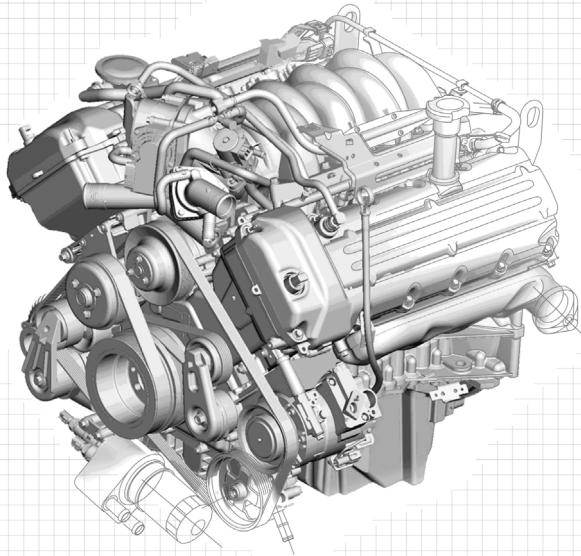


# VEHICLE SPECIFICATIONS



06/2007





Using correct and up-to-date technical data and specifications when servicing Land Rover Vehicles is important to ensure a safe and trouble free operation.

This booklet is produced to assist Land Rover Service Technicians in their task of providing first class repairs and service to Land Rover Vehicles, enabling them to achieve the high standard of workmanship customers expect from Land Rover Retailers.

The date printed on the front cover is the issue date of the booklet. The booklet will be updated and reissued periodically to enable the inclusion of new and modified data.

In between these updates we recommend that information issued in GTR, which supersedes the information issued here, should be entered by hand into this booklet.

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RANGE ROVER	
Model Year	Start VIN
2007 (ROW)	SALLM****7A239036
2007 (NAS)	SALM*****7A239037
<p>It is essential that the Vehicle Identification Number (VIN) is quoted when ordering parts, and in all associated correspondence. A quick reference VIN is visible through the left-hand lower corner of the windshield.</p> <p><b>Engines:</b></p> <p>V8 – 3.6L Diesel</p> <p>V8 – 4.2L SC Gasoline</p> <p>V8 – 4.4L Gasoline</p>	

Notes

RANGE ROVER SPORT	
Model Year	Start VIN
2007 (ROW)	SALLS****7A983117
2007 (NAS)	SALS*****7A983121
<p>It is essential that the Vehicle Identification Number (VIN) is quoted when ordering parts, and in all associated correspondence. A quick reference VIN is visible through the left-hand lower corner of the windshield.</p> <p><b>Engines:</b></p> <p>V6 – 2.7L Diesel</p> <p>V8 – 3.6L Diesel</p> <p>V8 – 4.2L SC Gasoline</p> <p>V8 – 4.4L Gasoline</p>	

Notes

DISCOVERY 3	
Model Year	Start VIN
2007 (ROW)	SALLA****7A413983
2007 (NAS)	SALA*****7A414023
<p>It is essential that the Vehicle Identification Number (VIN) is quoted when ordering parts, and in all associated correspondence. A quick reference VIN is visible through the left-hand lower corner of the windshield.</p> <p><b>Engines:</b></p> <p>V6 – 2.7L Diesel</p> <p>V6 – 4.0L Gasoline</p> <p>V8 – 4.4L Gasoline</p>	

## Notes

FREELANDER 2	
Model Year	Start VIN
2007 (ROW)	SALFA****7H010001
2008 (NAS)	SALF*****8H009353
<p>It is essential that the Vehicle Identification Number (VIN) is quoted when ordering parts, and in all associated correspondence. A quick reference VIN is visible through the left-hand lower corner of the windshield.</p> <p><b>Engines:</b>                      Inline 4 – 2.2L Diesel                      Inline 6 – 3.2L Gasoline</p>	

## Notes



DEFENDER	
Model Year	Start VIN
2007	SALLD****7A732615
<p>It is essential that the Vehicle Identification Number (VIN) is quoted when ordering parts, and in all associated correspondence. A quick reference VIN is visible through the left-hand lower corner of the windshield.</p> <p><b>Engines:</b>                      Inline 4 – 2.4L Diesel</p>	

Notes

Vehicle	Units	CAMBER					
		Left-Hand		Right-Hand		Balance	
		Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance
<b>RANGE ROVER – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	– 0.33°	± 0.75°	– 0.33°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	– 0° 20'	± 0° 45'	– 0° 20'	± 0° 45'	0° 00'	± 0° 45'
<b>RANGE ROVER SPORT – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	– 0.50°	± 0.75°	– 0.50°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	– 0° 30'	± 0° 45'	– 0° 30'	± 0° 45'	0° 00'	± 0° 45'
<b>DISCOVERY 3 – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	– 0.50°	± 0.75°	– 0.50°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	– 0° 30'	± 0° 45'	– 0° 30'	± 0° 45'	0° 00'	± 0° 45'
<b>FREELANDER 2 – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	– 0.50°	± 0.75°	– 0.50°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	– 0° 30'	± 0° 45'	– 0° 30'	± 0° 45'	0° 00'	± 0° 45'
<b>DEFENDER – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	– 0.17°	± 0.75°	– 0.17°	± 0.75°	0.00°	± 1.00°
	Degrees/Minutes	– 0° 10'	± 0° 45'	– 0° 10'	± 0° 45'	0° 00'	± 0° 60'

Vehicle	Units	CASTER					
		Left-Hand		Right-Hand		Balance	
		Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance
<b>RANGE ROVER – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	+ 6.09°	± 0.75°	+ 6.09°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	+ 6° 05'	± 0° 45'	+ 6° 05'	± 0° 45'	0° 00'	± 0° 45'
<b>RANGE ROVER SPORT – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	+ 4.02°	± 0.75°	+ 4.02°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	+ 4° 01'	± 0° 45'	+ 4° 01'	± 0° 45'	0° 00'	± 0° 45'
<b>DISCOVERY 3 – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	+ 4.02°	± 0.75°	+ 4.02°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	+ 4° 01'	± 0° 45'	+ 4° 01'	± 0° 45'	0° 00'	± 0° 45'
<b>FREELANDER 2 – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	+ 3.25°	± 0.75°	+ 3.25°	± 0.75°	0.00°	± 0.75°
	Degrees/Minutes	+ 3° 15'	± 0° 45'	+ 3° 15'	± 0° 45'	0° 00'	± 0° 45'
<b>DEFENDER – 2007 MY onwards</b>							
All Derivatives	Decimal Degrees	+ 3.25°	± 0.75°	+ 3.25°	± 0.75°	0.00°	± 1.00°
	Degrees/Minutes	+ 3° 15'	± 0° 45'	+ 3° 15'	± 0° 45'	0° 00'	± 0° 60'

Notes

Vehicle	Units	TOE	
		Total Toe	
		Nominal	Tolerance
RANGE ROVER – 2007 MY onwards			
V8 – 3.6L Diesel	Decimal Degrees	+ 0.15°	± 0.20°
	Degrees/Minutes	+ 0° 09'	± 0° 12'
V8 – 4.2L SC Gasoline	Decimal Degrees	– 0.15°	± 0.20°
	Degrees/Minutes	– 0° 09'	± 0° 12'
V8 – 4.4L Gasoline	Decimal Degrees	0.00°	± 0.20°
	Degrees/Minutes	0° 00'	± 0° 12'

Vehicle	Units	TOE	
		Total Toe	
		Nominal	Tolerance
RANGE ROVER SPORT – 2007 MY onwards			
V6 – 2.7L Diesel	Decimal Degrees	– 0.16°	± 0.20°
	Degrees/Minutes	– 0° 10'	± 0° 12'
V8 – 3.6L Diesel	Decimal Degrees	– 0.08°	± 0.20°
	Degrees/Minutes	– 0° 05'	± 0° 12'
V8 – 4.2L SC Gasoline	Decimal Degrees	– 0.16°	± 0.20°
	Degrees/Minutes	– 0° 10'	± 0° 12'
V8 – 4.4L Gasoline	Decimal Degrees	– 0.16°	± 0.20°
	Degrees/Minutes	– 0° 10'	± 0° 12'

Notes

Vehicle	Units	TOE	
		Total Toe	
		Nominal	Tolerance
DISCOVERY 3 – 2007 MY onwards			
All Derivatives	Decimal Degrees	+ 0.16°	± 0.20°
	Degrees/Minutes	+ 0° 10'	± 0° 12'
FREELANDER 2 – 2007 MY onwards			
All Derivatives	Decimal Degrees	+ 0.20°	± 0.20°
	Degrees/Minutes	+ 0° 12'	± 0° 12'
DEFENDER – 2007 MY onwards			
All Derivatives	Decimal Degrees	– 0.17°	± 0.17°
	Degrees/Minutes	– 0° 10'	± 0° 10'

Notes

Vehicle	Units	CAMBER				Notes
		Left-Hand		Right-Hand		
		Nominal	Tolerance	Nominal	Tolerance	
RANGE ROVER – 2007 MY onwards						
All Derivatives	Decimal Degrees	– 1.00°	± 0.75°	– 1.00°	± 0.75°	
	Degrees/Minutes	– 0° 60'	± 0° 45'	– 0° 60'	± 0° 45'	
RANGE ROVER SPORT – 2007 MY onwards						
All Derivatives	Decimal Degrees	– 1.00°	± 0.75°	– 1.00°	± 0.75°	
	Degrees/Minutes	– 0° 60'	± 0° 45'	– 0° 60'	± 0° 45'	
DISCOVERY 3 – 2007 MY onwards						
Air Suspension	Decimal Degrees	– 1.00°	± 0.75°	– 1.00°	± 0.75°	
	Degrees/Minutes	– 0° 60'	± 0° 45'	– 0° 60'	± 0° 45'	
Coil Suspension	Decimal Degrees	– 0.50°	± 0.75°	– 0.50°	± 0.75°	
	Degrees/Minutes	– 0° 30'	± 0° 45'	– 0° 30'	± 0° 45'	
FREELANDER 2 – 2007 MY onwards						
All Derivatives	Decimal Degrees	– 1.95°	± 0.75°	– 1.95°	± 0.75°	
	Degrees/Minutes	– 1° 57'	± 0° 45'	– 1° 57'	± 0° 45'	
DEFENDER – 2007 MY onwards						
All Derivatives	Decimal Degrees	– 0.17°	± 0.75°	– 0.17°	± 0.75°	
	Degrees/Minutes	– 0° 10'	± 0° 45'	– 0° 10'	± 0° 45'	

Vehicle	Units	TOE							
		Left-Hand		Right-Hand		Thrust Angle		Total Toe	
		Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance
<b>RANGE ROVER – 2007 MY onwards</b>									
V8 – 3.6L Diesel	Decimal Degrees	+ 0.10°	± 0.14°	+ 0.10°	± 0.14°	0.00°	± 0.14°	+ 0.20°	± 0.20°
	Degrees/Minutes	+ 0° 06'	± 0° 08'	+ 0° 06'	± 0° 08'	0° 00'	± 0° 08'	+ 0° 12'	± 0° 12'
V8 – 4.2L SC Gasoline	Decimal Degrees	+ 0.10°	± 0.14°	+ 0.10°	± 0.14°	0.00°	± 0.14°	+ 0.20°	± 0.20°
	Degrees/Minutes	+ 0° 06'	± 0° 08'	+ 0° 06'	± 0° 08'	0° 00'	± 0° 08'	+ 0° 12'	± 0° 12'
V8 – 4.4L Gasoline	Decimal Degrees	+ 0.17°	± 0.14°	+ 0.17°	± 0.14°	0.00°	± 0.14°	+ 0.33°	± 0.20°
	Degrees/Minutes	+ 0° 10'	± 0° 08'	+ 0° 10'	± 0° 08'	0° 00'	± 0° 08'	+ 0° 20'	± 0° 12'
<b>RANGE ROVER SPORT – 2007 MY onwards</b>									
V6 – 2.7L Diesel	Decimal Degrees	+ 0.12°	± 0.10°	+ 0.12°	± 0.10°	0.00°	± 0.14°	+ 0.24°	± 0.14°
	Degrees/Minutes	+ 0° 07'	± 0° 06'	+ 0° 07'	± 0° 06'	0° 00'	± 0° 08'	+ 0° 14'	± 0° 08'
V8 – 3.6L Diesel	Decimal Degrees	+ 0.20°	± 0.14°	+ 0.20°	± 0.14°	0.00°	± 0.14°	+ 0.40°	± 0.20°
	Degrees/Minutes	+ 0° 12'	± 0° 08'	+ 0° 12'	± 0° 08'	0° 00'	± 0° 08'	+ 0° 24'	± 0° 12'
V8 – 4.2L SC Gasoline	Decimal Degrees	+ 0.12°	± 0.10°	+ 0.12°	± 0.10°	0.00°	± 0.14°	+ 0.24°	± 0.14°
	Degrees/Minutes	+ 0° 07'	± 0° 06'	+ 0° 07'	± 0° 06'	0° 00'	± 0° 08'	+ 0° 14'	± 0° 08'
V8 – 4.4L Gasoline	Decimal Degrees	+ 0.12°	± 0.10°	+ 0.12°	± 0.10°	0.00°	± 0.14°	+ 0.24°	± 0.14°
	Degrees/Minutes	+ 0° 07'	± 0° 06'	+ 0° 07'	± 0° 06'	0° 00'	± 0° 08'	+ 0° 14'	± 0° 08'



Vehicle	Units	TOE							
		Left-Hand		Right-Hand		Thrust Angle		Total Toe	
		Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance
<b>DISCOVERY 3 – 2007 MY onwards</b>									
Air Suspension	Decimal Degrees	+ 0.12°	± 0.10°	+ 0.12°	± 0.10°	0.00°	± 0.14°	+ 0.24°	± 0.14°
	Degrees/Minutes	+ 0° 07'	± 0° 06'	+ 0° 07'	± 0° 06'	0° 00'	± 0° 08'	+ 0° 14'	± 0° 08'
Coil Suspension	Decimal Degrees	+ 0.12°	± 0.10°	+ 0.12°	± 0.10°	0.00°	± 0.14°	+ 0.24°	± 0.14°
	Degrees/Minutes	+ 0° 07'	± 0° 06'	+ 0° 07'	± 0° 06'	0° 00'	± 0° 08'	+ 0° 14'	± 0° 08'
<b>FREELANDER 2 – 2007 MY onwards</b>									
All Derivatives	Decimal Degrees	+ 0.17°	± 0.14°	+ 0.17°	± 0.14°	0.00°	± 0.14°	+ 0.33°	± 0.20°
	Degrees/Minutes	+ 0° 10'	± 0° 08'	+ 0° 10'	± 0° 08'	0° 00'	± 0° 08'	+ 0° 20'	± 0° 12'
<b>DEFENDER – 2007 MY onwards</b>									
All Derivatives	Decimal Degrees	+ 0.04°	± 0.10°	+ 0.04°	± 0.10°	0.00°	± 0.30°	+ 0.08°	± 0.17°
	Degrees/Minutes	+ 0° 02'	± 0° 06'	+ 0° 02'	± 0° 06'	0° 00'	± 0° 18'	+ 0° 05'	± 0° 10'

Notes

Vehicle	Ride Height	
	Front	Rear
<b>RANGE ROVER 2007 MY onwards</b>		
All Derivatives	493 ± 6 mm 19.5 ± 0.25 inches	483 ± 6 mm 19 ± 0.25 inches
<b>FREELANDER 2 – 2007 MY onwards</b>		
All Derivatives	491 ± 12 mm 19 ± 0.5 inches	505 ± 12 mm 20 ± 0.5 inches

Notes

**Note:** RANGE ROVER, FREELANDER 2: ride height is measured from the center of the wheel to the apex of the wheel arch, vertically through the wheel center line.

