

STEELMAN™

EST. 1986

MASTER COOLING SYSTEM KIT OPERATING INSTRUCTIONS



1. FEATURES

- ▶ Easy work for cooling system pressure test and refilling new coolant by creating vacuum in the cooling system
- ▶ Suitable for domestic and import vehicles
- ▶ Color printing radiator test cap provides easier identification when choosing a suitable test cap
- ▶ Pressure pump can test leaks in the cooling system by connecting an adapter to the radiator filler neck or recovery tank
- ▶ Connectors (black and blue) test radiator cap condition
- ▶ Vacuum pump shortens the time of refilling new coolant by creating a vacuum, without needing to undergo the time-consuming air bleeding



CAUTION

- ◆ Always read the instruction manual carefully before working
- ◆ This tool is available for using on cooling system leakage test and new coolant refilling ONLY.
- ◆ DO NOT start engine before / during the pressure test to avoid getting burnt
- ◆ Please ensure the radiator coolant is cool before operating (It could determine it with thermometer provided)



- ◆ Always wear eye protection that meets OSHA and ANSI Z87.1 standards
- ◆ Always wear hand gloves when work with the tool
- ◆ Always wear ear protection
- ◆ Ensure the work area has adequate lighting
- ◆ Keep children and unauthorised persons away from the work area
- ◆ Keep work area clean and tidy and free from unrelated materials
- ◆ DO NOT allow untrained persons to use the kit

2. SPECIFICATION



PRESSURE PUMP	
Pump material	Nylon 6-6
Gauge reading	0-2.5 kg / cm ² (35 psi)
Hose length	535mm
Max.Pressure for hose	200 psi



CONNECTOR R123/R124	
Number	2A
Color	Black
Material	Nylon 6-6



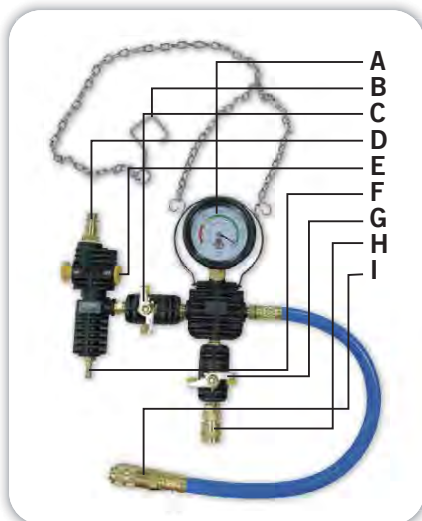
CONNECTOR R123/R125	
Number	2B
Color	Blue
Material	Nylon 6-6



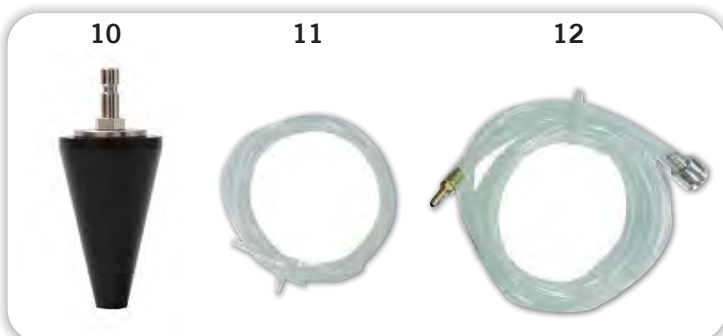
STEEL TEST CAPS	
Number	No. 3 - No.5
Color	Silver
Material	Steel
Surface finish	Chrome



NYLON TSET CAPS	
Number	No. 6 - No.22
Material	Nylon 6-6
Coupling material	Free cutting copper
Surface finish	Chrome
O-ring material	NBR



VACUUM PUMP	
A	Vacuum Gauge 0 to -76 inHg
B	Hook
C	Air Control Valve
D	Air Supply
E	Air Switch
F	Air Bleeding Exit Port
G	Coolant Control Valve
H	Coolant Hose Connector
I	Coupling for Adapter



No.10	Universal cone-shape adapter
No.11	Air bleeding hose
No.12	Coolant hose

3.1 INSTRUCTION - Vacuum-Type Coolant Refilling

I. CREAT A VACUUM IN THE COOLING SYSTEM

- 1) Drain coolant from the radiator.
- 2) Hook the gauge underneath the car's hood.
- 3) Connect an air line to Air Supply (D).
- 4) Connect the Universal con-shaped adapter (No. 10) or a suitable adapter onto the radiator filler neck (as in Figure 1).
- 5) Turn on the Air Switch (E) and Air Control Valve (C), while Coolant Control Valve (G) remains off, to create a vacuum in the cooling system (as in Figure 2).
- 6) When the pressure falls into the range between -50 and -60 cmHg (-20 and -25 inHg), turn off the Air Control Valve (G) and then Air Switch (E).
- 7) Leave the gauge on the radiator for approximately 10 mins to check if there are leaks in the cooling system before refilling new coolant.



Fig. 1

II. REFILL NEW COOLANT

- 8) Connect the Coolant Hose (No. 12) to the Coolant Hose Connector (H).
- 9) Put the other end of the hose into a container filled with pre-mixed new coolant.
- 10) Turn on the Coolant Control Valve (G) (while the Air Control Valve (C) and Air Switch (E) remain off), coolant will be introduced into the radiator immediately (as in Figure 3).
- 11) The refilling process is completed when the gauge reads zero.
- 12) Before putting the gauge back to the case, remove the residual coolant in the gauge.

