 230.035  | M14x1.5     | M14x1.5     | 1/8"-27NPTF | 66mm   |
| 230.036  | 1/8"-28BSPT | 1/8"-28BSPT | 1/8"-27NPTF | 66mm   |

## TANK UNIT SENDER ACCESSORIES

### Accessories

| Part No.     | Description                        | PCD  |
|--------------|------------------------------------|------|
| 36373        | Gasket-neoprene rubber             | 54mm |
| 2251016      | Gasket                             | 80mm |
| 22502641141  | Welding flange                     | 54mm |
| 115910011401 | Welding flange                     | 80mm |
| N05801432    | Flange mounting kit                | 54mm |
| 2250234      | Gasket-cork (dim. as per 36373/9A) | 54mm |
| CTA0200      | 5-6 hole flange kit                |      |

## FUEL LEVEL SENDERS

| Sender - Float Arm |            |                        |         |
|--------------------|------------|------------------------|---------|
| Part No.           | Range      | Depth                  | Voltage |
| 220.003            | 10-180 ohm | 150 - 535mm adjustable | 6 - 24V |
| 220.004            | 0-90 ohm   | 150 - 535mm adjustable | 6 - 24V |
| 220.005            | 240-33 ohm | 150 - 535mm adjustable | 6 - 24V |
| 220.734            | 10-180 ohm | 200mm fixed            | 6 - 24V |

| Float Arm Tank Unit - insulated return |            |             |         |
|----------------------------------------|------------|-------------|---------|
| Part No.                               | Range      | Depth       | Voltage |
| 220.735                                | 10-180 ohm | 150 - 600mm | 6 - 24V |



Adjustable float arm sender 220.003

## ARM TYPE FUEL SENDERS

| Arm Type Fuel Senders |                                     | Tank depth range 145 - 400mm |
|-----------------------|-------------------------------------|------------------------------|
| Part No.              | Range                               | Voltage                      |
| A2C59510165           | Sender with low fuel warning switch | 2.5 -180 ohms                |
| A2C59510171           | Arm Type Fuel Sender                | 2.5 -180 ohms                |
| A2C59510166           | Sender with low fuel warning switch | 240 - 33.5 ohms              |
| A2C59510172           | Arm Type Fuel Sender                | 240 - 33.5 ohms              |
| A2C59510167           | Sender with low                     | 2 - 90 ohms                  |
| A2C59510173           | Arm Type Fuel Sender                | 2 - 90 ohms                  |
| N05801432             | Tank Flange Kit incl. balton flange |                              |
| CTA0200               | Adaptor Kit 6 to 5 Holes            |                              |



Arm Type Fuel Sender

## REED SWITCH SENDERS

Reed switch senders are better choice than float arm sender.

They can operate in tanks for petrol or diesel, without baffles or walls.

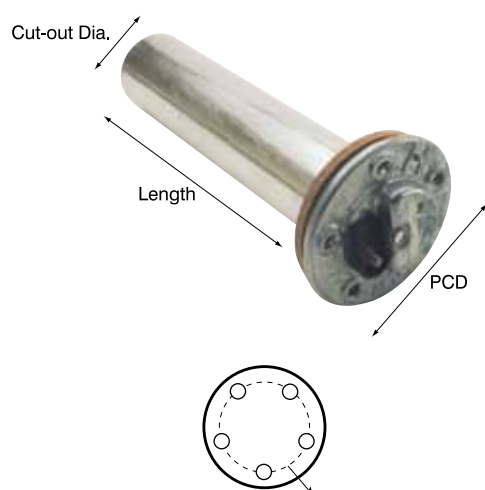
They have a long life in comparison to the variable resistors which are directly exposed to the fuel.

Reed switch senders can also be used in tanks containing water to measure their level. Just for 3- 180 ohms gauges.

| Reed Switch Senders |             | PCD 54 mm |
|---------------------|-------------|-----------|
| Part No.            | Range E - F | Voltage   |
| 220.150-180         | 3-180 Ohms  | 150 mm    |
| 220.180-180         | 3-180 Ohms  | 180 mm    |
| 220.230-180         | 3-180 Ohms  | 230 mm    |
| 220.250-180         | 3-180 Ohms  | 250 mm    |
| 220.260-180         | 3-180 Ohms  | 260 mm    |
| 220.270-180         | 3-180 Ohms  | 270 mm    |
| 220.300-180         | 3-180 Ohms  | 300 mm    |
| 220.320-180         | 3-180 Ohms  | 320 mm    |
| 220.330-180         | 3-180 Ohms  | 330 mm    |
| 220.350-180         | 3-180 Ohms  | 350 mm    |
| 220.600-180         | 3-180 Ohms  | 600 mm    |
| 220.660-180         | 3-180 Ohms  | 660 mm    |
| 220.900- 180        | 3-180 Ohms  | 900 mm    |



## TUBULAR TYPE SENDERS



Note: PCD = Pitch Circle Diameter



Sender- Tubular X10224014015

| Tubular Senders - Fuel |               | PCD 54 mm - Cut-out Dia 41mm |                     |
|------------------------|---------------|------------------------------|---------------------|
| Part No.               | Sender Length | Resistance at Full           | Resistance at Empty |
| 224011000015G          | 150mm         | 4.5                          | 69                  |
| 224011000016G          | 160mm         | 4.5                          | 74                  |
| 224011000017G          | 170mm         | 4.5                          | 79.5                |
| 224011000018G          | 180mm         | 3                            | 64                  |
| 224011000019G          | 190mm         | 3                            | 68                  |
| 224011000020G          | 200mm         | 3                            | 68                  |
| 224011000021G          | 210mm         | 3                            | 76                  |
| 224011000022G          | 220mm         | 3                            | 80                  |
| 224011000023G          | 230mm         | 3                            | 84                  |
| 224011000024G          | 240mm         | 3                            | 65.5                |
| 224011000025G          | 250mm         | 2.5                          | 72                  |
| 224011000026G          | 260mm         | 2.5                          | 72                  |
| 224011000027G          | 270mm         | 2.5                          | 74.5                |
| 224011000028G          | 280mm         | 2.5                          | 75.5                |
| 224011000029G          | 290mm         | 2.5                          | 78                  |
| 224011000030G          | 300mm         | 2.5                          | 82.8                |
| 224011000031G          | 310mm         | 2.5                          | 84                  |
| 224011000032G          | 320mm         | 2.5                          | 69.5                |
| 224011000033G          | 330mm         | 2.5                          | 72                  |
| 224011000034G          | 340mm         | 2.5                          | 74                  |
| 224011000035G          | 350mm         | 2.5                          | 79.6                |
| 224011000036G          | 360mm         | 2.5                          | 69                  |
| 224011000037G          | 370mm         | 2.5                          | 71                  |
| 224011000038G          | 380mm         | 2.5                          | 73                  |
| 224011000039G          | 390mm         | 2.5                          | 75                  |
| 224011000040G          | 400mm         | 2.5                          | 74.9                |
| 224011000045G          | 450mm         | 2.5                          | 84.3                |
| 224011000050G          | 500mm         | 2.5                          | 75.4                |
| 224011000055G          | 550mm         | 2.5                          | 77.6                |
| 224011000060G          | 600mm         | 2.5                          | 85.3                |
| 224011000065G          | 650mm         | 2.5                          | 82.2                |
| 224011000070G          | 700mm         | 2                            | 81.6                |
| 224011000075G          | 750mm         | 2                            | 82                  |
| 224011000080G          | 800mm         | 2                            | 68.5                |