Vehicle	Ride Height		<u>Notes</u>
	Front	Rear	
<b>RANGE ROVER SPORT – 2007 MY onwards</b>			
All Derivatives	98 ± 6 mm 3.8 ± 0.25 inches	127 ± 6 mm 5 ± 0.25 inches	
<b>DISCOVERY 3 – 2007 MY onwards</b>			
All Derivatives	98 ± 6 mm 3.8 ± 0.25 inches	127 ± 6 mm 5 ± 0.25 inches	

**Note:** RANGE ROVER SPORT, DISCOVERY 3: ride height calibration can only be performed using Land Rover approved diagnostic equipment.

**Front Suspension** ride height is measured from the center of the wheel to the bolt-head-center of the lower-suspension-arm, front-bolt.

**Rear Suspension** ride height is measured from the center of the wheel to the bolt-head-center of the lower-suspension-arm, rear-bolt.

Vehicle	Ride Height		<u>Notes</u>
	Front	Rear	
<b>DEFENDER – 2007 MY onwards</b>			
90 Model	84 ± 15 mm 3.3 ± 0.6 inches	97 ± 15 mm 3.8 ± 0.6 inches	
110 Model	72 ± 15 mm 2.8 ± 0.6 inches	130 ± 15 mm 5.1 ± 0.6 inches	
130 Model	97 ± 15 mm 3.8 ± 0.6 inches	152 ± 15 mm 5.9 ± 0.6 inches	

**Note:** DEFENDER: ride height is measured vertically from the top of the axle bump stop plate to the underside of the bump stop.

Vehicle	Wheel	Tire	Tire Pressure – bar – (lbf/in <sup>2</sup> )			
			Normal		Gross Vehicle Weight	
			Front	Rear	Front	Rear
<b>RANGE ROVER – 2007 MY onwards</b>						
	8.0J X 18	255/60R 18 112V	2.3 – (33)	2.5 – (36)	2.5 – (36)	2.9 – (42)
	8.0J X 19	255/55R 19 111V				
	8.5J X 20	255/55R 20 109Y				
Space Saver Spare	5.5J X 19	T175/80R 19 122M	4.2 – (60)	4.2 – (60)	4.2 – (60)	4.2 – (60)
<b>RANGE ROVER SPORT – 2007 MY onwards</b>						
	7.0J X 17	235/65R 17 108H	2.3 – (33)	2.5 – (36)	2.6 – (38)	2.9 – (42)
	8.0J X 18	255/55R 18 109V				
	9.0J X 19	255/50R 19 107Y				
	9.5J X 20	275/40R 20 106Y				
Spare	8.0J X 19	255/50R 19 107Y				
Space Saver Spare	5.5J X 19	T175/80R 19 122M	4.2 – (60)	4.2 – (60)	4.2 – (60)	4.2 – (60)

Notes

Vehicle	Wheel	Tire	Tire Pressure – bar – (lbf/in <sup>2</sup> )			
			Normal		Gross Vehicle Weight	
			Front	Rear	Front	Rear
<b>DISCOVERY 3 – 2007 MY onwards</b>						
	7.0J X 17	235/70R 17 107H	2.3 – (33)	2.5 – (36)	2.3 – (33)	2.9 – (42)
	8.0J X 18	255/60R 18 112V				
	8.0J X 19	255/55R 19 111V				
Space Saver Spare	5.5J X 19	T175/80R 19 122M	4.2 – (60)	4.2 – (60)	4.2 – (60)	4.2 – (60)
<b>FREELANDER 2 – 2007 MY onwards</b>						
	6.5J X 16	215/75R 16 105H or 107H	2.2 – (32)	2.2 – (32)	2.2 – (32)	2.2 – (32)
	7.5J X 17	235/65R 17 104V or 108V				
	8.0J X 18	235/60R 18 103V or 107V				
	8.0J X 19	235/55R 19 101H or 105H	2.4 – (35)	2.4 – (35)	2.4 – (35)	2.4 – (35)
Spare	7.0J X 17	235/65R 17 104V	2.2 – (32)	2.2 – (32)	2.2 – (32)	2.2 – (32)

**Note:** FREELANDER 2 – tire load capacity depends on tire manufacturer.

**Notes**

Vehicle	Wheel	Tire	Tire Pressure – bar – (lbf/in <sup>2</sup> )			
			Normal		Gross Vehicle Weight	
			Front	Rear	Front	Rear
DEFENDER – 2007 MY onwards						
90 Model	5.5F X 16	7.5 R16 108N	2.0 – (29)	2.6 – (38)	–	–
		7.5 R16 C 116N				
		205/80 R16 104T				
	5.5J X 16	7.5 R16 108N				
		205/80 R16 104T				
	7J X 16 EH2	LT 235/85 R16 120Q				
110 Model	5.5F X 16	7.5 R16 108N	2.0 – (29)	3.4 – (49)	–	–
		7.5 R16 C 116N				
	5.5J X 16	7.5 R16 108N	2.3 – (33)	3.4 – (49)	2.3 – (33)	4.5 – (65)
	7J X 16 EH2	LT 235/85 R16 120Q				
130 Model	6.5J X 16 TT	7.5 R16 C 116N	3.0 – (44)	4.6 – (66)	–	–
	6.5J X 16 H2	7.5 R16 C 116N				

**Notes**

Notes

Wheel Nut Torque		
Aluminium Wheel	Steel Wheel	
<b>RANGE ROVER – 2007 MY onwards</b>		
130 – 150 Nm	130 – 150 Nm	
96 – 110 lbf ft.	96 – 110 lbf ft.	
<b>RANGE ROVER SPORT – 2007 MY onwards</b>		
130 – 150 Nm	130 – 150 Nm	
96 – 110 lbf ft.	96 – 110 lbf ft.	
<b>DISCOVERY 3 – 2007 MY onwards</b>		
130 – 150 Nm	130 – 150 Nm	
96 – 110 lbf ft.	96 – 110 lbf ft.	
<b>FREELANDER 2 – 2007 MY onwards</b>		
113 – 153 Nm	113 – 153 Nm	
83 – 113 lbf ft.	83 – 113 lbf ft.	
<b>DEFENDER – 2007 MY onwards</b>	Standard	Heavy Duty
123 – 136 Nm	100 – 115 Nm	163 – 176 Nm
91 – 100 lbf ft.	74 – 85 lbf ft.	120 – 130 lbf ft.



Engine	Fluid Specification	Quantity	Part Number
RANGE ROVER – 2007 MY onwards			
V8 – 3.6L Diesel	Texaco Cold Climate Fluid 33270	1.6 liters / 3.4 US pints	STC50519 – 1 liter container STC50517 – 2.5 liter container
V8 – 4.2L SC Gasoline			
V8 – 4.4L Gasoline			
RANGE ROVER SPORT – 2007 MY onwards			
V6 – 2.7L Diesel	Texaco Cold Climate Fluid 33270	1.3 liters / 2.7 US pints	STC50519 – 1 liter container STC50517 – 2.5 liter container
V8 – 3.6L Diesel			
V8 – 4.2L SC Gasoline	Texaco Cold Climate Fluid 33270	1.5 liters / 3.2 US pints	
V8 – 4.4L Gasoline			

## Notes

Engine	Fluid Specification	Quantity	Part Number
DISCOVERY 3 – 2007 MY onwards			
V6 – 2.7L Diesel	Texaco Cold Climate Fluid 33270	1.2 liters / 2.5 US pints	STC50519 – 1 liter container STC50517 – 2.5 liter container
V6 – 4.0L Gasoline	Texaco Cold Climate Fluid 33270	1.4 liters / 3.0 US pints	
V8 – 4.4L Gasoline			
FREELANDER 2 – 2007 MY onwards			
Inline 4 – 2.2L Diesel	Pentosin	1.0 liter / 2.1 US pints	CHF202
Inline 6 – 3.2L Gasoline	Pentosin	1.2 liters / 2.5 US pints	CHF202
DEFENDER – 2007 MY onwards			
Inline 4 – 2.4L Diesel	Texaco Cold Climate Fluid 33270	1.6 liters / 3.4 US pints	STC50519 – 1 liter container STC50517 – 2.5 liter container

Notes

RANGE ROVER – 2007 MY onwards	Torque		<u>Notes</u>
	Nm	lbf ft	
Battery negative cable to battery	10	7	
Battery positive cable to battery	10	7	
Battery securing clamp	10	7	
Brake caliper – Brembo (front wheel)	65 Nm + 90 degrees	48 lbf ft + 90 degrees	
Brake caliper – standard (front wheel)	35	26	
Brake caliper (rear wheel)	35	26	
Brake caliper anchor plate (front wheel)	65 Nm + 90 degrees	48 lbf ft + 90 degrees	
Brake caliper anchor plate (rear wheel)	15 Nm + 60 degrees	11 lbf ft + 60 degrees	
Brake disc (front wheel)	16	12	
Brake disc (rear wheel)	16	12	
Tie-rod-end ball joint to wheel knuckle	80	59	
Tie-rod-end locking nut	55	40	
Wheel speed sensor (front wheel)	8	6	
Wheel speed sensor (rear wheel)	8	6	
Refer to GTR for tightening sequences			

RANGE ROVER SPORT – 2007 MY onwards	Torque		<u>Notes</u>
	Nm	lbf ft	
Battery negative cable to battery	5	4	
Battery positive cable to battery	5	4	
Battery securing clamp	5	4	
Brake caliper – Brembo (front wheel)	275	202	
Brake caliper – standard (front wheel)	35	26	
Brake caliper (rear wheel)	35	26	
Brake caliper anchor plate (front wheel)	275	202	
Brake caliper anchor plate (rear wheel)	115	85	
Brake disc (front wheel)	35	26	
Brake disc (rear wheel)	35	26	
Tie-rod-end ball joint to wheel knuckle	70	52	
Tie-rod-end locking nut	55	40	
Wheel speed sensor (front wheel)	9	7	
Wheel speed sensor (rear wheel)	9	7	

Refer to GTR for tightening sequences

DISCOVERY 3 – 2007 MY onwards	Torque		<u>Notes</u>
	Nm	lbf ft	
Battery negative cable to battery	10	7	
Battery positive cable to battery	10	7	
Battery securing clamp	10	7	
Brake caliper (front wheel)	35	26	
Brake caliper (rear wheel)	32	24	
Brake caliper anchor plate (front wheel)	275	202	
Brake caliper anchor plate (rear wheel)	115	85	
Brake disc (front wheel)	35	26	
Brake disc (rear wheel)	35	26	
Tie-rod-end ball-joint to wheel knuckle	70	52	
Tie-rod-end locking nut	55	40	
Wheel speed sensor (front wheel)	9	7	
Wheel speed sensor (rear wheel)	9	7	
Refer to GTR for tightening sequences			

FREELANDER 2 – 2007 MY onwards	Torque	
	Nm	lbf ft
Battery negative cable to battery	10	7
Battery positive cable to battery	10	7
Battery securing clamp	24	17
Brake caliper (front wheel)	28	20
Brake caliper (rear wheel)	28	20
Brake caliper anchor plate (front wheel)	200	147
Brake caliper anchor plate (rear wheel)	110	81
Brake disc (front wheel)	24	17
Brake disc (rear wheel)	35	25
Driveshaft center bearing bracket to body	25	18
Driveshaft to center bearing bracket	25	18
Driveshaft to flange	40	29
Engine undershield	60	44
Tie-rod-end ball joint to wheel knuckle	70	51
Tie-rod-end locking nut	85	62
Wheel speed sensor (front wheel)	5	3
Wheel speed sensor (rear wheel)	9	6

Notes

Refer to GTR for tightening sequences

DEFENDER – 2007 MY onwards	Torque		<u>Notes</u>
	Nm	lbf ft	
Battery negative cable to battery	5	4	
Battery positive cable to battery	5	4	
Battery securing clamp	10	7	
Brake caliper (front wheel)	82	60	
Brake caliper (rear wheel)	82	60	
Brake disc (front wheel)	73*	54*	
Brake disc (rear wheel)	73*	54*	
Front driveshaft to front flange	47	35	
Front driveshaft to rear flange	47	35	
Rear driveshaft to front flange	50	37	
Rear driveshaft to rear flange	47	35	
Tie-rod-end ball joint to wheel knuckle	40	30	
Tie-rod-end clamp bolt	14	10	

**Note:** \* Apply Loctite 270 to bolts before assembly.

Refer to GTR for tightening sequences

Engine	Engine Capacity	Engine Description	Max. Engine Torque (SAE)	Max. Engine Power (SAE)	Max. Engine Torque (EEC)	Max. Engine Power (EEC)	Comp. Ratio	Bore	Stroke
<b>RANGE ROVER – 2007 MY onwards</b>									
3.6L Diesel	3630 cm <sup>3</sup> 222 in <sup>3</sup>	60° V 8 Cylinders 32 Valves	Not Applicable	Not Applicable	640 Nm at 2000 rev/min	200 kW at 4000 rev/min	17.3 : 1 ± 0.5 : 1	81.0 mm 3.189 in	88.0 mm 3.464 in
4.2L SC Gasoline	4197 cm <sup>3</sup> 256.1 in <sup>3</sup>	90° V 8 Cylinders 32 Valves	420 lbf-ft at 3500 rev/min	400 bhp at 5750 rev/min	560 Nm at 3500 rev/min	291 kW at 5750 rev/min	9.1 : 1 ± 0.5 : 1	86.0 mm 3.386 in	90.3 mm 3.555 in
4.4L Gasoline	4394 cm <sup>3</sup> 268.1 in <sup>3</sup>	90° V 8 Cylinders 32 Valves	325 lbf-ft at 4000 rev/min	305 bhp at 5750 rev/min	440 Nm at 4000 rev/min	225 kW at 5750 rev/min	10.5 : 1 ± 0.5 : 1	88.0 mm 3.465 in	90.3 mm 3.555 in

## Notes



Engine	Engine Capacity	Engine Description	Max. Engine Torque (SAE)	Max. Engine Power (SAE)	Max. Engine Torque (EEC)	Max. Engine Power (EEC)	Comp. Ratio	Bore	Stroke
<b>RANGE ROVER SPORT – 2007 MY onwards</b>									
2.7L Diesel	2720 cm <sup>3</sup> 166 in <sup>3</sup>	60° V 6 Cylinders 24 Valves	Not Applicable	Not Applicable	440 Nm at 1900 rev/min	140 kW at 4000 rev/min	18 : 1 ± 0.5 : 1	81.0 mm 3.189 in	88.0 mm 3.464 in
3.6L Diesel	3630 cm <sup>3</sup> 222 in <sup>3</sup>	60° V 8 Cylinders 32 Valves	Not Applicable	Not Applicable	640 Nm at 2000 rev/min	200 kW at 4000 rev/min	17.3 : 1 ± 0.5 : 1	81.0 mm 3.189 in	88.0 mm 3.464 in
4.2L SC Gasoline	4197 cm <sup>3</sup> 256 in <sup>3</sup>	90° V 8 Cylinders 32 Valves	410 lbf-ft at 3500 rev/min	390 bhp at 5750 rev/min	550 Nm at 3500 rev/min	287 kW at 5750 rev/min	9.1 : 1 ± 0.5 : 1	86.0 mm 3.386 in	90.3 mm 3.555 in
4.4L Gasoline	4394 cm <sup>3</sup> 268 in <sup>3</sup>	90° V 8 Cylinders 32 Valves	315 lbf-ft at 4000 rev/min	300 bhp at 5500 rev/min	425 Nm at 4000 rev/min	220 kW at 5500 rev/min	10.75 : 1 ± 0.5 : 1	88.0 mm 3.465 in	90.3 mm 3.555 in