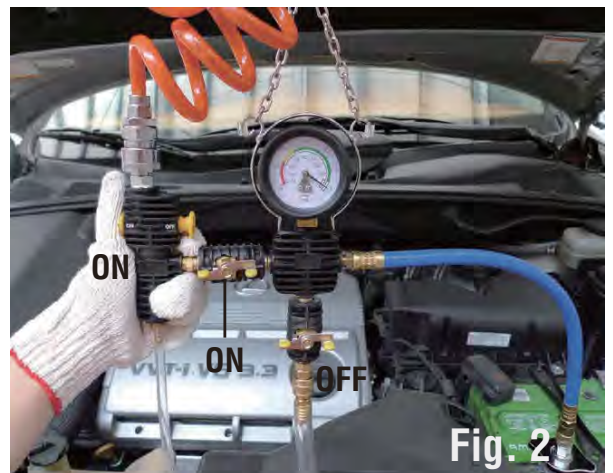


Fig. 2

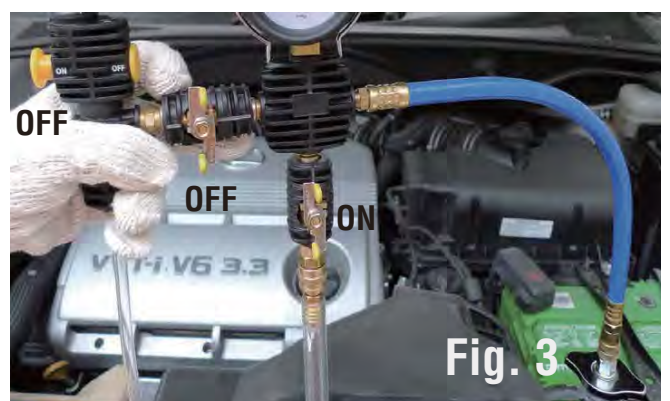


Fig. 3

3.2 INSTRUCTION – Leakage Test

I. COOLING SYSTEM LEAKAGE TEST

- 1) Choose a suitable adapter and screw it onto the radiator filler neck.
- 2) Connect the pressure tester to the adapter.
- 3) Pump pressure to the range between 10 and 15 psi (Fig. 4).
- 4) Check if the gauge reading moves. If it does, there could be leaks in the cooling system.

Attention: Do not pump the pressure up to 35 psi.

PSI	kg/cm ²	Bar
10	0.70	0.69
12.8	0.90	0.88
15	1.06	1.04
15.6	1.10	1.08
35	2.46	2.42



II. RADIATOR CAP LEAKAGE TEST

- 1) Connect the original radiator cap to one side of the connector, and a pressure test cap on the other side (Fig. 5).
- 2) Pump pressure to the specified pressure on the cap.
- 3) When pumping pressure under the specified pressure, check if the gauge reading drops. If it does, there could be leaks in the radiator cap.



- 4) When pumping pressure above the specified pressure, check if the radiator cap has the ability to release pressure. If it does not, the cap should be replaced.


4. APPLICATION LIST




No.

0 Thermometer  2A  Connector R123/R124 (Black)

1 Pressure Tester Pump with Gauge 2B  Connector R123/R125 (Blue)


3  Buick (LeSabre: 1990-) (Park Avenue: 1991-)
Chrysler (Sebring: 1995-)
Chevrolet (Venture: 1997-)
Dodge (Caravan: 1989-) (Dakota: 1989-) (Startus: 1995-)
Jeep
Mercedes (W123, W124, W126, W201)
Oldsmobile (Silhouette: 1990-)
Pontiac (Bonneville: 1990-) (Grand Prix: -2003)


4  Acura (Integra: 1991-1993)(Legend: 1989-1990)(NSX: 1995-2004)(SLX: 1997)
(Vigor: 1992-1994)
BMW (M6: 2008)
Chevrolet (Nova: 1985-1998) (Spectrum: 1985-1988) (Sprint: 1986-1988)
Chrysler (Laser:1991-1998) (Sebring: 1996-1998)
Dodge (Avenger: 1995-1999)(Colt: 1984-1991) (Ram 50: 1989-1992)
(Stealth: 1993-1996)
Eagle (Summit: 1989)(Talon: 1991-1998)
Ford (Aspire: 1994-1997)(Escort: 1991-2002)(Expedition: 2009-2011)
(Explorer:1995-2001)(Explorer Sport Trac: 2001-2005)(F-150: 2009-2011)
(Festiva: 1989-1993)(Mustang: 1997-2004)(Probe: 1989-1997)
(Ranger: 1995-2011) (Tempo:1992-1994)(Thunderbird: 1992-1995)
(Windstar: 1996-1999)
Geo (Metro: 1989-1993) (Prizm: 1989-1991)(Spectrum: 1989)(Storm: 1990-1993)
(Tracker: 1989)
GM (Nova, Spectrum, Sprint)
Honda (Accord: 1990-1993) (Civic: 1988-1991)(CRX: 1989-1990)(Motorcycles:1991-2004)
(Passport:1994-2002)(Prelude:1990-1998)
Hyundai (Accent: 1995-2010)(Azera: 2006-2010)(Elantra: 1992-2011)(Entourage: 2007-2008)