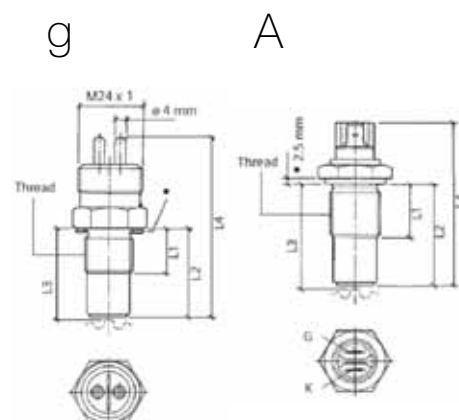
| Tubular Senders - Fuel |               | PCD 80 mm - Cut-out Dia 63 mm |  |
|------------------------|---------------|-------------------------------|--|
| Part No.               | Sender Length |                               |  |
| X10224009039           | 596 mm        |                               |  |
| X10224021002           | 596 mm        |                               |  |
| X10224014022           | 616 mm        |                               |  |
| X10224009048           | 641 mm        |                               |  |
| X10224014002           | 686 mm        |                               |  |
| X10224009029           | 741 mm        |                               |  |
| X10224009019           | 781 mm        |                               |  |
| X10224021004           | 803 mm        |                               |  |
| X10224009026           | 831 mm        |                               |  |
| X10224021006           | 846 mm        |                               |  |
| X10224014003           | 881 mm        |                               |  |
| X10224014011           | 916 mm        |                               |  |
| X10224009057           | 946 mm        |                               |  |
| X10224014015           | 996 mm        |                               |  |
| X10224009022           | 1001 mm       |                               |  |
| X10224021005           | 1045 mm       |                               |  |
| X10224009040           | 1086 mm       |                               |  |
| X10224014044           | 1250 mm       |                               |  |
| X10224009072           | 1387 mm       |                               |  |

## RPM SENDERS

## Inductive Type - 2-wire set-up

| Part No.      | Thread Size   | L1 mm | L2 mm | L3 mm         | L4 mm | Picture |
|---------------|---------------|-------|-------|---------------|-------|---------|
| 340.007       | M18x1.5       |       |       | 25            |       | g       |
| 340.008       | M18x1.5       |       |       | 44            |       | g       |
| 340.009       | M18x1.5       |       |       | 84            |       | g       |
| 340804007013C | M18x1.5       | 27    | 34    | 35.1 ± 0.1    | 62    | g       |
| 340804007004C | 3/4-16 UNF-2A | 27.5  | 28.5  | 29.6 ± 0.1    | 70    | g       |
| 340804007011C | M18x1.5       | 33    | 34    | 35.1 ± 0.1    | 70    | g       |
| 340804007019C | M18x1.5       | 18.2  | 70.7  | 71.8 ± 0.1    | 79.7  | g       |
| 340804005015C | M18x1.5       | 18    | 99.1  | 101.15-100.55 | 135.6 | A       |

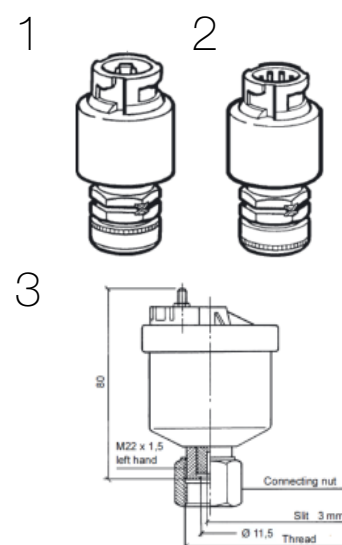
**Note:** Use twisted pair or shielded cable between inductive sensor and device requiring signal to eliminate possible electrical interference.



## Proximity Switch &amp; Hall Effect - Square wave output - 3-wire Bayonet closed style

| Part No.      | Voltage | Thread                          | Pic | Type | Imp/Rev | Plug Kit |
|---------------|---------|---------------------------------|-----|------|---------|----------|
| K46020        | 12/24V  | M22x1.5<br>L/H male             | 1   | H/E  | 8       | K72221   |
| K46021        | 12/24V  | 7/8"-18UNF                      | 1   | H/E  | 8       | K72221   |
| K70450        | 12V     | M22x1.5<br>L/H female           | 2   | H/E  | 8       | K72222   |
| K70451        | 12V     | 7/8"-18UNF<br>female            | 2   | H/E  | 8       | K72222   |
| 340808001004G |         | 7/8" - 18<br>NS-2A<br>left hand | 3   | Gen  | 4       |          |

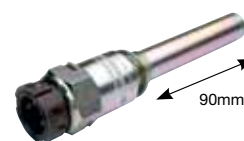
**Note:** Part numbers supplied without Plug Kit  
Nuts to suit are optional  
#230.070 7/8"-18UNF - M22x1.5LH  
#230.071 M22x1.5LH - 3/4-26UNF



## SPEEDOMETER SENDERS

## Proximity Senders - 4 Blade Bayonet Type

| Part No.        | Imp/Rpm                  | Connection           | Length | Voltage |
|-----------------|--------------------------|----------------------|--------|---------|
| K70452          | 2 x 8 (180 out of Phase) | M18x1.5              | 90mm   | 12V     |
| K70453          | 2 x 8 (180 out of Phase) | M18x1.5 (Volvo Type) | 25mm   | 12V     |
| 340 216 001 024 | 2 x 8 (180 out of Phase) | M18x1.5 (Volvo Type) | 63mm   | 12V     |
| 21590004301     | 2 x 8 (180 out of Phase) | M18x1.5              | 25mm   | 12V     |



Proximity Sender K70452 (Speed &amp; RPM)

## Speedometer Senders

| Part No. | Description                                      | Drive Key    | Pulses/Rev | Nut Size                               |
|----------|--------------------------------------------------|--------------|------------|----------------------------------------|
| 340.808  | In line suits various vehicles with M22 nut size | 3x8mm blade  | 8          | M22 x 1.5mm Inc. 5mm dia lug drive key |
| 340.011  | In line suits G.M. U.S.A.                        | 2.7mm square | 16         | 7/8"-18UNF                             |
| 340.013  | Snap fit suits Ford U.S.A. (C4 transmission)     |              | 16         | Snap fit                               |
| 340.22M  | In line fits most Japanese                       | 2.7mm square | 2          | M22 x 1.5mm                            |
| 412.009  | Universal cut cable                              | 2.7mm square | 6          |                                        |



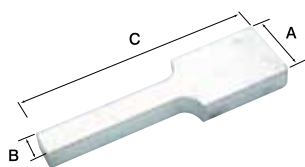
Speed Sensors 340.013 and 340.808



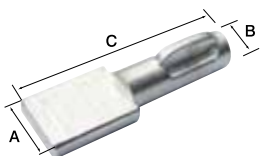
Speed sensor 412.009

## DRIVE KEYS

Suitable for tachometer and speed generators, Hall-effect senders etc.