## Notes

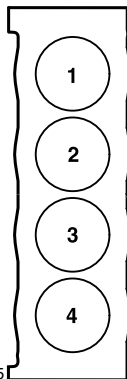
Engine	Engine Capacity	Engine Description	Max. Engine Torque (SAE)	Max. Engine Power (SAE)	Max. Engine Torque (EEC)	Max. Engine Power (EEC)	Comp. Ratio	Bore	Stroke
<b>DISCOVERY 3 – 2007 MY onwards</b>									
2.7L Diesel	2720 cm <sup>3</sup> 166 in <sup>3</sup>	60° V 6 Cylinders 24 Valves	Not Applicable	Not Applicable	440 Nm at 1900 rev/min	140 kW at 4000 rev/min	18 : 1 ± 0.5 : 1	81.0 mm 3.189 in	88.0 mm 3.465 in
4.0L Gasoline	4009 cm <sup>3</sup> 245 in <sup>3</sup>	60° V 6 Cylinders 12 Valves	269 lbf-ft at 3000 rev/min	216 bhp at 4500 rev/min	360 Nm at 3000 rev/min	160 kW at 4500 rev/min	9.75 : 1 ± 0.5 : 1	100.4 mm 3.953 in	84.4 mm 3.323 in
4.4L Gasoline	4394 cm <sup>3</sup> 268 in <sup>3</sup>	90° V 8 Cylinders 32 Valves	315 lbf-ft at 4000 rev/min	300 bhp at 5500 rev/min	425 Nm at 4000 rev/min	220 kW at 5500 rev/min	10.5 : 1 ± 0.5 : 1	88.0 mm 3.465 in	90.3 mm 3.555 in

## Notes

Engine	Engine Capacity	Engine Description	Max. Engine Torque (SAE)	Max. Engine Power (SAE)	Max. Engine Torque (EEC)	Max. Engine Power (EEC)	Comp. Ratio	Bore	Stroke
<b>FREELANDER 2 – 2007 MY onwards</b>									
2.2L Diesel	2179 cm <sup>3</sup> (133 in <sup>3</sup> )	In-line 4 Cylinder 16 Valves	Not Applicable	Not Applicable	400 Nm at 2000 rev/min	Non DPF 118 kW With DPF 112 kW at 4000 rev/min	16.5 : 1	85.0 mm (3.346 in)	96.0 mm (3.780 in)
3.2L Gasoline	3192 cm <sup>3</sup> (195 in <sup>3</sup> )	In-line 6 Cylinder 24 valves	234 lbf ft at 3200 RPM	230 bhp at 6300 RPM	317 Nm at 3200 rev/min	171 kW at 6300 rev/min	10.8 : 1	84.0 mm (3.307 in)	96.0 mm (3.780 in)
<b>DEFENDER – 2007 MY onwards</b>									
2.4L Diesel	2402 cm <sup>3</sup> (146 in <sup>3</sup> )	In-line 4 Cylinder 16 Valves	Not Applicable	Not Applicable	360 Nm at 2000 rev/min	90 kW at 3500 rev/min	17.5 : 1	89.9 mm (3.539 in)	94.6 mm (3.724 in)

## Notes

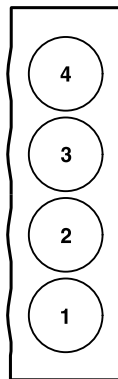
Inline 4 – 2.2L Diesel



Front of Engine

Firing Order: 1 : 3 : 4 : 2

Inline 4 – 2.4L Diesel

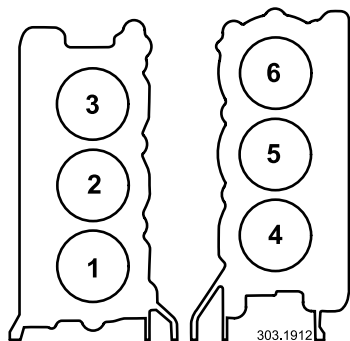


Front of Engine

Firing Order: 1 : 3 : 4 : 2

Notes

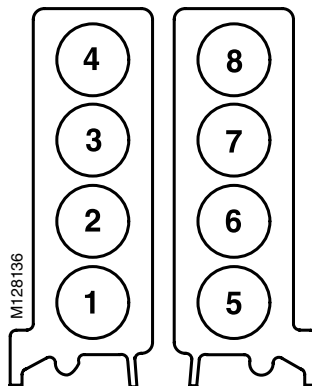
V6 – 2.7L Diesel



Front of Engine

Firing Order: 1 : 4 : 2 : 5 : 3 : 6

V8 – 3.6L Diesel

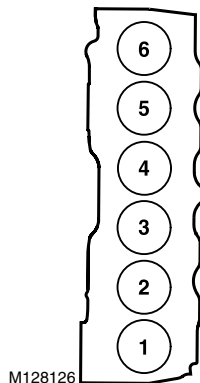


Front of Engine

Firing Order: 1 : 5 : 4 : 2 : 6 : 3 : 7 : 8

Notes

Inline 6 – 3.2L Gasoline

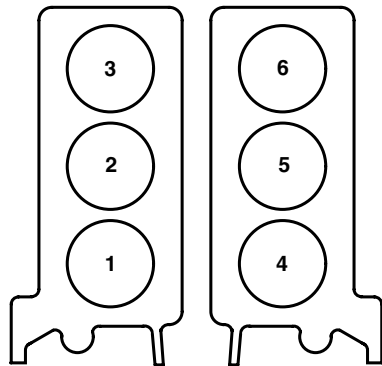


M128126

Front of Engine

Firing Order: 1 : 5 : 3 : 6 : 2 : 4

V6 – 4.0L Gasoline



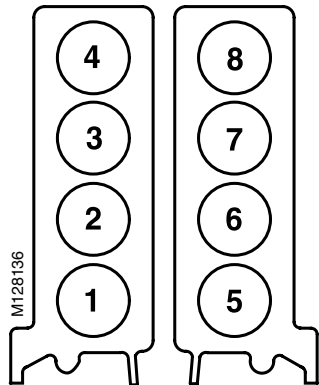
D.303.1630

Front of Engine

Firing Order: 1 : 4 : 2 : 5 : 3 : 6

Notes

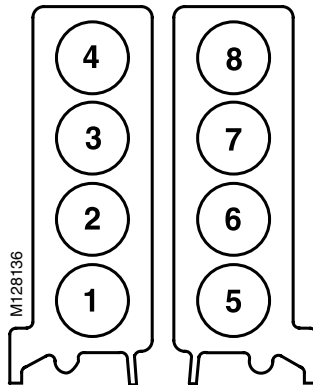
V8 – 4.2L SC Gasoline



Front of Engine

Firing Order: 1 : 5 : 4 : 2 : 6 : 3 : 7 : 8

V8 – 4.4L Gasoline



Front of Engine

Firing Order: 1 : 5 : 4 : 2 : 6 : 3 : 7 : 8

Notes

Engine	Valve Clearances (Cold)	
	Intake	Exhaust
<b>Diesel</b>		
V6 – 2.7L	Not Applicable	Not Applicable
V8 – 3.6L	Not Applicable	Not Applicable
Inline 4 – 2.2L	Not Applicable	Not Applicable
Inline 4 – 2.4L	Not Applicable	Not Applicable
<b>Gasoline</b>		
Inline 6 – 3.2L	Not Applicable	0.45 mm 0.017 in
V6 – 4.0L	Not Applicable	Not Applicable
V8 – 4.2L SC	0.18 to 0.22 mm 0.007 to 0.008 in	0.23 to 0.27 mm 0.009 to 0.010 in
V8 – 4.4L	0.18 to 0.22 mm 0.007 to 0.008 in	0.23 to 0.27 mm 0.009 to 0.010 in

Notes



Engine	Market	Oil Specification	Engine Oil Quantity (service fill and filter change)	Engine Oil Quantity (dry fill including filter)
<b>RANGE ROVER – 2007 MY onwards</b>				
V8 – 3.6L Diesel	ROW	5W/30 – WSS-M2C913-B – Only See note below.	9.5 liters 20 US pints	9.9 liters 21 US pints
V8 – 4.2L SC Gasoline	ROW	5W/30 Preferred: WSS-M2C913-B Alternative: ACEA A3/B3	7.7 liters 16.2 US pints	9.4 liters 19.8 US pints
	NAS/Japan	5W/30 – ILSAC GF4 and API SM		
V8 – 4.4L Gasoline	ROW	5W/30 Preferred: WSS-M2C913-B Alternative: ACEA A3/B3	7.7 liters 16.2 US pints	8 liters 16.9 US pints
	NAS/Japan	5W/30 – ILSAC GF4 and API SM		

**Note:** In high sulphur markets use WSS-M2C921-A

## Notes

Land Rover recommends



Engine	Market	Oil Specification	Engine Oil Quantity (service fill and filter change)	Engine Oil Quantity (dry fill including filter)
<b>RANGE ROVER SPORT – 2007 MY onwards</b>				
V6 – 2.7L Diesel	ROW	5W/30 – WSS-M2C913-B – Only See note below.	5.5 liters 11.6 US pints	6.5 liters 13.7 US pints
V8 – 3.6L Diesel	ROW	5W/30 – WSS-M2C913-B – Only See note below.	9.5 liters 20 US pints	9.9 liters 21 US pints
V8 – 4.2L SC Gasoline	ROW	5W/30 Preferred: WSS-M2C913-B Alternative: ACEA A3/B3	7.7 liters 16.2 US pints	9.4 liters 19.8 US pints
	NAS/Japan	5W/30 – ILSAC GF4 and API SM		
V8 – 4.4L Gasoline	ROW	5W/30 Preferred: WSS-M2C913-B Alternative: ACEA A3/B3	7.7 liters 16.2 US pints	8 liters 16.9 US pints
	NAS/Japan	5W/30 – ILSAC GF4 and API SM		

**Note:** In high sulphur markets use WSS-M2C921-A

## Notes

Land Rover recommends



Engine	Market	Oil Specification	Engine Oil Quantity (service fill and filter change)	Engine Oil Quantity (dry fill including filter)
<b>DISCOVERY 3 – 2007 MY onwards</b>				
V6 – 2.7L Diesel	ROW	5W/30 – WSS-M2C913-B – Only See note below.	5.5 liters 11.6 US pints	6.5 liters 13.7 US pints
V6 – 4.0L Gasoline	ROW	5W/30 Preferred: WSS-M2C913-B Alternative: ACEA A3/B3	5.7 liters 12 US pints	6.4 liters 13.5 US pints
	NAS/Japan	5W/30 – ILSAC GF4 and API SM		
V8 – 4.4L Gasoline	ROW	5W/30 Preferred: WSS-M2C913-B Alternative: ACEA A3/B3	7.7 liters 16.2 US pints	8 liters 16.9 US pints
	NAS/Japan	5W/30 – ILSAC GF4 and API SM		

**Note:** In high sulphur markets use WSS-M2C921-A

## Notes

Land Rover recommends



Engine	Market	Oil Specification	Engine Oil Quantity (service fill and filter change)	Engine Oil Quantity (dry fill including filter)
<b>FREELANDER 2 – 2007 MY onwards</b>				
Inline 4 – 2.2L Diesel	ROW	5W/30 – WSS-M2C913-B – Only See note below.	5.9 liters 12.4 US pints	6.5 liters 13.7 US pints
Inline 6 – 3.2L Gasoline	ROW	0W/30 – ACEA A5/B5.	7.7 liters 16.3 US pints	9.3 liters 19.6 US pints
	NAS	5W/30 meeting specifications ILSAC GF-4 and API SM, or ACEA A1/B1.		
<b>DEFENDER – 2007 MY onwards</b>				
Inline 4 – 2.4L Diesel	ROW	5W/30 – WSS-M2C913-B – Only See note below.	6.3 liters 13.3 US pints	7.2 liters 15.2 US pints

**Note:** In high sulphur markets use WSS-M2C921-A

#### Notes

Land Rover recommends



Engine	Coolant Specification	Cooling System Capacity	Coolant Concentration
<b>RANGE ROVER – 2007 MY onwards</b>			
V8 – 3.6L Diesel	Texaco (XLC)	14 liters / 29.5 US pints	50% water/50% coolant
V8 – 4.2L SC Gasoline	Texaco (XLC)	16 liters / 33.8 US pints	50% water/50% coolant
V8 – 4.4L Gasoline	Texaco (XLC)	15 liters / 31.7 US pints	50% water/50% coolant
<b>RANGE ROVER SPORT – 2007 MY onwards</b>			
V6 – 2.7L Diesel	Texaco (XLC)	Base: 9.4 liters / 19.87 US pints Base + FFBH: 10.45 liters / 22.09 US pints	50% water/50% coolant
V8 – 3.6L Diesel	Texaco (XLC)	Base: 12.75 liters / 26.95 US pints Base + FFBH: 13.1 liters / 27.7 US pints	50% water/50% coolant
V8 – 4.2L SC Gasoline	Texaco (XLC)	12 liters / 25.4 US pints	50% water/50% coolant
V8 – 4.4L Gasoline	Texaco (XLC)	9.5 liters / 20.1 US pints	50% water/50% coolant

**Note:** Fuel Fired Booster Heater (FFBH)

## Notes

Engine	Coolant Specification	Cooling System Capacity	Coolant Concentration
<b>DISCOVERY 3 – 2007 MY onwards</b>			
V6 – 2.7L Diesel	Texaco (XLC)	Base: 16.7 liters / 35.3 US pints Base + FFBH: 18.0 liters / 38.0 US pints Base + Rear Heater: 19.2 liters / 40.6 US pints Base + FFBH + Rear Heater: 20.5 liters / 43.3 US pints	50% water/50% coolant
V6 – 4.0L Gasoline	Texaco (XLC)	Base: 17.0 liters / 35.9 US pints Base + Rear Heater: 19.5 liters / 41.2 US pints	50% water/50% coolant
V8 – 4.4L Gasoline	Texaco (XLC)	Base: 14.0 liters / 29.6 US pints Base + Rear Heater: 16.5 liters / 34.9 US pints	50% water/50% coolant

**Note:** Fuel Fired Booster Heater (FFBH)

## Notes

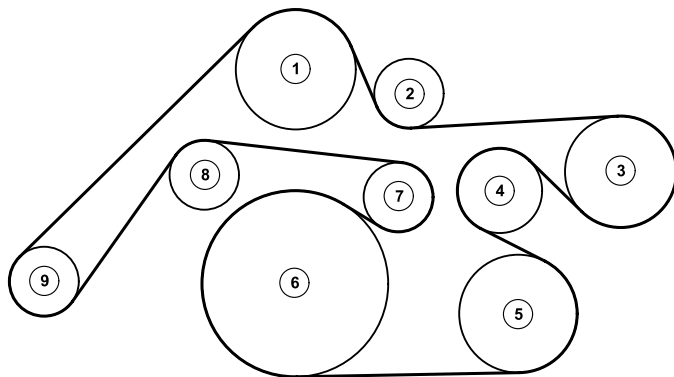
Engine	Coolant Specification	Cooling System Capacity	Coolant Concentration
<b>FREELANDER 2 – 2007 MY onwards</b>			
Inline 4 – 2.2L Diesel	Texaco XLC	Base: 7.6 liters / 16.0 US pints Base + FFBH: 8.0 liters / 17.0 US pints	50% water/50% coolant
Inline 6 – 3.2L Gasoline	Texaco XLC	8.0 liters / 17.0 US pints	50% water/50% coolant
<b>DEFENDER – 2007 MY onwards</b>			
Inline 4 – 2.4L Diesel	Texaco XLC	8.2 liters / 17.3 US pints	50% water/50% coolant

**Note:** Fuel Fired Booster Heater (FFBH)

## Notes

## RANGE ROVER – 2007 MY onwards

V8 – 3.6L Diesel



1. Cooling fan / Coolant pump
2. Idler
3. Power steering pump
4. Idler
5. Air conditioning compressor
6. Crankshaft pulley
7. Tensioner
8. Idler
9. Generator