(Excel: 1986-1994)(Genesis: 2009-2010)(Genesis Coupe: 2010)(Santa Fe: 2002-2010)
(Scoupe: 1994)(Sonata: 1989-2011)(Tiburon: 1998-2008)(Tuscon: 2005-2010)
(Veracruz: 2007-2010)(XG 350: 2004)
Infiniti (FX 35: 2003-2007)(G20: 1991-2002)(G35: 2004-2007)(I30: 1997-2000)
(I35: 2002-2004)(J30: 1996)(M30: 1990-1992)(M35: 2006-2009)(M45: 2003-2010)
(Q45: 1990-2006)(QX4: 1998-2003)
Isuzu (Amigo: 1989-2000)(Axiom: 2002-2004)(I-Mark: 1985-1989)(Impulse: 1985-1992)
(Rodeo: 1991-1998)(Stylus: 1991-1992)(Trooper: 1986-2002)(VehiCROSS: 1999)
Kia (Amanti: 2006-2009)(Borrego: 2009)(Forte: 2011)(Optima: 2002-2010)
(Rio: 2002-2011)(Rio5: 2007-2011)(Rondo: 2009-2010)(Sedona:2003-2011)
(Sephia: 1994-2001)(Sorento: 2003-2011)(Soul: 2010-2011)(Spectra: 2000-2009)
(Spectra5: 2005-2009)(Sportage: 1995-2011)
Lexus (ES300: 1996-2003)(ES330: 2005)(LS400: 1992)(LX 450: 1996-1999)
(LX 470: 1998-2005) (SC400: 1992)
Lincoln (Navigator: 2009-2011)
Mazda (323: 1986-1993)(626: 1985-1999)(929: 1990-1993)(B2000: 1986-1987)
(B2200: 1988-1993)(B2300: 2005)(B2500: 1998-2000)(B2600: 1987-1993)
(B3000: 1996-2007)(B4000: 1995-2006)(CX-9: 2007-2010)(Matia: 1991-2005)
(Millenia: 1995-2002)(MPV: 1991-2006)(MX-5 Matia: 2006-2012)
(MX-6: 1991-1997)(Protegé: 1993-2003)(Protegé 5: 2002-2003)(RX-7: 1986-1995)
(RX-8: 2005-2009)
Mercury (Capri: 1991-1994)(Cougar: 1989-1992)(Cougar: 1993-1997 w/V6)
(Mountaineer: 1997-2000)(Topaz: 1992-1994)(Tracer: 1988-1999)
(Villager: 1994-2002)
Mitsubishi (3000GT: 1992-1996)(Cordia: 1986-1988)(Diamante: 1992-1995)(Eclipse: 1990-1999)
(Galant: 1989-1993)(Mighty Max: 1987-1994)(Mirage:1985-1992)
(Montero: 1989-1998)(Outlander: 2003-2011)(Outlander Sport: 2011)
(Precis: 1988-1992)(Starion:1984-1986)(Tredia: 1986-1988)
Mercedes-Benz
Nissan (200SX: 1984-1988)(240SX: 1990-1994)(300ZX: 1984-1996)(Altima: 1993-2006)
(Axxess: 1990)(Cube: 2009-2010)(D21: 1986-1994)(Frontier: 1998-2011)
(Maxima: 1987-2008)(Murano: 2003-2007)(NX: 1991-1993)(Pathfinder: 1987-2004)
(Pulsar NX: 1987-1989)(Quest: 1994-2009)(Rogue: 2009-2010)(Sentra: 1987-2011)
(Stanza: 1987-1992)(Versa: 2007-2011)(Xterra: 2000-2012)
Plymouth (Colt: 1984-1991)(Laser: 1993-1994)
Subaru (Baja: 2004-2005)(Brat: 1983-1987)(DL: 1983-1989)(Forester: 1999-2011)
(GL: 1983-1989)(GL-10: 1985-1989)(Impreza: 1993-2011)(Justy: 1988-1993)
(Legacy: 1990-2011)(Loyale: 1990-1992)(Outback: 2000-2011)(RX: 1986)
(SVX: 1994-1997)(XT: 1985-1991)
Suzuki (Equator: 2009-2011)(Samurai: 1986)(Sidekick: 1989-1991)(Swift: 1990-1994)
(XL-7: 2004-2006)