Drive key 230.061



Drive key 230.064



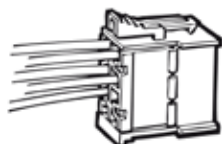
Double sided nut 230.070



Connector K72221



Connector K72222



Connector K70735



Terminals K70524  
(One terminal per part number)

| Drive Keys |             |                      |             |
|------------|-------------|----------------------|-------------|
| Part No.   | Dimension A | Dimension B<br>Diam. | Dimension C |
| K72103     | 2.6 x 8mm   | 2.6mm                | 26mm        |
| 230.061    | 3.0 x 8mm   | 3.0mm                | 28mm        |
| 230.076    | 2.6 x 8mm   | 3.8mm                | 27mm        |
| 230.062    | 2.6 x 8mm   | 3.8mm                | 26mm        |
| 230.063    | 2.6 x 8mm   | 4.7mm                | 26mm        |
| 230.064    | 2.6 x 8mm   | 5.0mm                | 26mm        |
| 230.065    | 2.6 x 8mm   | 5.1mm                | 30mm        |
| K72113     | 2.6 x 8mm   | 5.2mm                | 26mm        |

## DOUBLE SIDED NUTS

Suitable for ratio boxes, angle drivers, Hall-effect sender units etc. with M22x1.5mm LH male connections.

| Double Sided Nuts |                             |
|-------------------|-----------------------------|
| Part No.          | Description                 |
| 230.070           | M22x1.5mmLH to 7/8"-18UNF   |
| 230.071           | M22x1.5mmLH to 3/4" x 26UNF |

## SPEED AND RPM SENDER CONNECTORS

| Connectors |                       |
|------------|-----------------------|
| Part No.   | Description           |
| K72221     | 3 Spade Pin connector |
| K72222     | 4 Spade Pin connector |

## TACHOGRAPH CONNECTORS

| Connectors |                                  |
|------------|----------------------------------|
| Part No.   | Description                      |
| K70735     | White power connector            |
| K70710     | Yellow speed connector           |
| K70711     | Red RPM connector                |
| K70524     | Terminal to suit 1318 connectors |

## STARTER SWITCHES

### Push Button Switch

| Part No. | Description     | Specification | Size      |
|----------|-----------------|---------------|-----------|
| 170.713  | Push button N/O | 10 amp        | 15mm hole |
| 170.714  | Push button N/C | 10 amp        | 15mm hole |

**Note:** N/O = Normally Open Contact.  
N/C = Normally Closed Contact.



Push button switch 170.713

### Key Switches

| Part No. | Description                                | Specification    |
|----------|--------------------------------------------|------------------|
| 170.706  | Brass key switch                           | Off - On - Start |
| 850.009  | Plastic marine key switch with rubber boot |                  |



Brass switch 170.706



# ELECTRIC ADJUSTABLE SWITCH BOX



Switch Box 410.060



Switch Box 410.061



Switch Box 660.990



Switch Box 411.101

Designed to be used in conjunction with VDO electric temp or pressure gauges with senders, or can be used using VDO senders only (extra resistor 1K, 1W required).  
Ideal for switching warning lams, buzzers, external relays, thermofan and other devices.

Features 5 amp N/O or N/C relay contact output.

| Adjustable Electronic Switch Boxes |                                           | 12/24V             |
|------------------------------------|-------------------------------------------|--------------------|
| Part No.                           | Description                               | Specification      |
| 410.060                            | Suitable for 1 warning function           | 2000-10 ohms input |
|                                    |                                           | 5 amp relay output |
|                                    |                                           | 1 input - 1 output |
| 410.061                            | Suitable for 3 separate warning functions | 2000-10 ohms input |
|                                    |                                           | 5 amp relay output |
|                                    |                                           | 3 input - 3 output |

# MULTI-FREQUENCY SWITCH BOX

The VDO RPM and Speed Switch has been designed to work with all standard ignition systems, and will provide a negative output once a predetermined RPM has been reached. In standard format the signal will turn off once the RPM falls below the pre-set point. Dip Switches are provided to pprogram the level of hysteresis, or alternatively latch the relay on. Applications include driving a warning light or buzzer.

| RPM Switch |                   |                                                                                                            |
|------------|-------------------|------------------------------------------------------------------------------------------------------------|
| Part No.   | Description       | Specification                                                                                              |
| 660.990    | 12V RPM switch    | 3 amp relay output<br>RPM range 0-12000 rpm<br>4/6/8cyl                                                    |
| 411.101    | 12/24V RPM switch | Switch range<br>2Hz - 9,990 Hz<br>5 amp relay contact<br>output, 2 channels.<br>Sine & Square wave inputs. |

## ELECTRONIC RATIO BOX

The VDO Electronic Ratio Box is designed to divide or multiply an input frequency by a fixed ratio. The input signal could be a speedometer or tachometer signal from a magnetic pickup, alternator pickup or Hall effect sender. Typical applications include correcting the speedometer on a vehicle which has had the diff ratio changed, or calibrating a tachometer which has no calibration adjustment.

Suitable for 12/24V applications.

| Signal Amplifier/Divider |                             | 12/24V                                                                               |
|--------------------------|-----------------------------|--------------------------------------------------------------------------------------|
| Part No.                 | Description                 | Specification                                                                        |
| 411.105                  | 12/24V Electronic Ratio box | Input: Hall effect, 0-10V p-p<br>Inductive, 1.5-50V<br>Output: Square wave 0-10V p-p |



Switch Box 411.105

## UNIVERSAL SIGNAL CONVERSION RATIO BOX

This product has an input signal filter (low level, noise etc.). Furthermore, it can be used for a wide operational range 6-24V. The signal output can be square or sine wave.

| Universal Signal Conversion |                                   | 6/24V                |
|-----------------------------|-----------------------------------|----------------------|
| Part No.                    | Description                       | Specification        |
| 411.110                     | Input Voltage Level:              | 1.5V p-p to V Supply |
|                             | Input Frequency Range:            | 4Hz to 5000Hz        |
|                             | Output Voltage Level Sine:        | 4-5V p-p into 1K ohm |
|                             | Output Voltage Level Square:      | V Supply             |
|                             | DIP Switch Settable Ration Range: | 0.0125 to 3.1875     |



## SIGNAL AMPLIFIER/DIVIDER

The VDO Signal Amplifier/Divider is a general purpose module designed to work with most speedometer and tachometer signals. This box will amplify a low voltage signal to a 10V peak to peak square wave. This can be useful when a signal is too low to drive a speedometer, tacho, cruise control or any other such device. The signal may also be divided in frequency by a factor of 1, 2, 4, 8, or 16 to allow easier integration to another instrument.

| Signal Amplifier/Divider |                                            | 12/24V                                                      |
|--------------------------|--------------------------------------------|-------------------------------------------------------------|
| Part No.                 | Description                                | Specification                                               |
| 411.096                  | Signal amplifier/divider programmable      | Signal input: 2+V p-p 0-10khz<br>Output: 10.0V square wave  |
| 411.095                  | Signal amplifier/divider by 16 (permanent) | Signal input: 1>2V p-p 0-10khz<br>Output: 10.0V square wave |



## DIGITAL HAND HELD TACHOMETERS

The DT Model Range of hand held tachometers offers an easy solution to any workshop that requires measuring the RPM of Engine, Process, Machinery, Electric Motors etc.

Suits Photo, Photo/Mach, Inductive applications.