M128137

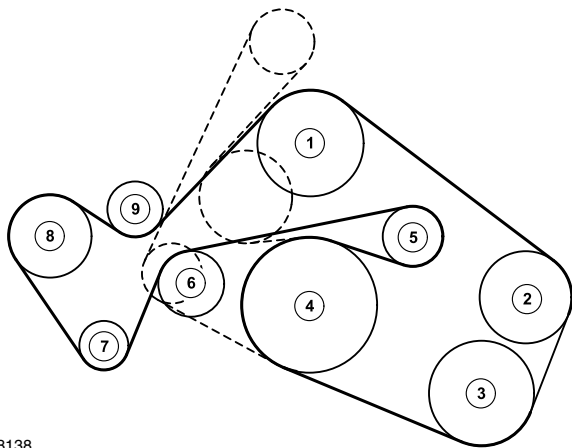
Notes



## RANGE ROVER – 2007 MY onwards

V8 – 4.2L SC Gasoline

Notes



### *Primary Drive Belt*

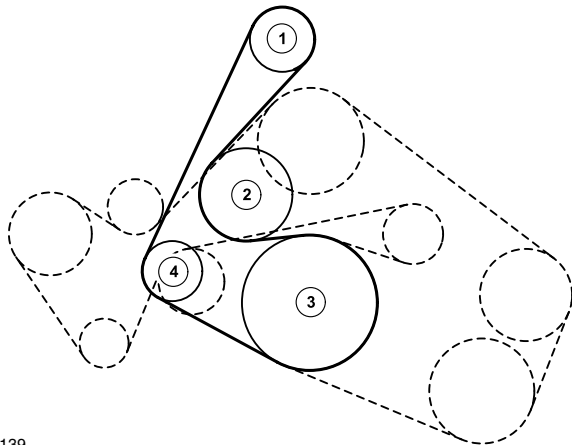
1. Coolant pump
2. Air conditioning compressor
3. Power steering pump
4. Crankshaft pulley
5. Tensioner
6. Idler
7. Generator
8. Dynamic response pump
9. Idler

M128138

## RANGE ROVER – 2007 MY onwards

V8 – 4.2L SC Gasoline

## Notes



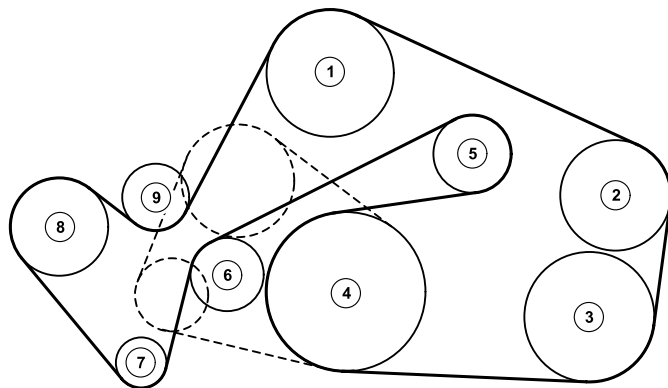
### Secondary Drive Belt

1. Supercharger
2. Cooling fan
3. Crankshaft pulley
4. Tensioner

M128139

## RANGE ROVER – 2007 MY onwards

V8 – 4.4L Gasoline



### Primary Drive Belt

1. Coolant pump
2. Air conditioning compressor
3. Power steering pump
4. Crankshaft pulley
5. Tensioner
6. Idler
7. Generator
8. Dynamic response pump
9. Idler

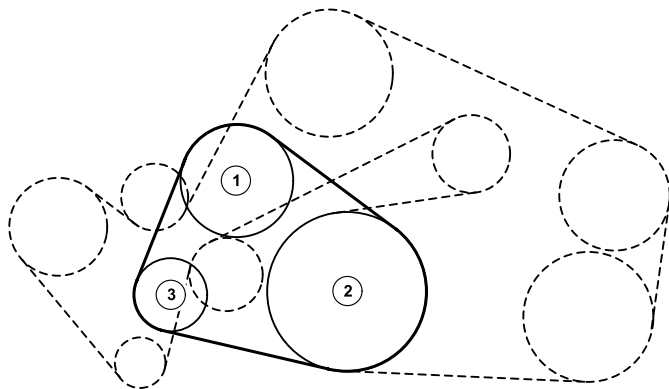
M128140

Notes

## RANGE ROVER – 2007 MY onwards

V8 – 4.4L Gasoline

### Notes



### *Secondary Drive Belt*

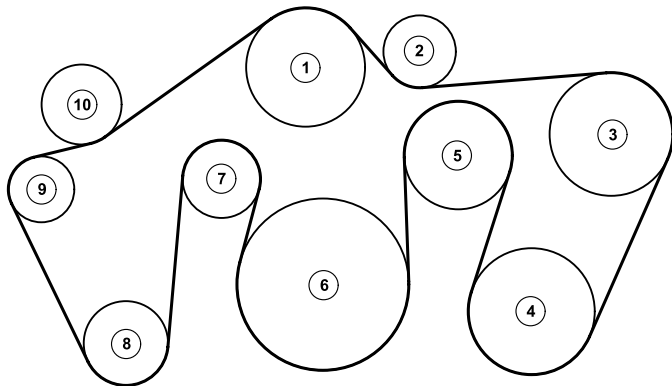
1. Cooling fan
2. Crankshaft pulley
3. Tensioner

M128141

## RANGE ROVER SPORT – 2007 MY onwards

V6 – 2.7L Diesel

Notes



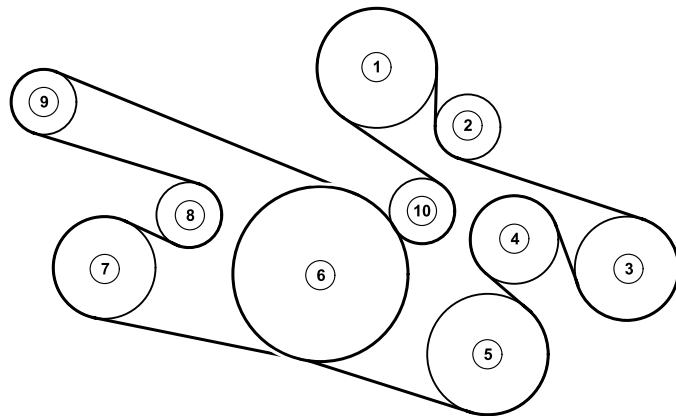
1. Cooling fan
2. Tensioner
3. Power steering pump
4. Air conditioning compressor
5. Coolant pump
6. Crankshaft pulley
7. Tensioner
8. Dynamic response pump
9. Generator
10. Idler

M128142

## RANGE ROVER SPORT – 2007 MY onwards

V8 – 3.6L Diesel

### Notes



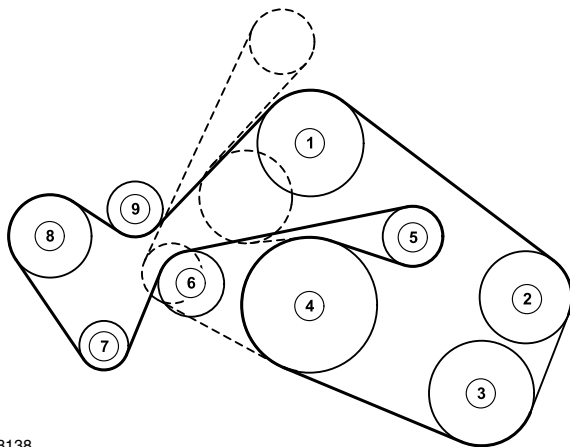
1. Cooling fan / Coolant pump
2. Idler
3. Power steering pump
4. Idler
5. Air conditioning compressor
6. Crankshaft pulley
7. Dynamic response pump
8. Tensioner
9. Generator

M128143

## RANGE ROVER SPORT – 2007 MY onwards

V8 – 4.2L SC Gasoline

Notes



### Primary Drive Belt

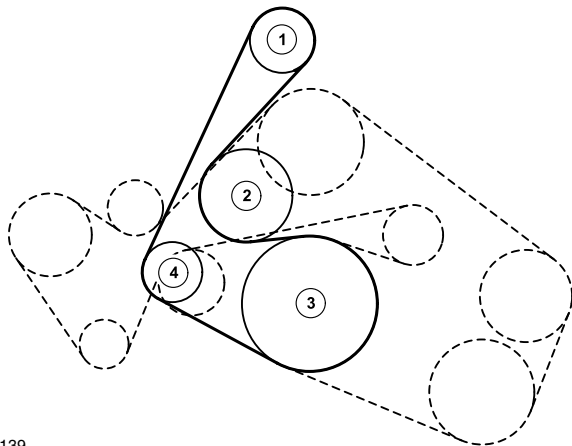
1. Coolant pump
2. Air conditioning compressor
3. Power steering pump
4. Crankshaft pulley
5. Tensioner
6. Idler
7. Generator
8. Dynamic response pump
9. Idler

M128138

## RANGE ROVER SPORT – 2007 MY onwards

V8 – 4.2L SC Gasoline

### Notes



### *Secondary Drive Belt*

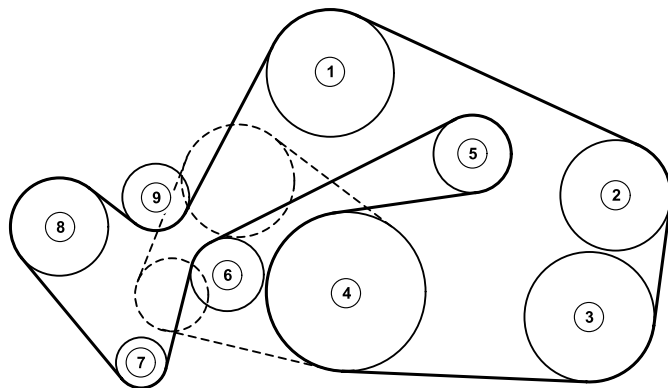
1. Supercharger
2. Cooling fan
3. Crankshaft pulley
4. Tensioner

M128139



## RANGE ROVER SPORT – 2007 MY onwards

V8 – 4.4L Gasoline



### Primary Drive Belt

1. Coolant pump
2. Air conditioning compressor
3. Power steering pump
4. Crankshaft pulley
5. Tensioner
6. Idler
7. Generator
8. Dynamic response pump
9. Idler

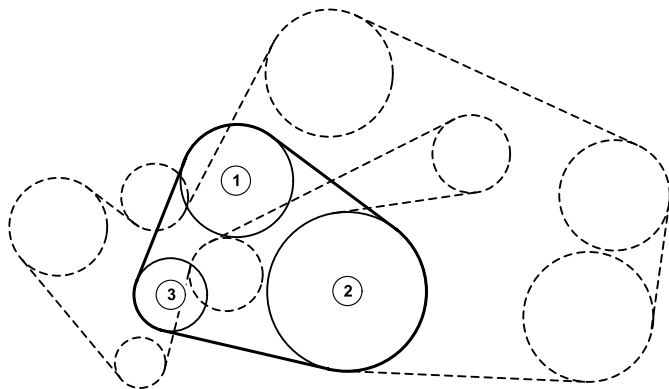
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Notes

## RANGE ROVER SPORT – 2007 MY onwards

V8 – 4.4L Gasoline

### Notes



### *Secondary Drive Belt*

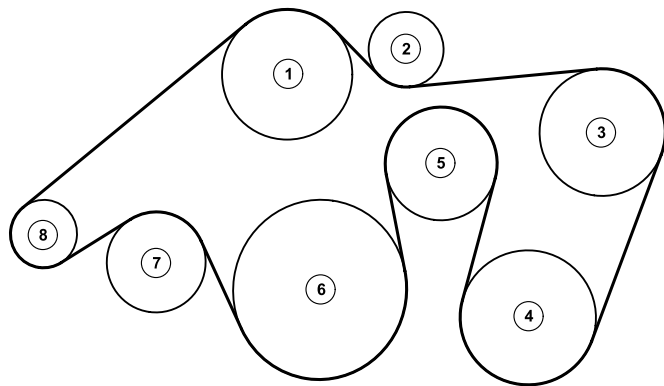
1. Cooling fan
2. Crankshaft pulley
3. Tensioner

M128141

## DISCOVERY 3 – 2007 MY onwards

V6 – 2.7L Diesel

Notes

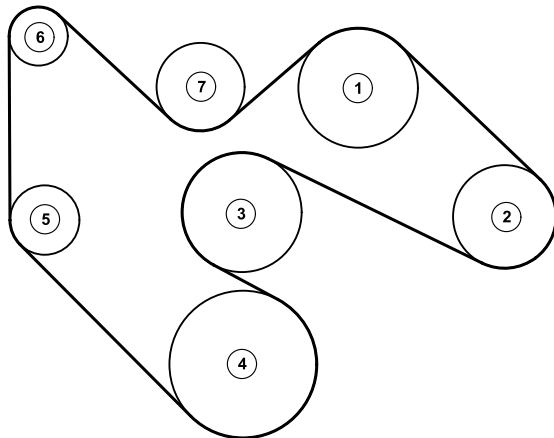


1. Cooling fan
2. Idler
3. Power steering pump
4. Air conditioning compressor
5. Coolant pump
6. Crankshaft pulley
7. Tensioner
8. Generator

M128144

## DISCOVERY 3 – 2007 MY onwards

V6 – 4.0L Gasoline



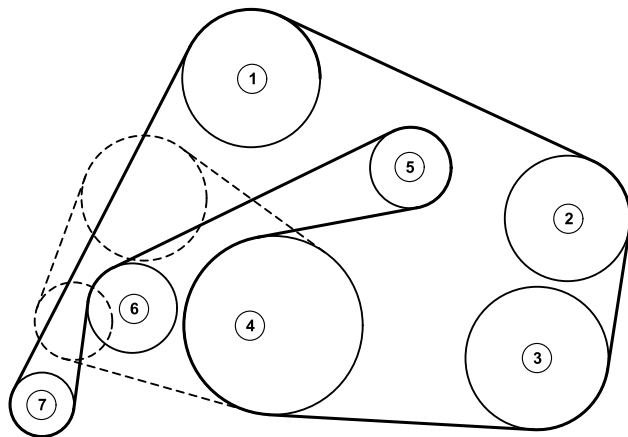
1. Power steering pump
2. Air conditioning compressor
3. Coolant pump
4. Crankshaft pulley
5. Tensioner
6. Generator
7. Idler

M128145

Notes

## DISCOVERY 3 – 2007 MY onwards

V8 – 4.4L Gasoline



M128146

### Primary Drive Belt

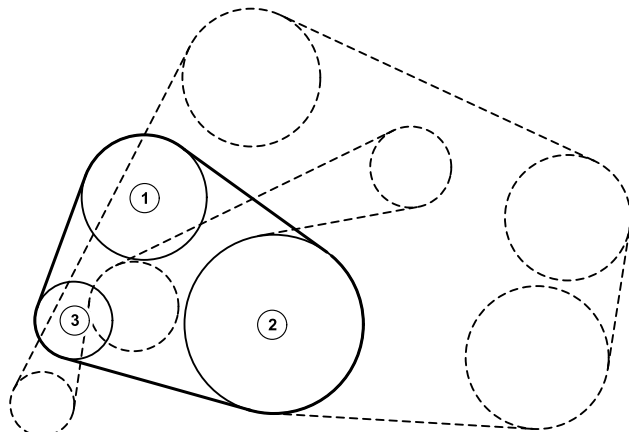
1. Coolant pump
2. Air conditioning compressor
3. Power steering pump
4. Crankshaft pulley
5. Tensioner
6. Idler
7. Generator

Notes

## DISCOVERY 3 – 2007 MY onwards

V8 – 4.4L Gasoline

### Notes



### *Secondary Drive Belt*

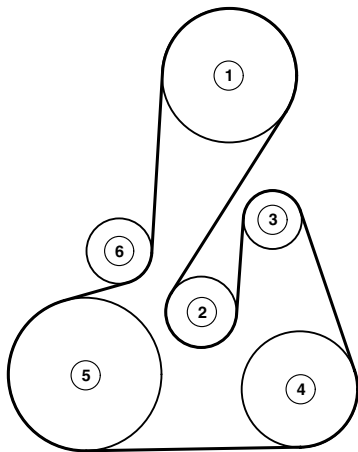
1. Cooling fan
2. Crankshaft pulley
3. Tensioner