No.	Image	Application
4		Toyota (4Runner:1986-1995)(Avalon 1995-2004)(Camry:1983-1991) (Camry: 1994-1999 4cylinder)(Celica:1983-1989)(Corolla:1983-1992) (Cressida:1985-1992)(Land Cruiser:1993-2007)(MR2: 1989-1995)(Previa: 1991-1997) (Sienna: 1998-2006)(Solara 1999-2008)(Starlet: 1983-1984)(Supra: 1987-1990) (T100:1995-1998)(Tacoma: 1996-2004)(Tercel: 1983-1990)
5		Acura (CL: 1997-2002)(Integra: 1994-2000) (Legend: 1993-1995)(MDX: 2001-2011) (RDX: 2009-2012)(RL: 1996-2010)(RSX: 2002-2005)(TL:1996-2011)(TSX: 2007-2012) Chevrolet (Metro: 1999-2000)(Prizm: 1998-2002)(Tracker: 1998-2004) Chrysler (Sebring: 2001) Dodge (Colt:1993-1994)(Stratus: 2001-2004) Eagle (Summit:1992-1996) Geo (Metro: 1995-1997) (Prizm: 1993-1997)(Tracker: 1997) Honda (Accord: 1994-2011)(Civic: 1992-2010)(Civic del Sol: 1993-1997)(CR-V: 1997-2010) (CR-Z: 2011)(Element: 2003-2010)(Fit: 2008-2009)(Insight: 2001-2011) (Odyssey:1998-2010)(Pilot:2003-2011)(Prelude: 1999-2001)(Ridgeline: 2007-2011) S2000: 2006-2009) Isuzu (Oasis: 1997)(Rodeo: 1999-2000)(Rodeo Sport: 2003) Lexus (ES250: 1990-1991)(ES350: 2008-2012)(GS300: 1993-2003)(GS350: 2007-2009) (GS430: 2004-2007)(GX470: 2004-2005)(IS300: 2003)(IS350: 2009-2012) (LS430: 2001-2003)(LX570: 2011-2013)(RX300: 1999-2006)(RX350: 2008-2010) (RX400h: 2006-2008)(SC300: 1992-2010) Mazda (Mazda 2: 2011)(Mazda 5: 2008-2010)(Protegé: 1995-2003) Mercedes (ML-class, W163, W164) Mitsubishi (Diamante:1996-2004)(Eclipse: 2000-2010)(Endeavor: 2006-2011)(Expo: 1992-1995) (Expo LRV: 1992-1994)(Galant:1994-2011)(Mirage: 1993-2002) (Montero Sport: 1997-2003) Plymouth (Colt: 1992-1994) Pontiac (Vibe: 2003-2010) Scion (FR-S: 2013)(iQ: 2012)(tC: 2005-2010)(xA: 2006) Subaru (B9 Tribeca: 2006-2007)(Tribeca: 2008-2010) Suzuki (Aerio: 2003-2007)(Esteem: 1995-2002)(Sidekick: 1991-1998)(Swift: 1999-2001) (SX4: 2007-2009)(Vitara: 1999-2003)(X-90: 1996-1998)(XL-7: 2002-2003) Toyota (4Runner:1969-2011)(Avalon: 2005-2010)(Camry: 1990-1991 V6 w/ auto.trans.) (Camry:1992-2011)(Celica:1990-1999)(Corolla: 1993-2012)(Echo: 2001-2005) (FJ Cruiser: 2007-2010)(Highlander: 2001-2011)(Land Cruiser: 2009)(Matrix: 2003-2011) (Paseo: 1992-1998)(Prius: 2001-2009)(RAV4: 1996-2003)(Sequoia: 2001-2011) (Sienna: 2007-2011)(Supra: 1990-1998)(Tacoma: 2005-2011)(Tercel: 1991-1998) (Tundra: 2000-2011)(Venza: 2009-2011)(Yaris: 2008-2011) VW (Touareg: 2004)
6		Cadillac (Catera:1997-2001) Chevrolet (Aveo: 2004-2011) (Aveo5: 2006-2011) (Epica: 2004) Daewoo (Leganza: 1999-2002) (Lanos: 1999-2002) (Nubira: 1999-2002) Ford (Contour:1995-2000) (Fiesta:1995-) (Focus:1998-) (Fusion:2006-) GM (Achieva) (Skylark) (Grand Am: 1992-2002) Jaguar (All:1990-1994) (XJ8: 1998-2001) (XJR: 1998-2001) (XK8: 1997-2006) (XKR: 2000-2006) (X-Type: 2002-2007) Jeep Land Rover (Discovery:1989-2004) (Range Rover:1988-1994) Mercedes-Benz (ML-Class: 1997-2011) Mercury (Mistique:1995-2000) Pontiac (Le Mans:1988-1993) (G3: 2009) (Wave: 2005) (Wave5: 2005;) Porsche (911:1999-) (Boxter:1997-) Saab (900: 1994 -1998) (9-3: 1999-2003) (9-5: 1999-2008) Saturn (L100: 2001-2002) (L200: 2001-2003) (L300: 2001-2005) (L300-1: 2004) (L300-2: 2004) (L300-3: 2004) (LS: 2000) (LS1: 2000) (LS2: 2000) (LW1: 2000) (LW2: 2000) (LW200: 2001-2003) (LW300: 2001-2003) (Vue: 2002) Suzuki (Forenza: 2004-2008) (Reno: 2005-2008) (Swift +: 2004) (Verona: 2004-2005)
7		Alfa Romeo (145-930: 1994-2001) (146-930: 1994-2001) (164-164: 1987-1998) (166-936: 1998) (33-907A: 1990-1994) (33 sportwagon-907B: 1990-1994) (GTV-916C: 1994) (Spider-916S: 1994-2005) Citroën (Jumper Box 230L: 1994-2002) (Jumper Bus 230P: 1994-2002) (Jumper Platform / Chassis 230: 1994-2002) Fiat (Coupe FA/175: 1993-2000) (Croma-154: 1985-1996) (Ducato Box-230L: 1994-2002) (Ducato Box-244: 2002) (Ducato Bus-230: 1994-2002) (Ducato Bus-244Z: 2002) (Ducato Platform / Chassis 230: 1994-2002) Lancia (Delta II-836: 1993-1999) (Kappa-938A: 1994-2001) (Kappa Coupe-838: 1996-2001) (Kappa SW-838B: 1996-2001)(Thema-834: 1984-1994)(Thema SW-834: 1987-1994) Mini Cooper (S: 2002-) Peugeot (206: 1999-) (307: 2004-) (406: 1999-) (407: 2004-) (807: 2004-) (Boxer Box-230L: 1994-2002) (Boxer Bus-230P: 1994-2002) (Boxer platform / Chassis-ZCT: 1994-2002) Renault (All:1985-1987) (Avantime:2002-) (Espace:2002-)