DT2236



DT2237

### Digital Hand Held Tachometers

| Part No. | Description                          |
|----------|--------------------------------------|
| DT 2234B | Digital Hand Held Tacho (Photo Only) |
| DT 2236  | Digital Hand Held Tacho (Photo/Mech) |
| DT 2237  | Digital Hand Held Tacho (Inductive ) |

### Specifications

#### Measurement:

|                |                          |
|----------------|--------------------------|
| Photo:         | 5 - 99,999 Rpm           |
| Contact        | 0.5 - 19,999 Rpm         |
| Surface Speed: | 0.05 - 1,999.9 Mts / Min |
|                | 0.2 - 6,560 Ft / Min     |

### Resolution

|                |                                                    |
|----------------|----------------------------------------------------|
| Photo:         | 0.1 Rpm (0.5 to 999.9 Rpm), 1 Rpm (over 1,000 Rpm) |
| Contact:       | 0.1 Rpm (0.5 to 999.9 Rpm), 1 Rpm (over 1,000 Rpm) |
| Surface Speed: | 0.01 m / min to 0.05 - 99.99 m / min               |
|                | 0.1 m / min (over 100 m/min)                       |
|                | 0.1 ft / min (0.1 to 999.9 ft / min)               |
|                | 1 ft / min (over 1,000 ft / min)                   |

### Accessories

| Part No.          | Description                   |
|-------------------|-------------------------------|
| DT 2234 / 36 tape | Reflective tape for phototach |
| AS - 35A          | Adaptor Cone                  |
| AS - 35B          | Adaptor funnel                |
| AS - 35C          | Speed test Wheel              |

## GAUGE CHECK



105.001

### Gauge Check Tester

12V

| Part No. | Description                                  |
|----------|----------------------------------------------|
| 105.001  | Ohms tester for resistance gauges 0-300 ohms |

Gauge Check helps the serviceman to determine whether electrical gauges fitted to your vehicle are functional and accurate without having to remove or replace them. Suitable for testing automotive, commercial and marine gauges, it comes complete with operating instructions covering test data all popular vehicles.

## HOUSING BINNACLE, plastic

Suitable for BA and BF Ford Falcon in black.

### Instrument Housing - Ford Falcon

| Part No. | Description               | Suitable For |
|----------|---------------------------|--------------|
| 740.301  | 2 gauges Binnacle Housing | BA-BF Falcon |



## HOUSING BINNACLE, plastic

Suitable for VY and VZ Commodore in grey.

### Instrument Housing

| Part No.   | Description               | Suitable For    |
|------------|---------------------------|-----------------|
| B06020601P | 2 gauges Binnacle Housing | VY-VZ Commodore |



## HOUSING, metal and related components

Steel mounting cups with smooth black or polished chrome finish.

### Instrument Housing

| Part No. | Finish | Suitable For                                          |
|----------|--------|-------------------------------------------------------|
| 240.018  | Black  | 85mm instruments with max. installation depth of 80mm |
| 240.019  | Chrome | 85mm instruments with max. installation depth of 80mm |



Gauge housing 240.018

## HOUSING, plastic

Plastic mounting cups with adjustable clip-on pedestal.

### Instrument Housing

| Part No. | Suitable For                                          |
|----------|-------------------------------------------------------|
| 230.028  | 52mm instruments with max. installation depth of 62mm |
| 230.029  | 52mm instruments with max. installation depth of 97mm |
| 230.030  | 80mm instruments with max. installation depth of 90mm |



Gauge housing 230.028

## INSTRUMENT PANELS, metal black

Suitable for all 52mm instruments.

### Instrument Panels

| Part No. | Configuration |
|----------|---------------|
| 230.005  | Single        |
| 230.006  | Double        |
| 230.007  | Triple        |



Single gauge panel 230.005



Twin gauge panel 230.006



Spin lock clamp 800.005.015



Stud kit 600.402



Bracket 230.001



Spacer 230.037



Blank 230.038



Reduction ring 230.004

## CLAMP RINGS & STUD KITS

Suitable for Vision range of instruments.

### Clamp Rings & Stud Kits - Plastic White

| Part No.    | Description                                                   |
|-------------|---------------------------------------------------------------|
| 800.005.015 | Spin lock clamp ring for 52mm instruments                     |
| 800.005.005 | Spin lock clamp ring for 80mm instruments                     |
| 800.005.006 | Spin lock clamp ring for 85mm instruments                     |
| 800.005.007 | Spin lock clamp ring for 100mm instruments                    |
| 600.402     | Stud kit for 52mm<br>(not for speedo, tachometer & pyrometer) |

## BRACKETS, metal black

Suitable for single instrument mounting.

### Brackets - Metal Black

| Part No. | Description      |
|----------|------------------|
| 230.001  | 52mm instruments |
| 230.020  | 85mm instruments |

## CLAMP RINGS & STUD KITS

Suitable to align a 52mm panel-mounted instrument at a 15° angle.

### Angled Spacer Ring - Plastic Black

| Part No. | Description               |
|----------|---------------------------|
| 230.037  | Angled instrument adaptor |

## INSTRUMENT BLANK, plastic black

Suitable for plug a 52mm cut-out.

### Clamp Rings & Stud Kits

| Part No. | Description      |
|----------|------------------|
| 230.038  | Instrument blank |

## REDUCTION RINGS, metal black

Used for mounting 52mm and 80mm instruments in 60mm and 85mm cut-outs.

### Reduction Rings

| Part No. | Description |
|----------|-------------|
| 230.004  | 60mm – 52mm |
| 230.019  | 85mm – 80mm |

## GLOBE HOLDERS & GLOBES

| Globe Holders & Globes |                                          |               |
|------------------------|------------------------------------------|---------------|
| Part No.               | Description                              | Specification |
| 240.001                | BA 7s style J                            | 12V 2W        |
| 240.002                | BA 7s style J                            | 24V 2W        |
| 240.003                | BA 9s style H                            | 12V 2W        |
| 240.004                | BA 9s style H                            | 24V 3W        |
| 240.009                | W2.0 x 4.6 mini wedge W5                 | 12V 1.2W      |
| 240.011                | W2.0 x 4.6 mini wedge W5                 | 24V 1.2W      |
| 240.712                | BA 9s style H insulated                  | 12V 2W        |
| 240.713                | BA 9s style H insulated                  | 24V 3W        |
| 800005002              | Vision range globe holder & globe        | 12V 2W        |
| 240.733                | 7mm 12V wedge red globe                  | 12V 2W        |
| 240.734                | 7mm 24V wedge red globe                  | 24V 2W        |
| 800005003              | International range globe holder & globe | 24V 3W        |



Globe holder 240.733



Globe holder 800005002

## GLOBES

| Globes   |                   |                 |               |
|----------|-------------------|-----------------|---------------|
| Part No. | Description       | To Suit         | Specification |
| 240.050  | Mini wedge globe  | 240.009/733     | 12V 1.2W      |
| 240.051  | Mini wedge globe  | 240.011/734     | 24V 1.2W      |
| 240.052  | Wedge globe       | 800005002       | 12V 2W        |
| 240.053  | Wedge globe       | 800005003       | 24V 3W        |
| 240.054  | Bayonet globe 7mm | 240.001/012     | 12V 2W        |
| 240.055  | Bayonet globe 7mm | 240.002/013     | 24V 3W        |
| 240.056  | Bayonet globe 9mm | 240.003/712     | 12V 2W        |
| 240.057  | Bayonet globe 9mm | 240.004/010/713 | 24V 3W        |

**Note:** WWG gauges use light globe Part no. 240.052 (12V 2W) or Part no. 240.053 (12V 3W) Suitable for speedo, tachometer or all 52mm gauges