M128147

## FREELANDER 2 – 2007 MY onwards

Inline 4 – 2.2L Diesel

Notes

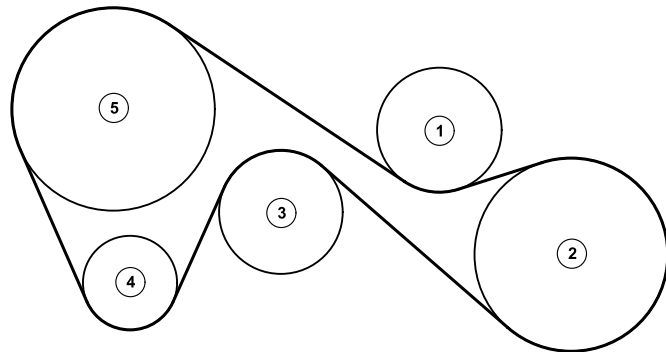


1. Power steering pump
2. Idler
3. Generator
4. Air conditioning compressor
5. Crankshaft pulley
6. Tensioner

M128149

## FREELANDER 2 – 2007 MY onwards

Inline 6 – 3.2L Gasoline



1. Idler
2. Power steering pump and coolant pump
3. Tensioner
4. Drive pulley
5. Air conditioning compressor

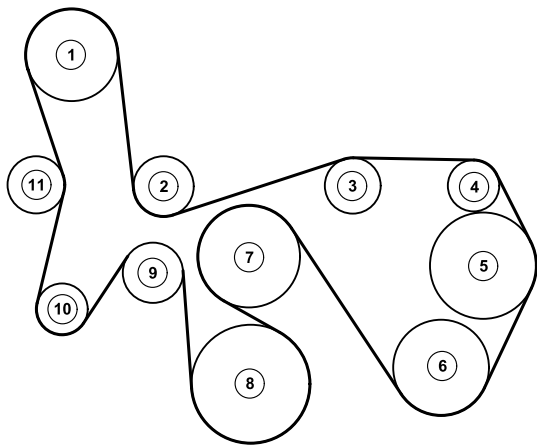
M128150

Notes



## DEFENDER – 2007 MY onwards

### Inline 4 – 2.4L Diesel



M128148

## Notes

Engine	Spark Plug Type	Spark Plug Gap	Fuel Octane Rating	
			Recommended	Minimum
RANGE ROVER – 2007 MY onwards				
V8 – 4.2L SC	NGK Iridium IFR5N-10	0.9 to 1.0 mm 0.035 to 0.039 in	95 RON or greater 91 AKI or greater	91 RON, see note 87 AKI, see note
V8 – 4.4L	NGK Iridium IFR5N-10	0.9 to 1.0 mm 0.035 to 0.039 in	95 RON or greater 91 AKI or greater	91 RON, see note 87 AKI, see note
RANGE ROVER SPORT – 2007 MY onwards				
V8 – 4.2L SC	NGK Iridium IFR5N-10	0.9 to 1.0 mm 0.035 to 0.039 in	95 RON or greater 91 AKI or greater	91 RON, see note 87 AKI, see note
V8 – 4.4L	NGK Iridium IFR5N-10	0.9 to 1.0 mm 0.035 to 0.039 in	95 RON or greater 91 AKI or greater	91 RON, see note 87 AKI, see note

**Note:** A minimum octane rating of 91 RON; 87 AKI may be used however, adverse affects on performance and fuel economy may be experienced.

**Note:** Research Octane Number (RON). Anti Knock Index (AKI).

#### Notes

Engine	Spark Plug Type	Spark Plug Gap	Fuel Octane Rating	
			Recommended	Minimum
DISCOVERY 3 – 2007 MY onwards				
V6 – 4.0L	Honeywell AGSF24FM	1.37 mm / 0.053 in	95 RON or greater 91 AKI or greater	91 RON, see note 87 AKI, see note
V8 – 4.4L	NGK Iridium IFR5N-10	0.9 to 1.0 mm 0.035 to 0.039 in	95 RON or greater 91 AKI or greater	91 RON, see note 87 AKI, see note
FREELANDER 2 – 2007 MY onwards				
Inline 6 – 3.2L	NGK LFR6D – see note	0.6 mm / 0.023 in	95 RON or greater 91 AKI or greater	91 RON, see note 87 AKI, see note
	NGK Iridium ILFR6B	0.8 mm / 0.031 in		

**Note:** A minimum octane rating of 91 RON; 87 AKI may be used however, adverse affects on performance and fuel economy may be experienced.

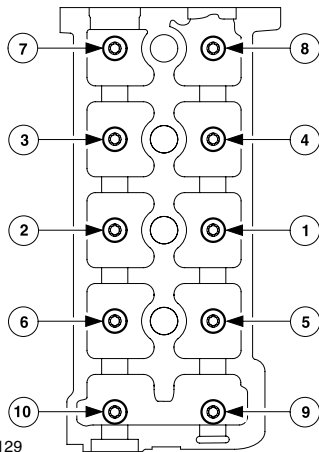
**Note:** Research Octane Number (RON). Anti Knock Index (AKI).

**Note:** FREELANDER 2: NGK LFR6D will be superseded by NGK Iridium ILFR6B.

## Notes

## Inline 4 – 2.2L

Cylinder head

Notes

front of engine

Apply each step in numerical sequence shown:

1. Pre-tighten 1 to 10 – 20 Nm / 15 lbf.ft
2. Tighten 1 to 10 – 60 Nm / 44 lbf.ft
3. Angular tighten 1 to 10 – 220 degrees

Inline 4 – 2.2L		Notes
Camshaft bearing cap	<ol style="list-style-type: none"> <li>1. Tighten stud to 10 Nm / 7 lbf.ft</li> <li>2. Pre-tighten bolts to 5 Nm / 3 lbf.ft</li> <li>3. Tighten bolts to 10 Nm / 7 lbf.ft</li> </ol>	
Camshaft sprocket	<ol style="list-style-type: none"> <li>1. Pre-tighten to 20 Nm / 15 lbf.ft</li> <li>2. Angular tighten 60 degrees</li> </ol>	
Clutch plate	20 Nm / 15 lbf.ft	
Coolant / oil exchanger union	9 Nm / 6 lbf.ft	
Coolant pump	<ol style="list-style-type: none"> <li>1. Pre-tighten to 5 Nm / 3 lbf.ft</li> <li>2. Tighten to 16 Nm / 11 lbf.ft</li> </ol>	
Exhaust manifold	30 Nm / 22 lbf.ft	
Fuel filter bracket	25 Nm / 18 lbf.ft	
Fuel injection pump	22 Nm / 16 lbf.ft	
Fuel injection pump union	<ol style="list-style-type: none"> <li>1. Pre-tighten to 22 Nm / 16 lbf.ft</li> <li>2. Tighten to 25 Nm / 18 lbf.ft</li> </ol>	
Fuel injector	<ol style="list-style-type: none"> <li>1. Pre-tighten to 5 Nm / 3 lbf.ft</li> <li>2. Angular tighten 130 degrees</li> </ol>	
Fuel injector connector	<ol style="list-style-type: none"> <li>1. Pre-tighten to 8 Nm / 6 lbf.ft</li> <li>2. Tighten to 25 Nm / 18 lbf.ft</li> </ol>	
Fuel rail	22 Nm / 16 lbf.ft	

Refer to GTR for tightening sequences.

## Inline 4 – 2.2L

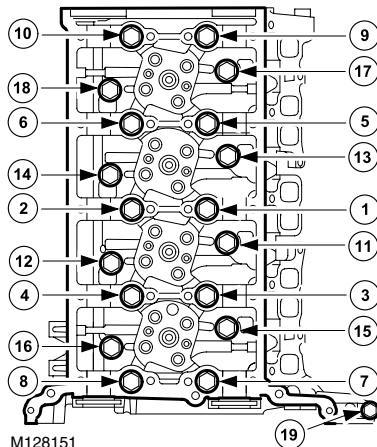
Fuel rail union	<ol style="list-style-type: none"> <li>1. Pre-tighten to 22 Nm / 16 lbf.ft</li> <li>2. Tighten to 25 Nm / 18 lbf.ft</li> </ol>
Generator to bracket	48 Nm / 35 lbf.ft
Glow plug	10 Nm / 7 lbf.ft
Intake manifold	9 Nm / 6 lbf.ft
Oil cooler bracket	10 Nm / 7 lbf.ft
Oil filter element	25 Nm / 18 lbf.ft
Oil filter support	<ol style="list-style-type: none"> <li>1. Pre-tighten to 10 Nm / 7 lbf.ft</li> <li>2. Tighten to 20 Nm / 15 lbf.ft</li> </ol>
Oil pan	9 Nm / 6 lbf.ft
Oil pan drain plug	20 Nm / 15 lbf.ft
Oil pump	<ol style="list-style-type: none"> <li>1. Pre-tighten to 7 Nm / 5 lbf.ft</li> <li>2. Tighten to 9 Nm / 6 lbf.ft</li> </ol>
Starter motor	40 Nm / 29 lbf.ft
Throttle body	9 Nm / 6 lbf.ft
Turbocharger	24 Nm / 18 lbf.ft
Turbocharger bracket	24 Nm / 18 lbf.ft
Vacuum pump	9 Nm / 6 lbf.ft
Valve cover	10 Nm / 7 lbf.ft

## Notes

Refer to GTR for tightening sequences.

## Inline 4 – 2.4L

### Cylinder head



front of engine

Apply each step in numerical sequence shown:

1. Tighten 1 to 10 – 20 Nm / 15 lbf.ft
2. Tighten 11 to 18 – 10 Nm / 7 lbf.ft
3. Tighten 1 to 10 – 40 Nm / 29 lbf.ft
4. Tighten 11 to 18 – 20 Nm / 15 lbf.ft
5. Tighten 1 to 10 – 180 degrees
6. Tighten 11 to 18 – 180 degrees
7. Tighten 19 – 10 Nm / 7 lbf.ft

### Notes

## Inline 4 – 2.4L

Accessory mounting bracket	23 Nm / 17 lbf.ft
Coolant distribution manifold	10 Nm / 7 lbf.ft
Coolant drain plug (engine block)	18 Nm / 13 lbf.ft
Coolant pump	23 Nm / 17 lbf.ft
Coolant thermostat to housing	10 Nm / 7 lbf.ft
Crankshaft position sensor	7 Nm / 5 lbf.ft
Cylinder head temperature sensor	11 Nm / 8 lbf.ft
Exhaust manifold	Nut/bolt – 40 Nm / 29 lbf.ft Stud – 20 Nm / 14 lbf.ft
Fuel injection pump to front flange	22 Nm / 16 lbf.ft
Fuel Injector	47 Nm / 35 lbf.ft
Fuel pipe (high-pressure) union	35 Nm / 26 lbf.ft
Fuel rail	23 Nm / 17 lbf.ft
Fuel rail braces	M6 – 12 Nm / 9 lbf.ft M8 – 23 Nm / 17 lbf.ft
Glow plug	13 Nm / 9 lbf.ft

## Notes

Refer to GTR for tightening sequences.



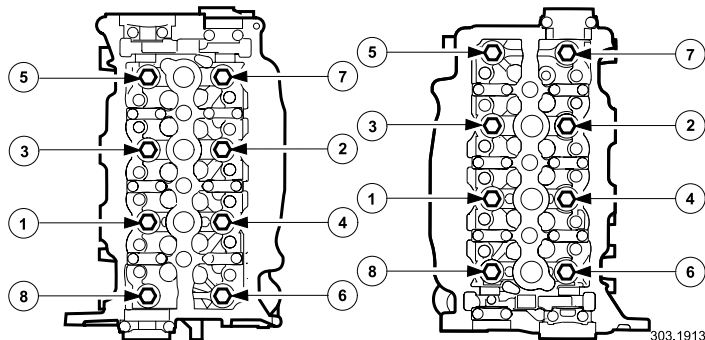
Inline 4 – 2.4L		<u>Notes</u>
Intake manifold	16 Nm / 11 lbf.ft	
Oil cooler	23 Nm / 17 lbf.ft	
Oil filter cap	23 Nm / 17 lbf.ft	
Oil filter drain plug	10 Nm / 7 lbf.ft	
Oil pan drain plug	24 Nm / 18 lbf.ft	
Oil pan nut/bolt	1. Pre-tighten to 6 Nm / 4 lbf.ft 2. Tighten to 14 Nm / 10 lbf.ft	
Oil pan studs	4 Nm / 3 lbf.ft	
Oil pressure switch	16 Nm / 11 lbf.ft	
Oil pump	10 Nm / 7 lbf.ft	
Piston cooling jet	10 Nm / 7 lbf.ft	
Rocker shaft	1. Pre-tighten to 12.5 Nm / 9 lbf.ft 2. Angular tighten 45 degrees	
Vacuum pump	23 Nm / 17 lbf.ft	
Valve cover	10 Nm / 7 lbf.ft	
Refer to GTR for tightening sequences.		

## V6 2.7L

Cylinder head

Apply each step in numerical sequence shown:

- |                                       |                                       |
|---------------------------------------|---------------------------------------|
| 1. Tighten 1 to 8 – 20 Nm / 14 lbf.ft | 3. Tighten 1 to 8 – 80 Nm / 59 lbf.ft |
| 2. Tighten 1 to 8 – 40 Nm / 29 lbf.ft | 4. Tighten 1 to 8 – 180 degrees       |



front of engine

303.1913

Notes

V6 2.7L		Notes
Accessory drive belt – idler	45 Nm / 33 lbf.ft	
Accessory drive belt – tensioner	26 Nm / 19 lbf.ft	
Air conditioning compressor	23 Nm / 17 lbf.ft	
Camshaft sensor	10 Nm / 7 lbf.ft	
Coolant inlet connector	10 Nm / 7 lbf.ft	
Coolant outlet assembly	10 Nm / 7 lbf.ft	
Coolant pump	10 Nm / 7 lbf.ft	
Coolant pump pulley	23 Nm / 17 lbf.ft	
Crankshaft position sensor	5 Nm / 3 lbf.ft	
Crankshaft pulley	25 Nm / 18 lbf.ft	
EGR cooler	10 Nm / 7 lbf.ft	
EGR valve to cooler	10 Nm / 7 lbf.ft	
Exhaust crossover pipe	Nut – 24 Nm Stud – 13 Nm	
Exhaust manifold to engine and turbocharger	Nut – 24 Nm / 18 lbf.ft Stud – 13 Nm / 9 lbf.ft	
Fuel injection pump bracket	23 Nm / 17 lbf.ft	
Fuel injection pump pulley	50 Nm / 36 lbf.ft	
Fuel injection pump to bracket	23 Nm / 17 lbf.ft	

Refer to GTR for tightening sequences.

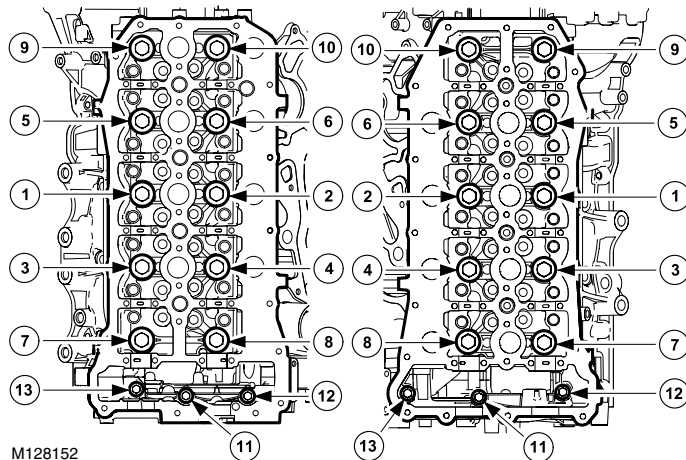
V6 2.7L		
Fuel injector		10 Nm / 7 lbf.ft
Fuel rail support bracket		23 Nm / 17 lbf.ft
Glow plug		13 Nm / 9 lbf.ft
Knock sensor		20 Nm / 15 lbf.ft
Oil cooler		10 Nm / 7 lbf.ft
Oil filter cap		23 Nm / 17 lbf.ft
Oil pan		10 Nm / 7 lbf.ft
Oil pan drain plug		23 Nm / 17 lbf.ft
Oil pressure switch		14 Nm / 10 lbf.ft
Oil pump		10 Nm / 7 lbf.ft
Power steering pump		23 Nm / 17 lbf.ft
Primary drive cover – front		10 Nm / 7 lbf.ft
Throttle body – stud bolt		10 Nm / 7 lbf.ft
Turbocharger heatshield		11 Nm / 8 lbf.ft
Turbocharger oil drain tube		10 Nm / 7 lbf.ft
Turbocharger support bracket		Nut – 24 Nm / 18 lbf.ft Stud – 13 Nm / 9 lbf.ft
Valve cover		10 Nm / 7 lbf.ft

Notes

Refer to GTR for tightening sequences.