No. Image Application

7 Saab (900:1978-1993) (9000:1986-1998)
Sterling (All:1987-1991)
Jeep
Volvo (Passenger vehicles w/threaded neck)

8  VW (Vento) (T4) (Passat: 1990-1997) (Beetle) (Sharan) (Cabrio: 1995-2002)
(Corrado: 1990-1994) (Eurovan: 1993-2003) (Golf: 1990-1999)
(1990-1998: with female thread on filler neck of expansion tank - except 1998 Passat & New Beetle) (Jetta: 1990-1999)

9  Audi (A3: 2006-2012) (A3-8P1: 2003) (A3 Convertible: 2008) (A3 Sportback-8PA: 2004)
(A4: 1996-2012) (A4-8EC, B7: 2004-2008) (A4 Avant-8ED, B7: 2004-2008)
(A4 Quattro: 1996-2012) (A5: 2011-2012) (A5 Quattro: 2008-2012) (A6: 1998-2012)
(A6 Quattro: 1998-2011) (A7 Quattro: 2012) (A8 Quattro: 2004-2010)
(Allroad Quattro: 2001-2005) (Q5: 2009-2012) (Q7: 2007-2012) (R8: 2008-2012)
(RS4: 2007-2008) (RS6: 2003) (S4: 2000-2012) (S5: 2008-2012) (S6: 2002-2011)
(S8: 2007-2009) (TT: 2000-2009) (TT-8J3: 2006) (TT-8N3: 1998-2006)
(TT Quattro: 2000-2013) (TT Roadster-8J9: 2007) (TT Roadster 8N9: 1999-2006)
BMW (345)
Porsche (Cayenne)
SEAT (Altea-5P1: 2004) (Cordoba-6K2: 1999-2002) (Cordoba-6L2: 2002-2009)
(Ibiza III-6K1: 1999-2002) (Ibiza IV-6L1: 2002-2009) (Leon-1M1: 199-2006)
(Leon 1P1: 2005) (Toledo-1L: 1991-1999) (Toledo II-1M2: 1999-2006)
Škoda (Fabia: 2006) (Fabia-6Y2: 1999-2008) (Fabia Combi: 2007)(Fabia Combi-6Y5: 2000-2007)
(Fabia Praktik: 2001-2007) (Fabia Saloon-6Y3: 1999-2007) (Laura-1Z3: 2004)
(Octavia 1U2: 1996-2010) (Octavia Combi-1U5: 1998-2010) (Octavia Combi-1Z5: 2004)
(Roomster-5J: 2006) (Superb-3T4: 2008) (Superb-3U4: 2002-2008)
VW (Superb Estate: 3T5: 2009)
(Beetle: 1998-2012) (Caddy III Box-2KA, 2KH, 2CA, 2CH: 2004)
(Caddy III Estate-2KB, 2KJ, 2CB, 2CJ: 2004) (CC: 2009-2013) (Crafter 30-35 Bus 2E: 2006)
(Crafter 30-50 Box 2E: 2006) (Crafter 30-50 Platform / Chassis 2F) (Eos: 2007-2012)
(Eos-1F7, 1F8: 2006) (Fox-5Z1, 5Z3: 2003) (Golf: 1999-2012) (Golf Plus-5M1, 521: 2005)
(Golf V-1K1: 2003-2009) (Golf V Variant (1K5: 2007) (GTI: 2006-2013) (Jetta: 1997-2012)
(Jetta I Saloon-1K2: 2005-2010) (LT 28-35 II Bus-2DM: 1996-2006)
(LT 28-46 II Box-2DX0AE: 1996-2006) (LT 28-46 II Platform / Chassis 2DX0FE: 1996-2006)
(Multivan Mk V- 7HM, 7HN, 7EF, 7EM, 7EN: 2003) (New Beetle-9C1, 1C1: 1998)
(New Beetle Convertible-1Y7: 2002-2010) (Passat: 1998-2012) (Passat-3B3: 2000-2005)
(Passat-3C2: 2005) (Passat Variant-3B6: 2000-2005) (Passat Varian 3C5: 2005)
(Polo-9N: 2001) (Polo Saloon: 2002) (R32: 2008) (Rabbit: 2006-2009) (Tiguan: 2009)
(Touareg: 2004-2012) (Touran-1T1, 1T2, 1T3: 2003)
(Transporter / Caravelle MK V Bus- 7HB, 7HJ, 7EB, 7EJ, 7EF: 2003)
(Transporter MK V Box- 7HA, 7HH, 7EA, 7EH: 2003)
(Transporter MK V Platform / Chassis- 7JD, 7JE, 7JL, 7JY, 7JZ: 2003)


10  BMW (3-E30: 1982-1992) (3-E36: 1990-1998) (3-E46: 1998-2005) (3-E90: 2005)
(3 Compact - E36: 1994-2000) (3 Compact - E46: 2001-2005)
(3 Convertible - E30: 1985-1993) (3 Convertible - E36: 1993-1999)
(3 Convertible - E46: 2000) (3 Coupe - E36: 1992-1999) (3 Coupe - E46: 1999)
(3 Touring - E30: 1987-1994) (3 Touring - E36: 1995-1999) (3 Touring - E46: 1999-2005)
(3 Touring - E91: 2005) (5 - E 28: 1980-1990) (5 - E34: 1987-1995)(5 - E39: 1995-2003)
(5 - E60: 2003) (5 Touring - E34: 1991-1997) (5 touring - E39: 1997-2004)
(7 - E23: 1977-1986) (7 - E32: 1986-1994) (7 - E38: 1994-2001) (7 E65, E66: 2001)
(8 - E31: 1990-1999) (X3 - E83: 2004) (X3 - E53: 2000) (Z3 - E36: 1995-2003)
(Z3 Coupe - E36: 1997-2003) (Z4 - E85: 2003) (Z4 Copupe - E86: 2006)
(Z8 - E53: 2000-2003) (Brilliance 3 Series - E46: 2003-2005)
(Brilliance 3 Series - E90: 2004)
Land Rover (Freelander - LN: 1998) (Range Rover III - LM: 2002)


11  Audi (1975-1993: w/male thread on expansion tank)
VW (1975-1993: w/male thrd on exp.tank) (Golf:1983-1992) (Cabriolet: 1985-1993)
(Dasher: 1980-1981) (Fox: 1987-1993) (Golf: 1985-1990) (Jetta: 1980-1990)
(Quantum: 1980-1988) (Rabbit: 1975) (Rabbit Convertible: 1980-1984)
(Scirocco: 1975-1988)

12  Caterham (Super Seven: 1990-1999)
Ford (Cougar: 1998-2001) (Mondeo: 1996-2007) (Mondeo Estate Wagon: 1996-2007)
(Transit 260: 2000-2006) (Transit 280: 2000-2006) (Transit 300: 2000-2006)
(Transit 330: 2000-2006) (Transit 350: 2000-2006) (Transit 425: 2003-2006)
(Transit 430: 2001-2006) (Transit Tourneo: 2000-2006) (Courier III: 1990-1995)
(Courier IV: 1995-2001) (Escort 55 IV: 1986-1990) (Escort 55 VI: 1994-2000)
(Escort 75 VI: 1994-2000) (Escort IV: 1986-1990) (Escort V: 1990-1996)
(Escort VI: 1995-2000) (Fiesta Classic: 1987-1989) (Fiesta II: 1989-1989)
(Fiesta III: 1989-1996) (Fiesta IV: 1995-1999) (Fiesta V: 1999-2002)