Wedge globe 240.050



Bayonet globe 240.055

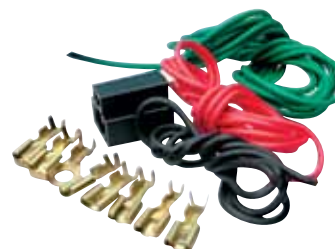
## LIGHT COVERS

| Light Covers |             |             |
|--------------|-------------|-------------|
| Part No.     | Description | To Suit     |
| 240.068      | 10mm green  | 240.052/053 |
| 240.069      | 5mm green   | 240.050/051 |
| 240.070      | 10mm red    | 240.052/053 |
| 240.071      | 5mm red     | 240.050/051 |
| 240.072      | 10mm blue   | 240.052/053 |
| 240.073      | 5mm blue    | 240.050/051 |



## WIRING KITS

| Wiring Kits |                                                            |                       |
|-------------|------------------------------------------------------------|-----------------------|
| Part No.    | Description                                                | Specifications        |
| 240.030     | 3 wire kit - oil - temp - fuel                             | 3mm wire              |
| 240.031     | 2 wire kit - volts - clock                                 | 3mm wire              |
| 240.032     | 2 wire kit - ammeters                                      | 6mm wire              |
| 340.824     | 8 Pin plug kit for speedo's<br>Tachometers / Tachourmeters | Plug + 8<br>terminals |



Wiring Kit 240.030



## CONVERSION TABLES

| Boiling temperature vs Pressure               |            |      |     | Thread Sizes & Turns Per Inch |         |          | Pressure Equivalents |      |      |
|-----------------------------------------------|------------|------|-----|-------------------------------|---------|----------|----------------------|------|------|
| Celsius                                       | Fahrenheit | PSI  | lbs | Thread                        | Size    | Diameter | Kpa                  | PSI  | BAR  |
| 100                                           | 212        | 14.7 | 0   | NPT                           | 1/8"-27 | 10.287mm | 10                   | 1.45 | 0.1  |
| 101                                           | 213.3      | 15.3 | 1/2 |                               | 1/4"-18 | 13.716mm | 50                   | 7.25 | 0.5  |
| 105                                           | 221        | 17.5 | 3   |                               | 3/8"-18 | 17.145mm | 100                  | 14.5 | 1    |
| 107                                           | 225        | 19   | 4   |                               | 1/2"-14 | 21.336mm | 200                  | 29   | 2    |
| 109                                           | 228        | 20   | 5   | BSP                           | 1/8"-28 | 9.728mm  | 350                  | 50.7 | 3.5  |
| 112                                           | 233        | 22   | 7   |                               | 1/4"-19 | 13.157mm | 600                  | 86.9 | 6    |
| 119                                           | 246        | 28   | 13  |                               | 3/8"-19 | 16.662mm | 850                  | 123  | 8.5  |
| 121                                           | 250        | 30   | 15  |                               | 1/2"-14 | 20.995mm | 1750                 | 254  | 17.5 |
| <b>Note:</b> Approximate values at sea level. |            |      |     | SAE(UNF)                      | 5/8"-18 | 15.875mm | 2500                 | 363  | 25   |

## TEMP SENDER CALIBRATION CHARTS

| Range 40 - 120 Deg. C |       | Range 50 - 150 Deg. C |       | Range 60 - 200 Deg. C |       | Temp Equivalents |            |
|-----------------------|-------|-----------------------|-------|-----------------------|-------|------------------|------------|
| Deg. C                | Ohms  | Deg. C                | Ohms  | Deg. C                | Ohms  | Celsius          | Fahrenheit |
| 20                    | 676.9 | 40                    | 481.5 | 60                    | 581   | -10              | 14         |
| 30                    | 439   | 60                    | 221.2 | 80                    | 281.8 | 5                | 41         |
| 40                    | 291.5 | 75                    | 128   | 100                   | 148.8 | 10               | 50         |
| 50                    | 197.3 | 82.5                  | 102   | 115                   | 96    | 20               | 68         |
| 60                    | 134   | 87.5                  | 89.3  | 125                   | 74    | 30               | 86         |
| 70                    | 97.1  | 92.5                  | 76.8  | 135                   | 58.3  | 40               | 104        |
| 80                    | 70.1  | 97.5                  | 66    | 145                   | 46.5  | 50               | 122        |
| 87                    | 54    | 102.5                 | 58    | 155                   | 35.4  | 75               | 167        |
| 94                    | 45    | 107.5                 | 50    | 164                   | 29.2  | 80               | 176        |
| 100                   | 38.5  | 115                   | 41    | 172                   | 24    | 85               | 185        |
| 107                   | 32.5  | 125                   | 32.2  | 180                   | 21.2  | 90               | 194        |
| 114                   | 28    | 135                   | 26    | 188                   | 18    | 95               | 203        |
| 120                   | 22.4  | 145                   | 21    | 196                   | 15.3  | 100              | 212        |
| 130                   | 17.4  | 160                   | 15.1  | 205                   | 12.8  | 105              | 221        |
| 140                   | 13.8  | 180                   | 10.2  | 220                   | 10.1  | 110              | 230        |

## PRESSURE SENDER CALIBRATION CHARTS

| Range 0 -2 Bar (200 Kpa) |        | Range 0 - 5 Bar (500 Kpa) |        | Range 0 - 10 Bar (1000 Kpa) |        | Range 0 - 25 Bar (2500 Kpa) |        |
|--------------------------|--------|---------------------------|--------|-----------------------------|--------|-----------------------------|--------|
| Bar                      | Ohms   | Bar                       | Ohms   | Bar                         | Ohms   | Bar                         | Ohms   |
| 0                        | 9.63   | 0                         | 10.65  | 0                           | 10.241 | 0                           | 9.9    |
| 0.3                      | 37.45  | 0.75                      | 37.8   | 1.2                         | 35.4   | 3                           | 36.7   |
| 0.5                      | 55.69  | 1.25                      | 55.65  | 2                           | 51.55  | 5                           | 53.4   |
| 0.7                      | 73.7   | 1.75                      | 73.3   | 2.8                         | 67.15  | 7                           | 69.21  |
| 0.9                      | 91.4   | 2.25                      | 90.83  | 3.5                         | 80.37  | 9                           | 84.25  |
| 1.05                     | 104.53 | 2.675                     | 105.6  | 4.1                         | 91.4   | 10.6                        | 95.75  |
| 1.15                     | 113.2  | 2.875                     | 112.44 | 4.7                         | 102.1  | 12.2                        | 106.83 |
| 1.25                     | 121.8  | 3.125                     | 121    | 5.3                         | 112.52 | 13.8                        | 117.5  |
| 1.35                     | 130.36 | 3.5                       | 133.77 | 5.9                         | 122.64 | 15.4                        | 127.82 |
| 1.45                     | 138.85 | 3.75                      | 142.2  | 6.5                         | 132.47 | 17                          | 137.8  |
| 1.55                     | 147.3  | 4                         | 150.62 | 7.1                         | 142    | 18.6                        | 147.5  |
| 1.65                     | 155.6  | 4.25                      | 158.97 | 7.7                         | 151.24 | 20.2                        | 156.93 |
| 1.75                     | 163.9  | 4.5                       | 167.3  | 8.4                         | 161.65 | 21.8                        | 166.14 |
| 1.85                     | 172.2  | 4.75                      | 175.55 | 9.2                         | 173.04 | 23.4                        | 175.17 |
| 2                        | 184.4  | 5                         | 183.77 | 10                          | 183.9  | 25                          | 184.03 |