## V8 3.6L

### Cylinder head



M128152

front of engine

Apply each step in numerical sequence shown:

1. Tighten 1 to 10 – 20 Nm / 15 lbf.ft
2. Tighten 1 to 10 – 40 Nm / 29 lbf.ft
3. Tighten 1 to 10 – 80 Nm / 59 lbf.ft
4. Tighten 1 to 10 – 180 degrees
5. Tighten 11 to 13 – 20 Nm / 15 lbf.ft

V8 3.6L	
Air conditioning compressor	23 Nm / 17 lbf.ft
Camshaft sensor	10 Nm / 7 lbf.ft
Coolant drain plug (engine block / cylinder head)	18 Nm / 13 lbf.ft
Coolant pump	23 Nm / 17 lbf.ft
Coolant pump pulley	23 Nm / 17 lbf.ft
Crankshaft position sensor	5 Nm / 3 lbf.ft
Cylinder head temperature sensor	10 Nm / 7 lbf.ft
EGR cooler and inlet pipe	10 Nm / 7 lbf.ft
Engine oil temperature sensor	23 Nm / 17 lbf.ft
Exhaust manifold to engine and turbocharger	Nut – 24 Nm / 18 lbf.ft Stud – 13 Nm / 9 lbf.ft
Fuel injection pump	23 Nm / 17 lbf.ft
Fuel injection pump drive	50 Nm / 36 lbf.ft
Fuel injection pump shield	M6 – 10 Nm / 7 lbf.ft M8 – 23 Nm / 17 lbf.ft
Fuel injector	9 Nm / 6 lbf.ft
Generator	47 Nm / 34 lbf.ft
Glow plug	11 Nm / 8 lbf.ft

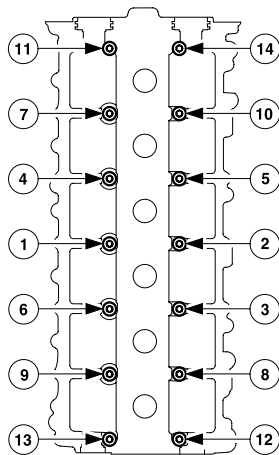
## Notes

Refer to GTR for tightening sequences.

V8 3.6L		<u>Notes</u>
Knock sensor	20 Nm / 14 lbf.ft	
Oil cooler/filter assembly	10 Nm / 7 lbf.ft	
Oil pan	M6 – 10 Nm / 7 lbf.ft M8 – 23 Nm / 17 lbf.ft	
Oil pan baffle	23 Nm / 17 lbf.ft	
Oil pan drain plug	23 Nm / 17 lbf.ft	
Oil pressure sensor	14 Nm / 10 lbf.ft	
Oil pump	10 Nm / 7 lbf.ft	
Power steering pump	23 Nm / 17 lbf.ft	
Thermostat housing and assembly	10 Nm / 7 lbf.ft	
Turbocharger bracket	23 Nm / 17 lbf.ft	
Turbocharger heatshield	M6 – 10 Nm / 7 lbf.ft M8 – 19 Nm / 14 lbf.ft	
Turbocharger oil drain pipe	10 Nm / 7 lbf.ft	
Turbocharger oil feed pipe to turbocharger	30 Nm / 22 lbf.ft	
Vacuum pump	Nut – 23 Nm / 17 lbf.ft Stud – 10 Nm / 7 lbf.ft	
Vacuum pump cap	10 Nm / 7 lbf.ft	
Valve cover	10 Nm / 7 lbf.ft	
Refer to GTR for tightening sequences.		

## Inline 6 – 3.2L

Cylinder head

Notes

front of engine

Apply each step in numerical sequence shown:

1. Pre-torque 1 to 14 – 45 Nm / 33 lbf.ft
2. Check 1 to 14 – 45 Nm / 33 lbf.ft pre-torque
3. Angular tighten 1 to 14 – 90 degrees
4. Angular tighten 1 to 14 – 180 degrees



## Inline 6 – 3.2L

Coolant (degas) nipple to cylinder head	18 Nm / 13 lbf.ft
Coolant drain nipple to inlet pipe	7 Nm / 5 lbf.ft
Coolant inlet pipe to engine block	17 Nm / 12 lbf.ft
Coolant outlet pipe to engine block	10 Nm / 7 lbf.ft
Coolant pipe to cylinder head	17 Nm / 12 lbf.ft
Coolant pump	17 Nm / 12 lbf.ft
Crankshaft position sensor and bracket	10 Nm / 7 lbf.ft
Exhaust manifold	24 Nm / 18 lbf.ft
Exhaust manifold heatshield	M6 – 10 Nm / 7 lbf.ft M8 – 20 Nm / 15 lbf.ft
Fuel rail	8 Nm / 6 lbf.ft
Generator	24 Nm / 18 lbf.ft
Generator coupling	75 Nm / 55 lbf.ft
Generator driveshaft sprocket coupling	44 Nm / 32 lbf.ft
Ignition coil	10 Nm / 7 lbf.ft
Intake manifold	M6 – 10 Nm / 7 lbf.ft M7 – 16 Nm / 12 lbf.ft
Knock sensor	20 Nm / 15 lbf.ft
Oil cooler and filter module	16 Nm / 11 lbf.ft

## Notes

Refer to GTR for tightening sequences.

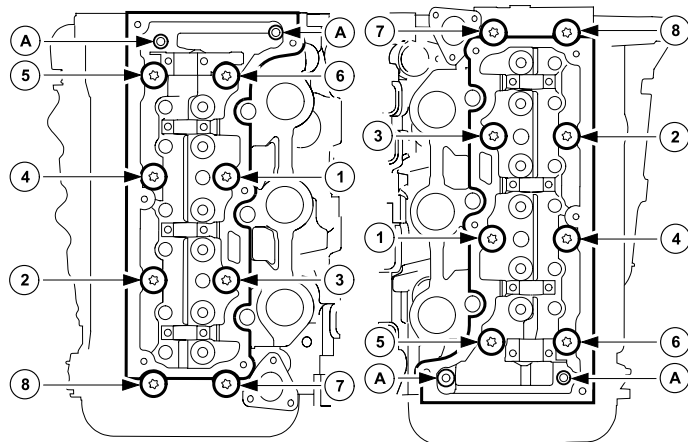
Inline 6 – 3.2L	
Oil cooler inlet to engine block	10 Nm / 7 lbf.ft
Oil level sensor	8 Nm / 6 lbf.ft
Oil pan	17 Nm / 12 lbf.ft
Oil pan drain plug	38 Nm / 28 lbf.ft
Oil pump	M6 – 8 Nm / 6 lbf.ft M7 – 17 Nm / 12 lbf.ft
Oil pump suction pipe assembly	17 Nm / 12 lbf.ft
Oil separator cover to valve cover	10 Nm / 7 lbf.ft
Oxygen sensor	45 Nm / 33 lbf.ft
Spark plug	28 Nm / 21 lbf.ft
Starter motor	40 Nm / 29 lbf.ft
Thermostat housing to block	10 Nm / 7 lbf.ft
Throttle body	8 Nm / 6 lbf.ft
Timing chain case	16 Nm / 11 lbf.ft
Timing chain cover	M7 – 16 Nm / 11 lbf.ft M8 – 25 Nm / 18 lbf.ft Jacking screw – 3 Nm / 2 lbf.ft
Vacuum pump	17 Nm / 12 lbf.ft
Valve cover	16 Nm / 11 lbf.ft

## Notes

Refer to GTR for tightening sequences.

## V6 4.0L

### Cylinder head



M128153

front of engine

Apply each step in numerical sequence shown:

1. Tighten 1 to 8 – 12 Nm / 9 lbf.ft
2. Tighten 1 to 8 – 25 Nm / 18 lbf.ft
3. Rotate 1 to 8 – 80 degrees
4. Rotate 1 to 8 – a further 80 degrees
5. Tighten bolts marked 'A' – 29 Nm / 21 lbf.ft

V6 4.0L		
Camshaft position sensor		6 Nm / 4 lbf.ft
Coolant outlet pipe		11 Nm / 8 lbf.ft
Coolant pump		11 Nm / 8 lbf.ft
EGR module		25 Nm / 18 lbf.ft
Engine front cover		All fasteners – 19 Nm / 14 lbf.ft
Exhaust manifold		Stud – 12 Nm / 9 lbf.ft
Exhaust manifold		23 Nm / 17 lbf.ft
Fuel rail		23 Nm / 17 lbf.ft
Fuel rail crossover pipe		6 Nm / 4 lbf.ft
Ignition coil		6 Nm / 4 lbf.ft
Intake manifold		10 Nm / 7 lbf.ft
Knock sensor		20 Nm / 15 lbf.ft

## Notes

Refer to GTR for tightening sequences.

## V6 4.0L

Oil cooler to oil filter adaptor	58 Nm / 43 lbf.ft
Oil filter	13 Nm / 9 lbf.ft
Oil filter adaptor	58 Nm / 43 lbf.ft
Oil pan	11 Nm / 8 lbf.ft
Oil pan drain plug	25 Nm / 18 lbf.ft
Oil pressure sensor	14 Nm / 10 lbf.ft
Oil temperature sensor	Dry assembly – 21 Nm / 15 lbf.ft Wet assembly – 15 Nm / 11 lbf.ft max
Spark plug	17 Nm / 12 lbf.ft
Throttle body	10 Nm / 7 lbf.ft
Valve cover	10 Nm / 7 lbf.ft

## Notes

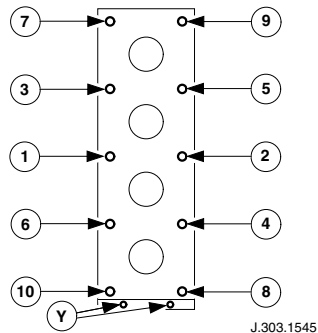
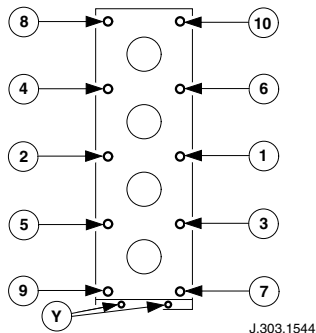
Refer to GTR for tightening sequences.

## V8 4.2L SC

Cylinder head

Apply each step in numerical sequence shown:

- |                                        |                                    |
|----------------------------------------|------------------------------------|
| 1. Tighten 1 to 10 – 20 Nm / 15 lbf.ft | 4. Tighten 1 to 10 – 90 degrees    |
| 2. Tighten 1 to 10 – 35 Nm / 26 lbf.ft | 5. Tighten 'Y' – 23 Nm / 17 lbf.ft |
| 3. Tighten 1 to 10 – 90 degrees        |                                    |



front of engine

Notes

## V8 4.2L SC

## Notes

A/C compressor and bracket	25 Nm / 18 lbf.ft
Air intake elbow support bracket	18 Nm / 13 lbf.ft
Air intake elbow to supercharger	21 Nm / 15 lbf.ft
Air intake elbow to support bracket	25 Nm / 18 lbf.ft
Air outlet duct to supercharger	10 Nm / 7 lbf.ft
Camshaft position sensor	7 Nm / 5 lbf.ft
Coolant inlet pipe	9 Nm / 6 lbf.ft
Coolant outlet pipe	9 Nm / 6 lbf.ft
Coolant pump	12 Nm / 9 lbf.ft
Coolant pump pulley	1. Tighten – 10 Nm / 7 lbf.ft 2. Rotate – 45 degrees
Crankshaft position sensor	7 Nm / 5 lbf.ft
Dynamic response pump	25 Nm / 18 lbf.ft
Dynamic response pump bracket	25 Nm / 18 lbf.ft
Engine front cover	12 Nm / 9 lbf.ft
Exhaust manifold	18 Nm / 13 lbf.ft
Generator	47.5 Nm / 35 lbf.ft
Generator bracket	25 Nm / 18 lbf.ft
Ignition coil	5 Nm / 3 lbf.ft

Refer to GTR for tightening sequences.

## V8 4.2L SC

Intercooler	12 Nm / 9 lbf.ft
Intercooler manifold and fuel rail assembly	21 Nm / 15 lbf.ft
Knock sensor	20 Nm / 14 lbf.ft
Oil filter	17 Nm / 12 lbf.ft
Oil filter head	21 Nm / 15 lbf.ft
Oil filter head bypass tube	12 Nm / 9 lbf.ft
Oil pan	21 Nm / 15 lbf.ft
Oil pan drain plug	23 Nm / 17 lbf.ft
Oil pump	12 Nm / 9 lbf.ft
PAS pump and bracket	25 Nm / 18 lbf.ft
Pressure control valve	5 Nm / 3 lbf.ft
RFI suppressor	10 Nm / 7 lbf.ft
Spark plug	25 Nm / 18 lbf.ft.
Starter motor	47.5 Nm / 35 lbf.ft
Supercharger	21 Nm / 15 lbf.ft
Throttle body	11 Nm / 8 lbf.ft
T-MAP sensor	6 Nm / 4 lbf.ft
Valve cover	10 Nm / 7 lbf.ft

## Notes

Refer to GTR for tightening sequences.

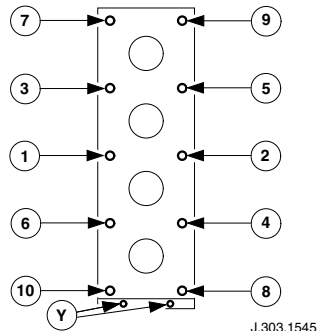
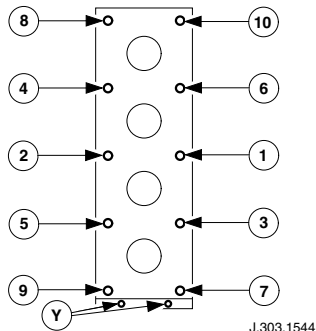


## V8 4.4L

### Cylinder head

Apply each step in numerical sequence shown:

- |                                        |                                    |
|----------------------------------------|------------------------------------|
| 1. Tighten 1 to 10 – 20 Nm / 14 lbf.ft | 4. Tighten 1 to 10 – 90 degrees    |
| 2. Tighten 1 to 10 – 35 Nm / 26 lbf.ft | 5. Tighten 'Y' – 23 Nm / 17 lbf.ft |
| 3. Tighten 1 to 10 – 90 degrees        |                                    |



front of engine

## Notes

V8 4.4L	
A/C compressor and bracket	25 Nm / 18 lbf.ft
Camshaft position sensor	7 Nm / 5 lbf.ft
Coolant inlet pipe	9 Nm / 6 lbf.ft
Coolant outlet pipe	9 Nm / 6 lbf.ft
Coolant pump	12 Nm / 9 lbf.ft
Coolant pump pulley	1. Tighten – 10 Nm / 7 lbf.ft 2. Rotate – 45 degrees
Crankshaft position sensor	7 Nm / 5 lbf.ft
Dynamic response pump	25 Nm / 18 lbf.ft
EGR valve	M6 – 10 Nm / 7 lbf.ft M8 – 21 Nm / 15 lbf.f
Engine front cover	12 Nm / 9 lbf.ft
Engine top cover mounting bracket	6 Nm / 4 lbf.ft
Exhaust manifold	18 Nm / 13 lbf.ft
Generator	47.5 Nm / 35 lbf.ft
Generator bracket	25 Nm / 18 lbf.ft
Ignition coil	5 Nm / 3 lbf.ft

## Notes

Refer to GTR for tightening sequences.