No. Image Application

12	Ford	(Fiesta Van II: 1987-1989) (Fiesta Van III: 0989-1996) (Fiesta Van IV: 1995-2002) (Fiesta Van V: 1999-2002) (Fiesta Van VI: 2002-2008) (Fiesta VI: 2002-2008) (Focus I: 1998-2005) (Focus Wagon I: 1998-2005) (Fusion: 2002-2005) (Granada Scoprio: 1985-1994) (Ka I: 1996-2005) (Mondeo I: 1993-1996) (Mondeo II: 1996-1998) (Mondeo Wagon I: 1993-1996) (Mondeo Wagon II: 1996-2000) (Orion II: 1986-1990) (Orion III: 1990-1993) (P100 Sierra: 1989-1994) (Puma I: 1997-2002) (Scopio I: 1984-1994) (Scoprio II: 1994-1998) (Sierra Cosworth II: 1987-1993) (Sierra I: 1984-1987) (Sierrall: 1987-1993) (Sierra Sapphire II: 1987-1993) (Streetka I: 2003-2005) (Transit 100: 1994-1999) (Transit 120: 1994-1999) (Transit 150: 1994-1999) (Transit 190: 1994-1999) (Transit Connect: 2002-)
	Land Rover	(2: 2002-2007) (121: 1996-2002)
	Mazda	(Agila: 2000-2008) (Ascona B: 1978-1981) (Ascona C: 1981-1988)
	Opel	(Astra Cabrio F: 1993-2001)(Astra Cabrio G: 2001-2005)(Astra Classic F: 1998-2002) (Astra Coupe G: 1999-2005) (Astra F: 1991-1998) (Astra G: 1998-2005) (Astra H:2004-2005) (Astra Van F: 1991-1998) (Astra Van G: 1998-2004) (Calibra: 1989-1998) (Combo Corsa B: 1992-2001) (Combo Corsa C: 2001-2004) (Corsa A: 1982-1993) (Corsa B: 1993-2000) (Corsa C: 2000-2006) (Corsa Van A: 1982-1994) (Corsa Van B: 1994-2001) (Corsa Van C: 2000-2003) (Frontera A: 1991-1998) (Kadett D: 1979-1984) (Kadett E: 1984-1992) (Kadett Van E: 1984-1992) (Manta A: 1974-1975) (Manta B: 1975-1988) (Meriva: 2003-2005) (Monza: 1981-1987) (Omega A: 1986-1994) (Omega B: 1994-2003) (Senator A: 1981-1987) (Senator B: 1987-1993) (Tigra A: 1994-2001) (Tigra B: 2004) (Vectra A: 1988-1995)(Vectra B: 1995-2003)(Zafira A: 1999-2005)(Zafira Van:2002-2003) (900 II: 1993-1998)
	Saab	(Favorit: 1989-1995) (Favorit Forman:1993-1995) (Felicia - 6U1: 1994-2000)
	Skoda	
	Ssangyong	
	Vauxhall	(Astra Cabrio III: 1991-2001) (Astra Cabrio IV: 2001-2007) (Astra Coupe IV: 1999-2005) (Astra I: 1979-1984) (Astra II: 1984-1991) (Astra III: 1991-1998) (Astra IV: 1998-2005) (Astra Van III: 1991-1996) (Astra Van IV: 1998-2005) (Astramax: 1985-1991) (Astravan I 1982-1984) (Astravan II 1984-1991) (Belmont: 1986-1991) (Calibra: 1990-1998) (Carlton: 1983-1994) (Cavalier II: 1981-1988) (Cavalier III: 1988-1995) (Combo: 1993-2004) (Combo Crew Van: 2001-2006) (Corsa I: 1993-2000) (Corsa II: 2000-2006) (Corsa Van I: 1993-2001) (Corsa Van II: 2001-2006) (Frontera A: 1991-1998) (Meriva: 1982-1993) (Nova: 1982-1993) (Nova Van: 1990-1993) (Omega: 1994-2003) (Senator: 1987-1993) (Tigra: 1994-2004) (Vectra I: 1999-2005) (Zafira A: 1999-2005) (Zafira B: 2005-2007)

13		Chrysler Mercedes	(Crossfire: 2004-) w/ thread filler neck on expansion tank, except M-Class) (300SE: 1992-1993) (400SE: 1992) (400SEL: 1993) (500SEC: 1993) (500SEL: 1992-1993) (500SL: 1900-1993) (600SEC: 1993) (600SEL: 1992-1993) (600SL: 1993) (C230: 2002) (C240: 2001-2005) (C280: 1994-2007) (C300: 2008-2009) (C32 AMG: 2002-2004) (C320: 2001: 2005) (C350: 2008) (C36 AMG: 1995-1997) (C43 AMG: 1998-2000) (CL500: 1998-2006) (CL55 AMG: 2001-2002) (CL600: 1998-2006) (CL65 AMG: 2005-2006) (CLK 320: 1998-2005) (CLK 430: 1999-2003) (CLK500: 2003-2005) (CLK55 AMG: 2001-2005) (E300: 1996-1997) (E320: 1996-2005) (E350: 2006-2009) (E420: 1997) (E430: 1998-2002) (E500: 2003-2006) (E55 AMG: 1999-2002) (E550: 2009) (G500: 2002-2005)(G55 AMG: 2003-2005) (GL450: 2007-2008) (ML350: 2006-2008) (ML500: 2006-2007) (ML550: 2008-2009) (S320: 1994-1999) (S350: 1994-2006) (S420: 1994-1999) (S500: 1994-2006) (S55 AMG: 2001-2006) (S600: 1994-2006) (S65 AMG: 2006) (SL320: 1994-1997) (SL500: 1994-1998) (SL600: 1994-2002) (SLK280: 2006-2008) (SLK32 AMG: 2002-2004) (SLK 320: 2001-2004) (SLK 350: 2006-2008) (SLK55 AMG: 2008)
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14		Ford Mercury	(Mondeo: 2000-2007) (Focus: 2000-2005) (C-MAX03) (Contour: 1995-2000) (Cougar: 1999) (Mystique: 1995-1999)
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15		Ford International	(C-Max: (2007-2012) (C-Max II: 2010) (Fiesta V JH, JD: 2001) (Fiesta Van: 2009) (Fiesta VI: 2009) (Fiesta VI: 2008) (Focus C-Max: 2003-2007) (Focus II DA: 2004) (Focus II Convertible: 2006) (Focus II Estate DAW: 2004) (Focus Saloon DA: 2005) (Focus II Station Wagon DAW: 2004) (Focus III: 2011) (Focus III Saloon: 2011) (Focus III Turnier: 2011) (Galaxy: 2006) (Grand C-Max: 2010) (Kuga: 2008) (Mondeo IV: 2007)(Mondeo IV Saloon: 2007) (Mondeo IV Turnier: 2007) (Ranger: 2011) (S-Max: 2006) (Transit Bus: 2006) (Transit Flatbed Chassis: 2006) (Transit Tourneo: 2006)
	Ford Asia & Oceania	(Fiesta: 2002-2013)(Focus: 2004-2011)(Focus Estate Wagon: 2011)(Mondeo: 2007) (Ranger: 2011)	