**Note:** For dual station senders, half the actual resistor value for the same temperature or pressure.

## PART NUMBER INDEX

| Part Number to Page Index |                |                                   |        |                               |      |                 |        |
|---------------------------|----------------|-----------------------------------|--------|-------------------------------|------|-----------------|--------|
| Part No.                  | Page           | Part No.                          | Page   | Part No.                      | Page | Part No.        | Page   |
| 10027                     | 10             | 180077023                         | 12     | 224011000032G                 | 82   | 230.041         | 74     |
| 10107                     | 46             | 190.080                           | 13, 22 | 224011000033G                 | 82   | 230.043         | 25, 74 |
| 10116                     | 46             | 190.504                           | 13     | 224011000034G                 | 82   | 230.044         | 74     |
| 10117                     | 46             | 190.505                           | 22     | 224011000035G                 | 82   | 230.045         | 71, 77 |
| 10119                     | 46             | 190.725                           | 23     | 224011000036G                 | 82   | 230.046         | 71, 77 |
| 10120                     | 46             | 190.727                           | 23     | 224011000037G                 | 82   | 230.047         | 71     |
| 10170                     | 46             | 190.888                           | 13, 22 | 224011000038G                 | 82   | 230.048         | 71     |
| 10172                     | 45             | 190035005C                        | 22     | 224011000039G                 | 82   | 230.050         | 25, 74 |
| 105.001                   | 88             | 190037002                         | 22     | 224011000040G                 | 82   | 230.051         | 71, 77 |
| 115910011401              | 80             | 190037003                         | 22     | 224011000045G                 | 82   | 230.056         | 50     |
| 124.130                   | 51             | 190075004                         | 13     | 224011000050G                 | 82   | 230.058         | 50     |
| 1323020100010603          | 15             | 190077006                         | 13     | 224011000055G                 | 82   | 230.061         | 84     |
| 150.050                   | 50             | 190077007                         | 13     | 224011000060G                 | 82   | 230.062         | 84     |
| 150.050S                  | 50             | 21590004301                       | 83     | 224011000065G                 | 82   | 230.063         | 84     |
| 150.202                   | 35             | 220.003 6, 14, 17, 27, 34, 38, 81 |        | 224011000070G                 | 82   | 230.064         | 84     |
| 150.206                   | 36             | 220.004 6, 17, 28, 81             |        | 224011000075G                 | 82   | 230.065         | 84     |
| 150.316                   | 19             | 220.005 6, 81                     |        | 224011000080G                 | 82   | 230.070         | 84     |
| 150.900                   | 28             | 220.150-180                       | 81     | 2250234                       | 80   | 230.071         | 84     |
| 150035019                 | 19             | 220.180-180                       | 81     | 22502641141                   | 80   | 230.076         | 84     |
| 150035020                 | 19             | 220.230-180                       | 81     | 2251016                       | 80   | 230.079         | 77     |
| 150035022                 | 19             | 220.250-180                       | 81     | 226.900                       | 26   | 230.080         | 77     |
| 150077004                 | 9              | 220.260-180                       | 81     | 230.059                       | 50   | 230.701         | 74     |
| 150077005                 | 9              | 220.270-180                       | 81     | 230.001                       | 90   | 230.990         | 74     |
| 150077010                 | 8, 9           | 220.300-180                       | 81     | 230.004                       | 90   | 230.993         | 74     |
| 150077011                 | 8, 9           | 220.320-180                       | 81     | 230.005                       | 89   | 230112005006    | 74     |
| 150077020                 | 8              | 220.330-180                       | 81     | 230.006                       | 89   | 230213002001    | 74     |
| 150077026                 | 8              | 220.350-180                       | 81     | 230.007                       | 89   | 230213002004    | 74     |
| 150077027                 | 8              | 220.600-180                       | 81     | 230.008 8, 10, 19, 35, 36, 75 |      | 231.081         | 71, 74 |
| 151.910                   | 19             | 220.660-180                       | 81     | 230.012 8, 10, 19, 35, 36, 75 |      | 231.082         | 71, 74 |
| 170.701                   | 33             | 220.734                           | 81     | 230.013 8, 10, 19, 35, 36, 75 |      | 231.083         | 71, 74 |
| 170.702                   | 4, 33          | 220.900-180                       | 81     | 230.015 8                     |      | 231.084         | 71, 74 |
| 170.706                   | 85             | 224011000015G                     | 82     | 230.016 50                    |      | 231.085         | 74     |
| 170.708                   | 50, 51         | 224011000016G                     | 82     | 230.017 50                    |      | 231.086         | 71, 74 |
| 170.709                   | 51             | 224011000017G                     | 82     | 230.019 90                    |      | 231.087         | 71, 74 |
| 170.712                   | 51             | 224011000018G                     | 82     | 230.020 90                    |      | 231.088         | 71, 74 |
| 170.713                   | 85             | 224011000019G                     | 82     | 230.024 8, 10, 19, 35, 75     |      | 231.089         | 71, 74 |
| 170.714                   | 85             | 224011000020G                     | 82     | 230.025 8, 10, 19             |      | 231003001       | 23     |
| 180.059                   | 12, 21, 75, 80 | 224011000021G                     | 82     | 230.025 35, 75                |      | 232.011/017/041 | 77     |
| 180.204                   | 37             | 224011000022G                     | 82     | 230.028 89                    |      | 232.011/055/020 | 77     |
| 180035002                 | 21             | 224011000023G                     | 82     | 230.029 89                    |      | 232011005004D   | 77     |
| 180035004                 | 21             | 224011000024G                     | 82     | 230.030 89                    |      | 232011005017D   | 77     |
| 180035005                 | 21             | 224011000025G                     | 82     | 230.031 72, 80                |      | 232011005027D   | 77     |
| 180035006                 | 21             | 224011000026G                     | 82     | 230.032 72, 80                |      | 232011005030D   | 77     |
| 180035008                 | 21             | 224011000027G                     | 82     | 230.033 80                    |      | 232011017004D   | 77     |
| 180077019                 | 12             | 224011000028G                     | 82     | 230.035 72, 80                |      | 232011017009D   | 77     |
| 180077020                 | 12             | 224011000029G                     | 82     | 230.036 72, 80                |      | 232011017010D   | 77     |
| 180077021                 | 12             | 224011000030G                     | 82     | 230.037 90                    |      | 232011017016D   | 77     |
| 180077022                 | 12             | 224011000031G                     | 82     | 230.038 90                    |      | 232011017017D   | 77     |