V8 4.4L		<u>Notes</u>
Intake manifold	21 Nm / 15 lbf.ft	
Knock sensor	20 Nm / 14 lbf.ft	
Oil cooler to filter head	58 Nm / 43 lbf.ft	
Oil filter	17 Nm / 12 lbf.ft	
Oil filter head	21 Nm / 15 lbf.ft	
Oil pan	21 Nm / 15 lbf.ft	
Oil pan drain plug	23 Nm / 17 lbf.ft	
Oil pump	12 Nm / 9 lbf.ft	
PAS pump and bracket	25 Nm / 18 lbf.ft	
Pressure control valve	5 Nm / 3 lbf.ft	
RFI suppressor	10 Nm / 7 lbf.ft	
Spark plug	25 Nm / 18 lbf.ft	
Starter motor	47.5 Nm / 35 lbf.ft	
Throttle body	10 Nm / 7 lbf.ft	
Valve cover	10 Nm / 7 lbf.ft	

Refer to GTR for tightening sequences.

Component	V8 3.6L Diesel	V8 4.2L SC Gasoline	V8 4.4L Gasoline	<u>Notes</u>
<b>RANGE ROVER – 2007 MY onwards</b>				
Transmission Ratios:	Automatic	Automatic	Automatic	
1st (high/low)	4.171:1 / 12.221:1	4.171:1 / 12.221:1	4.171:1 / 12.221:1	
2nd (high/low)	2.340:1 / 6.856:1	2.340:1 / 6.856:1	2.340:1 / 6.856:1	
3rd (high/low)	1.521:1 / 4.457:1	1.521:1 / 4.457:1	1.521:1 / 4.457:1	
4th (high/low)	1.143:1 / 3.349:1	1.143:1 / 3.349:1	1.143:1 / 3.349:1	
5th (high/low)	0.867:1 / 2.540:1	0.867:1 / 2.540:1	0.867:1 / 2.540:1	
6th (high/low)	0.691:1 / 2.025:1	0.691:1 / 2.025:1	0.691:1 / 2.025:1	
Reverse (high/low)	3.403:1 / 9.971:1	3.403:1 / 9.971:1	3.403:1 / 9.971:1	
Final Drive Ratio	3.540:1	3.730:1	3.730:1	
Transfer Box Ratio (high/low)	1:1 / 2.93:1	1:1 / 2.93:1	1:1 / 2.93:1	
Overall Gearing Ratios:				
1st (high/low)	14.765:1 / 43.261:1	15.558:1 / 45.585:1	15.558:1 / 45.585:1	
2nd (high/low)	8.284:1 / 24.272:1	8.728:1 / 25.573:1	8.728:1 / 25.573:1	
3rd (high/low)	5.384:1 / 15.775:1	5.673:1 / 16.622:1	5.673:1 / 16.622:1	
4th (high/low)	4.046:1 / 11.855:1	4.263:1 / 12.491:1	4.263:1 / 12.491:1	
5th (high/low)	3.069:1 / 8.992:1	3.234:1 / 9.476:1	3.234:1 / 9.476:1	
6th (high/low)	2.446:1 / 7.167:1	2.577:1 / 7.551:1	2.577:1 / 7.551:1	
Reverse (high/low)	12.047:1 / 35.298:1	12.693:1 / 37.190:1	12.693:1 / 37.190:1	

Component	V6 2.7L Diesel	V8 3.6L Diesel	V8 4.2L SC Gasoline	V8 4.4L Gasoline
<b>RANGE ROVER SPORT – 2007 MY onwards</b>				
Transmission Ratios:	Automatic	Automatic	Automatic	Automatic
1st (high/low)	4.171:1 / 12.221:1	4.171:1 / 12.221:1	4.171:1 / 12.221:1	4.171:1 / 12.221:1
2nd (high/low)	2.340:1 / 6.856:1	2.340:1 / 6.856:1	2.340:1 / 6.856:1	2.340:1 / 6.856:1
3rd (high/low)	1.521:1 / 4.457:1	1.521:1 / 4.457:1	1.521:1 / 4.457:1	1.521:1 / 4.457:1
4th (high/low)	1.143:1 / 3.349:1	1.143:1 / 3.349:1	1.143:1 / 3.349:1	1.143:1 / 3.349:1
5th (high/low)	0.867:1 / 2.540:1	0.867:1 / 2.540:1	0.867:1 / 2.540:1	0.867:1 / 2.540:1
6th (high/low)	0.691:1 / 2.025:1	0.691:1 / 2.025:1	0.691:1 / 2.025:1	0.691:1 / 2.025:1
Reverse (high/low)	3.403:1 / 9.971:1	3.403:1 / 9.971:1	3.403:1 / 9.971:1	3.403:1 / 9.971:1
Final Drive Ratio	3.540:1	3.540:1	3.540:1	3.730:1
Transfer Box Ratio (high / low)	1:1 / 2.93:1	1:1 / 2.93:1	1:1 / 2.93:1	1:1 / 2.93:1
Overall Gearing Ratios:				
1st (high/low)	14.765:1 / 43.261:1	14.765:1 / 43.261:1	14.765:1 / 43.261:1	15.558:1 / 45.585:1
2nd (high/low)	8.284:1 / 24.272:1	8.284:1 / 24.272:1	8.284:1 / 24.272:1	8.728:1 / 25.573:1
3rd (high/low)	5.384:1 / 15.775:1	5.384:1 / 15.775:1	5.384:1 / 15.775:1	5.673:1 / 16.622:1
4th (high/low)	4.046:1 / 11.855:1	4.046:1 / 11.855:1	4.046:1 / 11.855:1	4.263:1 / 12.491:1
5th (high/low)	3.069:1 / 8.992:1	3.069:1 / 8.992:1	3.069:1 / 8.992:1	3.234:1 / 9.476:1
6th (high/low)	2.446:1 / 7.167:1	2.446:1 / 7.167:1	2.446:1 / 7.167:1	2.577:1 / 7.551:1
Reverse (high/low)	12.047:1 / 35.298:1	12.047:1 / 35.298:1	12.047:1 / 35.298:1	12.693:1 / 37.190:1

Component	V6 2.7L Diesel		V6 4.0L Gasoline	V8 4.4L Gasoline
<b>DISCOVERY 3 – 2007 MY onwards</b>				
Transmission Ratios:	Manual	Automatic	Automatic	Automatic
1st (high/low)	5.080:1 / 14.884:1	4.171:1 / 12.220:1	4.171:1 / 12.220:1	4.171:1 / 12.220:1
2nd (high/low)	2.804:1 / 8.216:1	2.340:1 / 6.860:1	2.340:1 / 6.860:1	2.340:1 / 6.860:1
3rd (high/low)	1.783:1 / 5.224:1	1.521:1 / 4.460:1	1.521:1 / 4.460:1	1.521:1 / 4.460:1
4th (high/low)	1.260:1 / 3.692:1	1.143:1 / 3.350:1	1.143:1 / 3.350:1	1.143:1 / 3.350:1
5th (high/low)	1.000:1 / 2.930:1	0.867:1 / 2.540:1	0.867:1 / 2.540:1	0.867:1 / 2.540:1
6th (high/low)	0.835:1 / 2.446:1	0.691:1 / 2.020:1	0.691:1 / 2.020:1	0.691:1 / 2.020:1
Reverse (high/low)	4.725:1 / 13.844:1	3.403:1 / 9.960:1	3.403:1 / 9.960:1	3.403:1 / 9.960:1
Final Drive Ratio	3.070:1	3.540:1	3.730:1	3.730:1
Transfer Box Ratio (high / low)	1:1 / 2.93 1:1	1:1 / 2.93:1	1:1 / 2.93:1	1:1 / 2.93:1
Overall Gearing Ratios:				
1st (high/low)	15.596:1 / 45.694:1	14.765:1 / 43.259:1	15.558:1 / 45.581:1	15.558:1 / 45.581:1
2nd (high/low)	8.608:1 / 25.223:1	8.284:1 / 24.284:1	8.723:1 / 25.588:1	8.723:1 / 25.588:1
3rd (high/low)	5.474:1 / 16.038:1	5.384:1 / 15.788:1	5.673:1 / 16.636:1	5.673:1 / 16.636:1
4th (high/low)	3.868:1 / 11.334:1	4.046:1 / 11.859:1	4.263:1 / 12.496:1	4.263:1 / 12.496:1
5th (high/low)	3.070:1 / 8.995:1	3.069:1 / 8.992:1	3.234:1 / 9.474:1	3.234:1 / 9.474:1
6th (high/low)	2.563:1 / 7.509:1	2.446:1 / 7.151:1	2.557:1 / 7.535:1	2.557:1 / 7.535:1
Reverse (high/low)	14.506:1 / 42.501:1	12.047:1 / 35.258:1	12.693:1 / 37.151:1	12.693:1 / 37.151:1

Component		Inline 4 – 2.2L Diesel		Inline 6 – 3.2L Gasoline
<b>FREELANDER 2 – 2007 MY onwards</b>				
		Manual	Automatic	Automatic
Transmission Ratios:	1st	3.750:1	4.148:1	4.148:1
	2nd	1.905:1	2.370:1	2.370:1
	3rd	1.182:1	1.556:1	1.556:1
	4th	0.838:1	1.155:1	1.155:1
	5th	0.652:1	0.859:1	0.859:1
	6th	0.540:1	0.686:1	0.686:1
	Reverse	3.436:1	3.394:1	3.394:1
Final Transmission Ratio		4.533:1	3.329:1	3.750:1
Power Transfer Unit Ratio		2.583:1	2.583:1	2.583:1
Rear Drive Unit Ratio		2.583:1	2.583:1	2.583:1
Overall Gearing Ratios:	1st	17.000:1	13.809:1	15.555:1
	2nd	8.635:1	7.890:1	8.888:1
	3rd	5.358:1	5.180:1	5.835:1
	4th	3.798:1	3.845:1	4.331:1
	5th	2.957:1	2.860:1	3.221:1
	6th	2.448:1	2.284:1	2.573:1
	Reverse	15.583:1	11.299:1	12.728:1

Component	Inline 4 – 2.4L Diesel
<b>DEFENDER – 2007 MY onwards</b>	
Transmission Ratios:	Manual
1st	5.441:1
2nd	2.839:1
3rd	1.721:1
4th	1.223:1
5th	1.000:1
6th	0.742:1
Reverse	4.935:1
Final Drive Ratio	3.540:1
Transfer Box Ratio (high/low)	1.211:1 / 3.269:1
Overall Gearing Ratios:	
1st (high/low)	23.325:1 / 62.965:1
2nd (high/low)	12.171:1 / 32.854:1
3rd (high/low)	7.378:1 / 19.916:1
4th (high/low)	5.243:1 / 14.153:1
5th (high/low)	4.287:1 / 11.572:1
6th (high/low)	3.181:1 / 8.587:1
Reverse (high/low)	21.156:1 / 57.109:1

Notes



Engine	Transmission	Transfer Box	Front Differential	Rear Differential
<b>RANGE ROVER – 2007 MY onwards</b>				
<b>V8 3.6L Diesel</b> (refer to engine oil section)	<i>Automatic:</i> Shell ATF M-1375.4 Fill for life. Refer to GTR for top-up procedure.	Shell TF0753 Initial fill: 1.50 liters 3.17 US pints Service fill: Fill to level plug	Castrol SAF – XO Initial fill: 0.80 liters 1.69 US pints Service fill: 0.75 liters 1.58 US pints	<i>Open Unit:</i> Castrol SAF-XO Initial fill: 1.20 liters / 2.53 US pints Service fill: 1.14 liters / 2.40 US pints
<b>V8 4.2L SC Gasoline</b> (refer to engine oil section)				<i>Electronic Unit:</i> Castrol SAF-Carbon Mod Plus Initial fill: 1.60 liters / 3.38 US pints Service fill: 1.55 liters / 3.27 US pints
<b>V8 4.4L Gasoline</b> (refer to engine oil section)				

Notes

Engine	Transmission	Transfer Box	Front Differential	Rear Differential
<b>RANGE ROVER SPORT – 2007 MY onwards</b>				
<b>V6 2.7L Diesel</b> (refer to engine oil section)	<i>Automatic:</i> Shell ATF M-1375.4 Fill for life. Refer to GTR for top-up procedure.	Shell TF0753 Initial fill: 1.50 liters 3.17 US pints Service fill: Fill to level plug	Castrol SAF-XO Initial fill: 0.68 liters 1.44 US pints Service fill: 0.61 liters 1.29 US pints	<i>Open Unit:</i> Castrol SAF-XO Initial fill: 1.15 liters / 2.43 US pints Service fill: 1.10 liters / 2.32 US pints  <i>Electronic Unit:</i> Castrol SAF-Carbon Mod Plus Initial fill: 1.60 liters / 3.38 US pints Service fill: 1.55 liters / 3.27 US pints
<b>V8 3.6L Diesel</b> (refer to engine oil section)				
<b>V8 4.2L SC Gasoline</b> (refer to engine oil section)				
<b>V8 4.4L Gasoline</b> (refer to engine oil section)				

Notes

Engine	Transmission	Transfer Box	Front Differential	Rear Differential
DISCOVERY 3 – 2007 MY onwards				
<b>V6 2.7L Diesel</b> (refer to engine oil section)	<i>Manual:</i> Castrol BOT 338 1.6 liters / 3.38 US pints	Shell TF0753 Initial fill: 1.50 liters 3.17 US pints Service fill: Fill to level plug	Castrol SAF-XO Initial fill: 0.68 liters 1.44 US pints Service fill: 0.61 liters 1.29 US pints	<i>Open Unit:</i> Castrol SAF-XO Initial fill: 1.15 liters / 2.43 US pints Service fill: 1.10 liters / 2.32 US pints  <i>Electronic Unit:</i> Castrol SAF-Carbon Mod Plus Initial fill: 1.60 liters / 3.38 US pints Service fill: 1.55 liters / 3.27 US pints
<b>V6 4.0L Gasoline</b> (refer to engine oil section)	<i>Automatic:</i> Shell ATF M-1375.4 Fill for life. Refer to GTR for top-up procedure.			
<b>V8 4.4L Gasoline</b> (refer to engine oil section)				

## Notes

Engine	Transmission	Power Transfer Unit	Active On-demand Coupling	Rear Differential
<b>FREELANDER 2 – 2007 MY onwards</b>				
<b>Inline 4 – 2.2L Diesel</b> (refer to engine oil section)	<i>Manual:</i> Castrol MTF 97309 2 liters / 4.2 US pints	Castrol BOT 118 Plus Initial fill: 0.75 liters 1.6 US pints Service fill: Refer to GTR	STAT OIL SL01-301 Initial fill: 0.65 liters 1.4 US pints Service fill: Refer to GTR	Castrol EPX 80W-90 0.7 liters 1.5 US pints
	<i>Automatic:</i> Esso JWS3309 US 7 liters 15 US pints			
<b>Inline 6 – 3.2L Gasoline</b> (refer to engine oil section)				

Notes

Engine	Transmission	Transfer Box	Front Differential	Rear Differential
<b>DEFENDER – 2007 MY onwards</b>				
<b>In-line 4 – 2.4L Diesel</b> (refer to engine oil section)	<i>Manual:</i> Castrol BOT 130M 2.4 liters 5.1 US pints	Castrol Syntrox 75W-90 or Texaco Multigear 75W-90R 2.3 liters 4.8 US pints	Castrol EPX 80W-90 or Texaco Geartex EP85W-90 1.6 liters 3.4 US pints	Castrol EPX 80W-90 or Texaco Geartex EP85W-90 1.6 liters 3.4 US pints