No. Image Application


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 Ford Europe (B-Max: 2012) (C-Max: 2007-2012) (Fiesta: 2001-2013) (Fiesta Van: 2008-2010)
 (Focus: 2004-2013) (Focus CC: 2006-2011) (Focus C-Max: 2003-2007)
 (Focus Estate Wagon: 2004-2013) (Focus Van: 2005-2013) (Galaxy: 2006-2011)
 (Galaxy Van: 2006-2010) (Grand C-Max: 2010-2012) (Kuga: 2008-2012)
 (Mondeo: 2007-2012) (Mondeo Estate Wagon: 2007-2011) (S-Max: 2006-2011)
 (Transit 250: 2011) (Transit 260: 2006) (Transit 280: 2006) (Transit 300: 2006)
 (Transit 330: 2006-2013) (Transit 350 (2006-2013) (Transit 370: 2006)
 (Transit 410: 2006) (Transit 430: 2006-2013) (Transit 460: 2006)
 (Transit Custom 250: 2012) (Transit Custom 270: 2012) (Transit Custom 290: 2012)
 (Transit Custom 300: 2012) (Transit Custom 310: 2012) (Transit Custom 330: 2012)
 (Transit Tourneo: 2012) (Transit Tourneo Custom: 2012)
 Ford USA (Ranger: 2011)
 Ford Australia (Fiesta WS: 2008) (Fiesta Hatchback WT: 2010) (Fiesta Saloon WT: 2010)
 (Focus Hatchback LT: 2005) (Focus Hatchback LV: 2009-2011)
 (Focus Hatchback LT: 2005) (Focus Saloon LS, LT: 2005) (Focus Saloon LV: 2009-2011)
 (Mondeo Hatchback MA, MB: 2007)
 Land Rover (Freelander 2 FA: 2006) (Range Rover Evoque: 2011) (Freelander: 2006-2013)
 (LR2: 2006)
 Mazda (2: 2007) (3: 2003-2013) (5: 2010) (2 DE: 2007) (3 BK: 2003) (3 BL: 2009)
 (3 Saloon BK: 2000-2009) (3 Saloon BL: 2009) (5 CW: 2010) (Axela: 2003) (BT50: 2011)
 Volvo (C30: 2006-2012) (C70: 2005-2011) (C70 II Convertible: 2006) (S40: 2004-2010)
 (S40 II MS: 2004) (S60: 2010-2013) (S60 II: 2010) (S80: 2006-2012) (S80 II AS: 2006)
 (V40: 2012) (V40 Cross Country: 2012) (V40 Hatchback: 2012) (V50: 2003-2012)
 (V50 NW: 2004) (V60: 2010-2013) (V70: 2007-2012) (V70 III Estate: 2007) (XC60: 2008)
 (XC70: 2007-2012) (XC70 Cross Country: 2007-2011) (XC70 II: 2007)

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 Mercedes (A140: 1997-2004) (A150: 2004-2012) (A160: 1997-2012) (A170: 1998-2012)
 (A180: 2004-2012) (A190: 1999-2004) (A200: 2004-2012) (A21 AMG: 2002-2004)
 (A210: 2002-2004) (B150: 2009-2011) (B160: 2009-2011) (B170: 2005-2011)
 (B180: 2005-2011) (B200: 2005-2011) (Vaneo: 2001-2005) (Vaneo 1.6: 2002)
 (Vaneo 1.7: 2002) (Vaneo 1.9: 2002) (W168: 1997-2004)

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 BMW (X5: 2000-2011) (X5 M: 2009-2012) (X5 xDrive 30i: 2008-2010) (X5 xDrive 48i)
 (X5 xDrive 50i: 2010-2012) (X6: 2008-2012) (ActiveHybrid X6: 2010) (X6 M: 2009)
 (X6 xDrive 35i: 2008-2013) (X6 xDrive 50i: 2008) (Z3: 1996-2002) (Z4: 2003-2008)
 (Z8: 2000-2003)

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 Ford (Galaxy Van: 1995-2006)
 SEAT (Alhambra Van: 1996-2010)
 VW (Sharan Van: 1996-2010)

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 Lexus (GS460: 2008-2011) (HS 250h: 2010) (IS F: 2008-2013) (LS460: 2007-2013)
 (LS 600h: 2008-2012)
 Scion (tC: 2011-2012) (xB: 2008-2012)
 Toyota (Celica: 2000-2005) (MR2 Spyder: 2000-2005) (Prius: 2010-2011) (RAV4: 2006-2012)

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 Saab (EcoPower 9-3, 9-5)

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 Buick (LaCrosse: 2005) (Rainier: 2005-2007)
 Cadillac (CTS: 2006) (Escalade: 2004-2007) (SRX: 2004-2007) (STS: 2005-2006) (BLS: 2007)
 Chevrolet (Avalanche 1500: 2002-2006) (Avalanche: 2007) (Cavalier: 1999-2005)
 (Classic: 2004) (Cobalt: 2007) (Colorado: 2004-2007) (Equinox: 2005-2007)
 (Express 1500: 2004-2007) (Express 2500: 2003-2007) (Express 3500: 2003-2007)
 (HHR: 2007) (Malibu: 2001-2007) (Silverado 1500: 1999-2007)
 (Silverado 1500 HD: 2002-2007) (Silverado 2500: 1999-2004)
 (Silverado 2500 HD: 2001-2007) (Silverado 3500: 2001-2007)
 (Silverado 3500 HD: 2007) (SSR: 2006) (Suburban 1500: 2001-2007)
 (Suburban 2500: 2001-2007) (Tahoe: 2000-2007) (Trailblazer: 2002-2007)
 (Viva: 2003-2008)
 Fiat (Croma: 2005-2013)