## PART NUMBER INDEX

| Part Number to Page Index |            |           |                            |                 |                        |               |            |
|---------------------------|------------|-----------|----------------------------|-----------------|------------------------|---------------|------------|
| Part No.                  | Page       | Part No.  | Page                       | Part No.        | Page                   | Part No.      | Page       |
| 232011017032D             | 77         | 301010011 | 6, 14                      | 320.041         | 79                     | 323803001008D | 78         |
| 232011017034D             | 77         | 301010015 | 6                          | 320.042         | 79                     | 323803001011D | 78         |
| 232011017038D             | 77         | 301030001 | 17                         | 320.043         | 72, 79                 | 323803001012D | 78         |
| 232011017080D             | 77         | 301030002 | 17                         | 320.044         | 72, 79                 | 323803001013D | 78         |
| 232011017087D             | 77         | 301040001 | 17                         | 320.045         | 79                     | 323803001019D | 78         |
| 232011017099D             | 77         | 301040002 | 17                         | 320.046         | 79                     | 323803004002D | 78         |
| 232011017103D             | 77         | 310.159   | 12                         | 320.047         | 79                     | 323805001001K | 78         |
| 232011017131D             | 77         | 310.239   | 37, 38                     | 320.048         | 79                     | 323805001002C | 78         |
| 232011017148D             | 77         | 310.240   | 36                         | 320.049         | 79                     | 323805001004K | 78         |
| 232011019003D             | 77         | 310.401   | 40                         | 320.050         | 72, 80                 | 323805001005N | 78         |
| 240.001                   | 91         | 310.701   | 40                         | 320.051         | 72, 80                 | 323805001007N | 78         |
| 240.002                   | 91         | 310.900   | 27                         | 320.052         | 80                     | 323805001015N | 78         |
| 240.003                   | 91         | 310.901   | 10                         | 320.053         | 71, 72, 80             | 323805002007D | 78         |
| 240.004                   | 91         | 310010014 | 11, 14                     | 320.054         | 80                     | 323805003001N | 78         |
| 240.009                   | 91         | 310010015 | 11                         | 320.055         | 72, 80                 | 323805003002N | 78         |
| 240.011                   | 91         | 310015009 | 12                         | 320.056         | 80                     | 325801002002D | 78         |
| 240.018                   | 89         | 310030002 | 20                         | 320.058         | 80                     | 325805003001C | 78         |
| 240.019                   | 89         | 310030003 | 20                         | 320.059         | 12, 21, 36             | 325805003002C | 78         |
| 240.022                   | 50, 51     | 310030004 | 20                         | 320.060         | 79                     | 330.101       | 76         |
| 240.030                   | 91         | 310035001 | 21                         | 320.061         | 79                     | 330.101C      | 76         |
| 240.031                   | 25, 91     | 310040002 | 20                         | 320.062         | 79                     | 330.102       | 76         |
| 240.035                   | 12, 21, 36 | 310040003 | 20                         | 320.064         | 80                     | 330.102C      | 76         |
| 240.050                   | 91         | 310040004 | 20                         | 320.065         | 79                     | 330.104       | 76         |
| 240.051                   | 91         | 320.002   | 11, 14, 20, 29, 30,        | 320.067         | 72, 79                 | 330.104C      | 76         |
| 240.053                   | 91         |           | 40, 71, 72, 78, 79         | 320.068         | 79                     | 330.110       | 76         |
| 240.054                   | 91         | 320.003   | 71, 72, 79                 | 320.074         | 80                     | 330.1100C     | 76         |
| 240.055                   | 91         | 320.004   | 11, 20, 29, 30, 37, 40, 78 | 320.075         | 80                     | 330.110C      | 76         |
| 240.056                   | 51, 91     | 320.006   | 20, 79                     | 320.076         | 80                     | 330.1150      | 76         |
| 240.057                   | 51, 91     | 320.007   | 11, 20, 30, 40, 79         | 320.092         | 11, 20, 30, 40, 79     | 330.115C      | 76         |
| 240.068                   | 91         | 320.009   | 79                         | 320.093         | 11, 20, 29, 30, 37, 40 | 330.135       | 76         |
| 240.069                   | 91         | 320.010   | 11, 20, 30, 40, 79         | 320.093         | 78, 79                 | 330.135C      | 76         |
| 240.070                   | 91         | 320.011   | 72, 78, 79                 | 320.714         | 12, 21, 36             | 330.160       | 76         |
| 240.071                   | 91         | 320.012   | 79                         | 323.010         | 10                     | 330.160C      | 76         |
| 240.072                   | 31, 32, 91 | 320.016   | 11, 30, 40, 79             | 323.801/004/029 | 11                     | 331.534       | 25         |
| 240.073                   | 91         | 320.020   | 20, 79                     | 323.801/005/001 | 11, 20, 29,            | 331.535       | 25         |
| 240.712                   | 91         | 320.021   | 11, 20, 30, 40, 79         |                 | 30, 37, 40             | 331.600       | 24         |
| 240.713                   | 91         | 320.022   | 11, 20, 29, 30, 37, 40, 79 | 323801001006K   | 11, 20, 29, 30,        | 331.601       | 24         |
| 240.733                   | 91         | 320.023   | 11, 30, 40, 79             |                 | 37, 40, 78, 79         | 331.602       | 24         |
| 240.734                   | 91         | 320.024   | 79                         | 323801001007N   | 78                     | 331032001     | 24         |
| 260.111                   | 4          | 320.026   | 79                         | 323801001008N   | 78                     | 331032004     | 24         |
| 301.105                   | 6          | 320.028   | 11, 20, 30, 40, 79         | 323801001009N   | 78                     | 331810012004  | 24         |
| 301.216                   | 34, 38     | 320.030   | 79                         | 323801001010K   | 78                     | 331810012007  | 24         |
| 301.401                   | 39         | 320.032   | 71, 72, 79                 | 323801001022K   | 78                     | 332.241       | 38         |
| 301.900                   | 29         | 320.033   | 72, 79                     | 323801001040N   | 78                     | 332.401       | 39         |
| 301.901                   | 30         | 320.036   | 79                         | 323801010001D   | 78                     | 332.900       | 28, 31, 32 |
| 301.902                   | 30         | 320.038   | 79                         | 323803001002D   | 78, 79                 | 332010004     | 13, 14     |
| 301010009                 | 6          | 320.039   | 79                         | 323803001004D   | 78                     | 332030001     | 23         |
| 301010010                 | 6          | 320.040   | 79                         | 323803001006D   | 78                     | 332040001     | 23         |