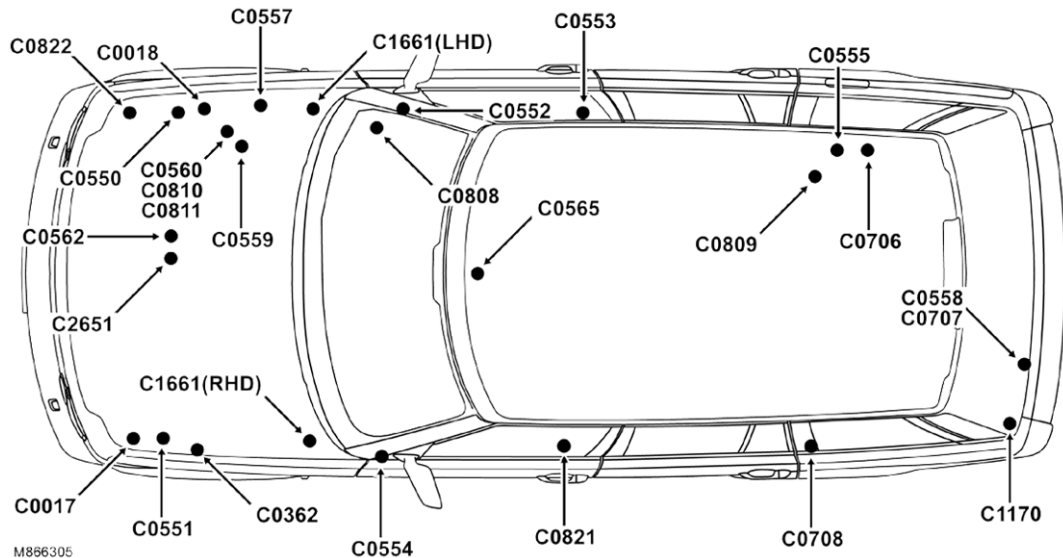
**Notes**

Engine	Refrigerant	Zone	Refrigerant Charge Weight	Compressor Oil Quantity	Compressor Oil
RANGE ROVER – 2007 MY onwards					
V8 – 3.6L Diesel	R134a	Two	700 ± 10 g / 24.7 ± 0.35 oz.	120 ml / 4.0 US fl oz.	Sanden SP-10 PAG oil
		Four	880 ± 10 g / 31 ± 0.35 oz.	170 ml / 5.7 US fl oz.	
V8 – 4.2L SC Gasoline	R134a	Two	700 ± 10 g / 24.7 ± 0.35 oz.	120 ml / 4.0 US fl oz.	Sanden SP-10 PAG oil
		Four	880 ± 10 g / 31 ± 0.35 oz.	170 ml / 5.7 US fl oz.	
V8 – 4.4L Gasoline	R134a	Two	700 ± 10 g / 24.7 ± 0.35 oz.	120 ml / 4.0 US fl oz.	Sanden SP-10 PAG oil
		Four	880 ± 10 g / 31 ± 0.35 oz.	170 ml / 5.7 US fl oz.	
RANGE ROVER SPORT – 2007 MY onwards					
V6 – 2.7L Diesel	R134a	Two	550 ± 25 g / 19.4 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Denso ND-8 PAG oil
		Four	810 ± 25 g / 28.6 ± 0.9 oz.	130 ml / 4.4 US fl oz.	
V8 – 3.6L Diesel	R134a	Two	650 ± 25 g / 22.9 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Denso ND-8 PAG oil
		Four	810 ± 25 g / 28.6 ± 0.9 oz.	130 ml / 4.4 US fl oz.	
V8 – 4.2L SC Gasoline	R134a	Two	600 ± 25 g / 21.2 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Denso ND-8 PAG oil
		Four	900 ± 25 g / 31.7 ± 0.9 oz.	130 ml / 4.4 US fl oz.	
V8 – 4.4L Gasoline	R134a	Two	600 ± 25 g / 21.2 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Denso ND-8 PAG oil
		Four	900 ± 25 g / 31.7 ± 0.9 oz.	130 ml / 4.4 US fl oz.	

Engine	Refrigerant	Zone	Refrigerant Charge Weight	Compressor Oil Quantity	Compressor Oil
DISCOVERY 3 – 2007 MY onwards					
V6 – 2.7L Diesel	R134a	Two	550 ± 25 g / 19.4 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Denso ND-8 PAG oil
		Four	810 ± 25 g / 28.6 ± 0.9 oz.	130 ml / 4.4 US fl oz.	
V6 – 4.0L Gasoline	R134a	Two	600 ± 25 g / 21.2 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Denso ND-8 PAG oil
		Four	900 ± 25 g / 31.7 ± 0.9 oz.	130 ml / 4.4 US fl oz.	
V8 – 4.4L Gasoline	R134a	Two	600 ± 25 g / 21.2 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Denso ND-8 PAG oil
		Four	900 ± 25 g / 31.7 ± 0.9 oz.	130 ml / 4.4 US fl oz.	
FREELANDER 2 – 2007 MY onwards					
Inline 4 – 2.2L Diesel	R134a	Single and Two	730 ± 10 g / 25.7 ± 0.35 oz.	200 ml / 6.8 US fl oz.	WSH-M1C231-B
Inline 6 – 3.2L Gasoline	R134a	Single and Two	730 ± 10 g / 25.7 ± 0.35 oz.	150 ml / 5.1 US fl oz.	Denso ND-8 PAG oil
DEFENDER – 2007 MY onwards					
Inline 4 – 2.4L Diesel	R134a	Single	600 ± 25 g / 21.2 ± 0.9 oz.	130 ml / 4.4 US fl oz.	Sanden SP-10 PAG oil

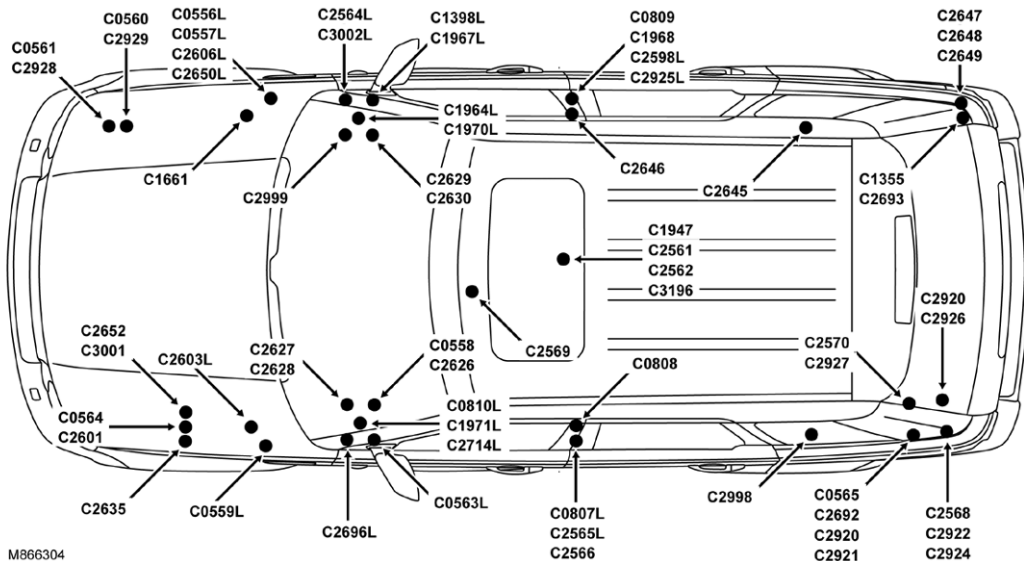
Notes

RANGE ROVER – 2007 MY onwards

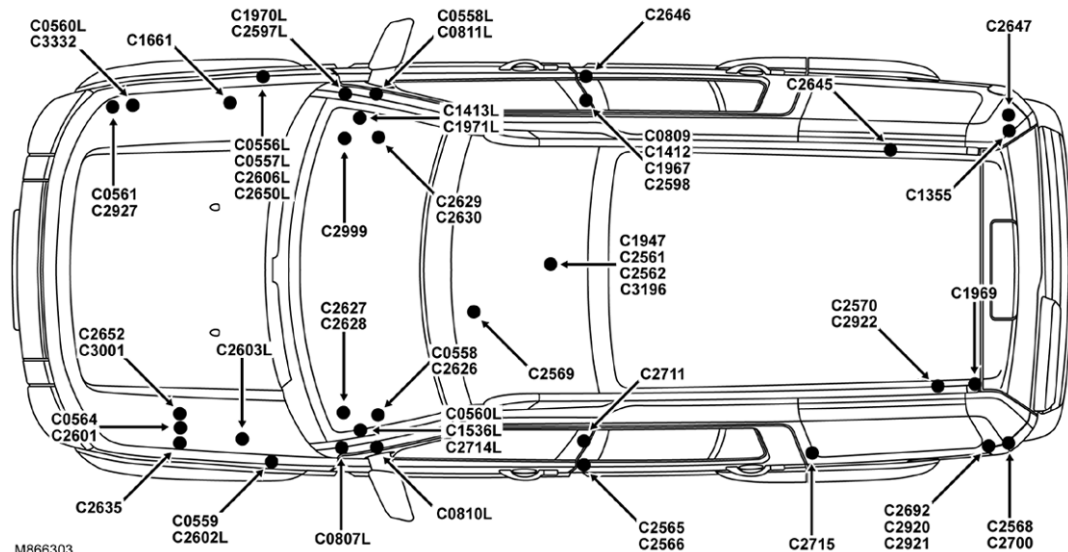




## RANGE ROVER SPORT – 2007 MY onwards

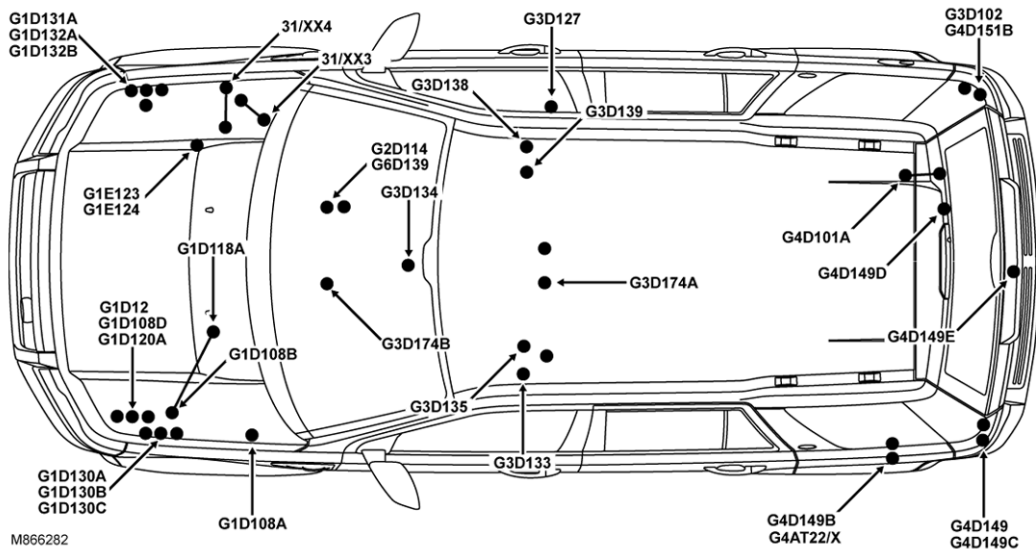


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**DISCOVERY 3 – 2007 MY onwards**

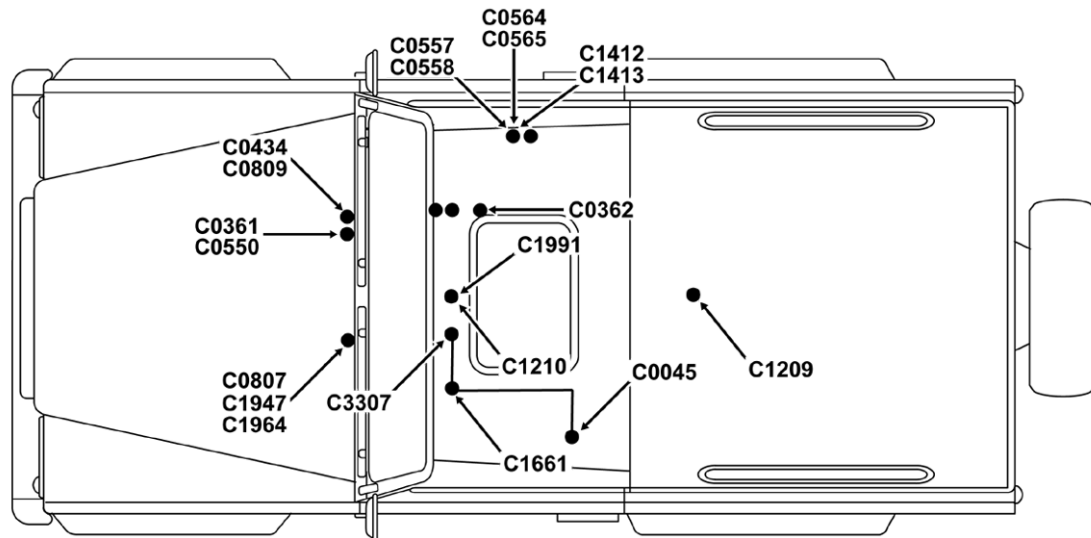
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## FREELANDER 2 – 2007 MY onwards



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DEFENDER – 2007 MY onwards



M866306

## RANGE ROVER – 2007 MY onwards

Feature	Millimeters	Inches
Vehicle length without license-plate plinth	4972	195.7
Vehicle maximum height	1865	73.4
Vehicle maximum height with roof antenna module	1903	74.9
Vehicle maximum height with roof opening panel open	1901	74.8
Vehicle maximum height with sports bar roof pack	1937	76.3
Vehicle width – excluding mirrors	1956	77.0
Vehicle width – including mirrors	2216	87.2
Vehicle width with mirrors folded	2034	80.1
Wheelbase	2880	113.3

### Notes

RANGE ROVER SPORT – 2007 MY onwards		
Feature	Millimeters	Inches
Vehicle length with license-plate plinth	4798	188.9
Vehicle length without license-plate plinth	4788	188.5
Vehicle maximum height (access height)	1734	68.3
Vehicle maximum height (standard ride height)	1784	70.2
Vehicle maximum height with roof antenna module (access height)	1762	69.4
Vehicle maximum height with roof antenna module (standard ride height)	1812	71.3
Vehicle maximum height with roof opening panel open (access height)	1767	69.6
Vehicle maximum height with roof opening panel open (standard ride height)	1817	71.5
Vehicle maximum height with roof side rails (access height)	1734	68.3
Vehicle maximum height with roof side rails (standard ride height)	1784	70.2
Vehicle maximum height with roof side rails and cross bars (access height)	1824	71.9
Vehicle maximum height with roof side rails and cross bars (standard ride height)	1874	73.8
Vehicle width – excluding mirrors	1928	75.9
Vehicle width – including mirrors	2170	85.4
Vehicle width with mirrors folded	1983	78.1
Wheelbase	2745	108

## DISCOVERY 3 – 2007 MY onwards

Feature	Millimeters	Inches
Vehicle length with license-plate plinth	4848	190.9
Vehicle length without license-plate plinth	4835	190.3
Vehicle maximum height (access height)	1837	72.3
Vehicle maximum height (standard ride height)	1887	74.3
Vehicle maximum height with roof antenna module (access height)	1890	74.4
Vehicle maximum height with roof antenna module (standard ride height)	1940	76.4
Vehicle maximum height with roof opening panel open (access height)	1870	73.6
Vehicle maximum height with roof opening panel open (standard ride height)	1920	75.6
Vehicle maximum height with roof side rails (access height)	1841	72.5
Vehicle maximum height with roof side rails (standard ride height)	1891	74.4
Vehicle width – excluding mirrors	1915	75.4
Vehicle width – including mirrors	2190	86.2
Vehicle width with mirrors folded	2009	79.1
Wheelbase	2885	113.6

### Notes

## FREELANDER 2 – 2007 MY onwards

Feature	Millimeters	Inches
Vehicle length without license-plate plinth	4500	177.1
Vehicle maximum height	1740	68.5
Vehicle maximum height with roof opening panel open	1775	69.8
Vehicle maximum height with roof side rails	1820	71.6
Vehicle width – excluding mirrors	1910	75.1
Vehicle width – including mirrors	2180	85.7
Vehicle width with doors open	3640	143.2
Vehicle width with mirrors folded	2005	78.8
Wheelbase	2660	104.7

### Notes





The illustrations, technical information, data and descriptive text in this issue, to the best of our knowledge, were correct at the time of going to print.

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