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21		<p>Ford (Crown Victoria: 1993-2011)(E-150: 2003-2012)(E-150 Club Wagon: 2003-2005) (E-150 Econoline: 1992-2002)(E-150 Econoline Club Wagon: 1992-2012) E-250 Econoline: 1992-2002)(E-250 Super Duty: 2004-2005)(E-350: 2003) E-350 Club Wagon: 2003-2005)(E-350 Econoline: 1992-2002) E-350 Econoline Club Wagon: 1992-2002)(E-350 Super Duty: 2004-2012) Edge: 2007-2012)(Excursion: 2000-2005)(Expedition: 1997-2008)(Explorer: 2002-2012) F-150: 1997-2012)(F-250 Super Duty: 1999-2012)(F-350 Super Duty: 2005-2012) F-450 Super Duty: 2005-2012)(F-550 Super Duty: 2005-2012) Five Hundred: 2005-2007)(Flex: 2009-2012)(Freestar: 2004-2007)(Fusion: 2006-2012) Mustang: 1996-2012)(Ranger: 1998-2011)(Taurus: 1996-2012) Thunderbird: 2002-2005)(Windstar: 1999-2003)</p> <p>GMC Canyon: 2004-2007)(Envoy: 2003-2007)(K2500 Suburban: 1999) Savana 1500: 2003-2007)(Savana 2500: 2003-2007)(Savana 3500: 2004-2007) Sierra 1500: 1999-2007)(Sierra 1500 HD: 2001-2007)(Sierra 2500: 1999-2004) Sierra 2500 HD: 2001-2007)(Sierra 3500: 2001-2007)(Sierra 3500 HD: 2007) Sierra C3: 2001)(Yukon: 2000-2006)(Yukon XL 1500: 2000-2007) Yukon XL 2500: 2001-2007)</p> <p>Hummer H2: 2004-2006)(H3: 2006)</p> <p>Isuzu Ascender: 2003-2006)(i-280: 2006)(i-290: 2007)</p> <p>Lincoln Continental: 1995-2002)(Mark VIII: 1993-1998)(MKS: 2009-2012)(MKT: 2010-2012) MKX: 2007-2012)(MKZ: 2007-2012)(Town Car: 1993-2011)(Zephyr: 2006)</p> <p>Mazda Mazda 6: 2006)</p> <p>Mercury Cougar: 1993-1997)(Grand Marquis: 1993-2011)(Milan: 2006-2011) Monterey: 2004-2007)(Sable: 1996-2009)</p> <p>Oldsmobile (Alero: 1999-2004)(Cutlass: 1999)(Intrigue: 2002)</p> <p>Opel (Astra: 2004-2013)(Astra Cabrio: 2003-2006)(Astra Classic: 2006-2009) Astra Coupe: 2003-2005)(Astra GTC: 2005-2011)(Astra H: 2004-2010) Astra Van: 2004-2010)(Corsa: 2006-2013)(Corsa D: 2007-2011) Corsa Van: 2006-2010)(Meriva: 2006-2010)(Signum: 2003-2008) Vectra: 2002-2008)(Zafira: 2005)(Zafira B: 2005-2011)(Zafira Van: 2005)</p> <p>Pontiac G5: 2007)(G6: 2006)(Grand Am: 199-2005)(Grand Prix: 2005-2006) Pursuit: 2005-2006)(Solstice: 2006-2007)(Sunfire: 2005)</p> <p>Saab 9-3: 2003-2012)(9-3 Sport: 2002-2012)(9-3 X: 2009-2012)(9-7 X: 2007)</p> <p>Saturn Aura: 2007)(Ion 1: 2003-2005)(Ion 2: 2003-2007)(Ion 3: 2003-2007)(Outlook: 2007) Sky: 2007)(Vue: 2005-2007)</p> <p>Suzuki XL-7: 2007)</p> <p>Vauxhall (Astra: 2002-2011)(Astra Cabrio: 2006-2011)(Astra Coupe: 2005-2008) Astra GTC: 2004-2011)(Combo: 2005-2011)(Corsa: 2006-2012)(Meriva: 2006-2010) Signum: 2003-2008)(Vectra: 2002-2008)(Zafira: 2005-2013)</p>
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	<p>BMW (550i: 2010-2012) (550i Gran Turismo: 2012) (550i GT: 2010-2012) 550i GT xDrive: 2011-2012)(550i xDrive Gran Turismo: 2012) (550i X: 2011-2012) 550i XGT: 2010-2012) (650i: 2012)(650i Cabrio: 2012)(650i Convertible: 2011-2012) 650i Coupe: 2011-2012)(650i Gran Coupe: 2012)(650i xDrive Gran Coupe: 2012) 650iX Convertible: 2012)(650i X Coupe: 2012)(750i: 2009-2012) 750i Active Hybrid: 2011) (750i xDrive: 2010-2011)(750i X: 2010)(750Li: 2009-2012) 750 Li Active Hybrid: 2011) (750 LiX: 2010) (760i: 2010-2012)(760Li: 2010-2012) Alpina B7: 2010-2012) (Alpina B7 xDrive: 2011-2012)(Alpina B7L: 2010-2012) Alpina B7L xDrive: 2011-2012) (Alpina B7LX: 2011-2012)(Alpina B7X: 2011-2012) Hybrid 5: 2012) (M5: 2012) (M6 Convertible: 2012)(X5: 2004-2012) (X5 50iX: 2011) X5 M: 2009-2010) (X5 xDrive 48i: 2008-2010)(X5 xDrive 50i: 2010) (X6: 2008-2012) X6 50iX: 2008-2010) (X6 Active Hybrid: 2010)(X6 Hybrid: 2010-2011) X6 M: 2009-2010)(X6 xDrive 50i: 2008)</p> <p>Land Rover (Range Rover: 2003-2005)</p> <p>Mini (Cooper: 2008-2012) (Cooper Clubman: 2008-2012) (Cooper Countryman: 2011-2012) Cooper Convertible: 2009-2012)(Cooper S Clubman: 2008-2012) Cooper S Convertible: 2009-2012)(Cooper SX: 2011-2012)(Cooper Works: 2007-2012) Cooper Works Clubman: 2008-2012) (Cooper Works Convertible: 2009-2012) Cooper S: 2007-2012) (Mini Clubman: 2007-2013) (Mini Clubvan: 2010-2012) Mini Cooper: 2006-2013) (Mini Countryman: 2010-2013) (Mini Coupe: 2011) Mini One: 2009-2010)(Mini Roadster: 2012)</p>
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