## PART NUMBER INDEX

| Part Number to Page Index |        |               |                           |               |           |             |        |
|---------------------------|--------|---------------|---------------------------|---------------|-----------|-------------|--------|
| Part No.                  | Page   | Part No.      | Page                      | Part No.      | Page      | Part No.    | Page   |
| 333.001                   | 44     | 340808001004G | 83                        | 360081030052C | 7, 18, 73 | 437015029   | 4      |
| 333.002                   | 44     | 350.240       | 35, 38                    | 360081032001C | 73        | 437025002   | 15     |
| 333.003                   | 39     | 350.401       | 39                        | 360081032002C | 73        | 437035016   | 15     |
| 333.100                   | 34     | 350.900       | 29, 31, 32                | 360081032011C | 73        | 437055001   | 15     |
| 333.201                   | 44     | 350.901       | 29                        | 360081032014C | 73        | 437055011   | 15     |
| 333.255                   | 34, 38 | 350010001     | 8                         | 360081032025C | 73        | 500.302     | 31, 32 |
| 333.255POD                | 34     | 350010016     | 6, 7                      | 360081038003C | 8, 18     | 600.402     | 90     |
| 333.900                   | 27     | 350010017     | 7, 14                     | 360081038003C | 73        | 660.990     | 86     |
| 333.900POD                | 27     | 350010021     | 8                         | 360081038008C | 8, 73     | 740.003     | 71     |
| 333015031                 | 5      | 350030005     | 18                        | 360081039002C | 73        | 740.005     | 72     |
| 333015032                 | 5      | 350030006     | 18                        | 360081039003  | 73        | 740.007     | 71     |
| 333015033                 | 5, 14  | 350030017     | 18                        | 360081039004C | 73        | 740.009     | 72     |
| 333015033POD              | 5      | 350040016     | 18                        | 362081001001K | 73        | 740.011     | 72     |
| 333015034                 | 5      | 350040017     | 18                        | 362081001002K | 73        | 740.012     | 71     |
| 333015035                 | 5      | 360.001       | 7, 18, 29, 35, 38,        | 362081002001K | 73        | 740.104     | 38     |
| 333015037                 | 5      |               | 39, 72, 73, 75            | 362081003002K | 73        | 740.106     | 14     |
| 333015038                 | 5      | 360.002       | 7, 14, 18, 72, 73, 75     | 362081004001C | 73        | 740.300     | 31     |
| 333015046                 | 5      | 360.003       | 72, 75                    | 36373         | 80        | 740.301     | 32, 89 |
| 333015047                 | 5      | 360.004       | 7, 18, 35, 39, 72, 73, 75 | 370.701       | 40        | 740.302     | 32     |
| 333035001                 | 16     | 360.005       | 72, 75                    | 370012001     | 14        | 800.005.005 | 43, 90 |
| 333035002                 | 16     | 360.006       | 75                        | 397015003     | 21        | 800.005.006 | 90     |
| 333035003                 | 16     | 360.008       | 75                        | 405040001001  | 44        | 800.005.007 | 90     |
| 333035004                 | 16     | 360.010       | 75                        | 410.006       | 50        | 800.005.015 | 43, 90 |
| 333035010                 | 16     | 360.013       | 72, 75                    | 410.007       | 50        | 800005002   | 91     |
| 333035011                 | 16     | 360.014       | 72, 75                    | 410.060       | 86        | 800005003   | 91     |
| 333035013                 | 16     | 360.016       | 7, 18, 35, 39, 73, 75     | 410.061       | 86        | 850.009     | 85     |
| 333035017                 | 16     | 360.017       | 73, 75                    | 411.095       | 87        | 880.003     | 49     |
| 333035025                 | 16     | 360.018       | 7, 18, 35, 39, 73, 75     | 411.096       | 87        | 880.004     | 49     |
| 333045001                 | 16     | 360.019       | 7, 18, 73, 75             | 411.101       | 86        | 880.005     | 49     |
| 333045002                 | 16     | 360.020       | 75                        | 411.105       | 87        | 880.006     | 49     |
| 333055001                 | 16     | 360.031       | 75                        | 411.110       | 87        | 880.007     | 49     |
| 333055002                 | 16     | 360.041       | 75                        | 412.009       | 83        | 880.008     | 49     |
| 333055011                 | 16     | 360.042       | 75                        | 412.029       | 52        | 880.012     | 49     |
| 333065001                 | 16     | 360.086       | 8, 73, 75                 | 412.030       | 52        | 880.013     | 49     |
| 340 216 001 024           | 83     | 360.406       | 75                        | 430.101       | 76        | 880.015     | 49     |
| 340.007                   | 83     | 360081030001K | 73                        | 430.102       | 76        | 880.016     | 49     |
| 340.008                   | 83     | 360081030002K | 73                        | 430.104       | 76        | 880.017     | 49     |
| 340.009                   | 83     | 360081030009K | 73                        | 430.110       | 76        | 880.020     | 49     |
| 340.011                   | 83     | 360081030010C | 73                        | 430.115       | 76        | 880.021     | 49     |
| 340.013                   | 83     | 360081030014C | 73                        | 430.135       | 76        | 880.660     | 47     |
| 340.22M                   | 83     | 360081030015C | 72                        | 430.160       | 76        | 880.700     | 49     |
| 340.808                   | 15, 83 | 360081030015C | 73                        | 437.100       | 33        | 880.770     | 47     |
| 340.824                   | 91     | 360081030017C | 73                        | 437.202       | 33        | 900.505     | 48     |
| 340804005015C             | 83     | 360081030022C | 73                        | 437.900       | 26        | 900.550     | 47     |
| 340804007004C             | 83     | 360081030028K | 73                        | 437015021     | 4         | 900.600     | 48     |
| 340804007011C             | 83     | 360081030039C | 73                        | 437015022     | 4         | 900.705     | 49     |
| 340804007013C             | 83     | 360081030049K | 7                         | 437015025     | 4         | A2C53041729 | 43     |
| 340804007019C             | 83     | 360081030049K | 35, 73                    | 437015028     | 4         | A2C53344035 | 43     |

## PART NUMBER INDEX

| Part Number to Page Index |      |                   |        |              |               |              |      |
|---------------------------|------|-------------------|--------|--------------|---------------|--------------|------|
| Part No.                  | Page | Part No.          | Page   | Part No.     | Page          | Part No.     | Page |
| A2C53344036               | 43   | A2C60500641       | 43     | K72113       | 84            | X10224021002 | 82   |
| A2C59510165               | 81   | AS - 35A          | 88     | K72127       | 85            | X10224021004 | 82   |
| A2C59510166               | 81   | AS - 35B          | 88     | K72139       | 85            | X10224021005 | 82   |
| A2C59510167               | 81   | AS - 35C          | 88     | K72153       | 85            | X10224021006 | 82   |
| A2C59510171               | 81   | B06020601P        | 31, 89 | K72154       | 85            | X10232001001 | 77   |
| A2C59510172               | 81   | CTA0200           | 80, 81 | K72155       | 85            | X10232001002 | 77   |
| A2C59510173               | 81   | DT 2234 / 36 tape | 88     | K72222       | 84            | X10232001003 | 77   |
| A2C60000020               | 41   | DT 2234B          | 88     | K72241       | 85            | X10232001004 | 77   |
| A2C60000024               | 41   | DT 2236           | 88     | N05801432    | 6, 17, 34, 80 | X10232001005 | 77   |
| A2C60000025               | 41   | DT 2237           | 88     | N05801432    | 81            | X10232001006 | 77   |
| A2C60000070               | 41   | F20-RX            | 47     | X10224009019 | 82            | X10232001007 | 77   |
| A2C60000072               | 41   | F20-TX1           | 47     | X10224009022 | 82            | X10232001008 | 77   |
| A2C60000073               | 41   | F20-TXC           | 47     | X10224009026 | 82            | X10232001009 | 77   |
| A2C60000129               | 41   | K46020            | 15, 83 | X10224009029 | 82            | X10232001010 | 77   |
| A2C60000253               | 42   | K46021            | 15, 83 | X10224009039 | 82            | X10397106825 | 52   |
| A2C60000254               | 42   | K70450            | 83     | X10224009040 | 82            | X10732002001 | 45   |
| A2C60000259               | 42   | K70451            | 83     | X10224009048 | 82            | X10732002002 | 45   |
| A2C60000260               | 42   | K70452            | 83     | X10224009057 | 82            | X10732002003 | 45   |
| A2C60000273               | 42   | K70453            | 83     | X10224009072 | 82            | X10732002004 | 45   |
| A2C60000275               | 42   | K70524            | 84     | X10224014002 | 82            | X11602000009 | 43   |
| A2C60000279               | 42   | K70710            | 84     | X10224014003 | 82            | X11602000010 | 43   |
| A2C60000282               | 42   | K70711            | 84     | X10224014011 | 82            | X39737300006 | 52   |
| A2C60000284               | 42   | K70712            | 85     | X10224014015 | 82            |              |      |
| A2C60000299               | 42   | K70735            | 84     | X10224014022 | 82            |              |      |
| A2C60000360               | 42   | K72103            | 84     | X10224014044 | 82            |              |      |