

Coolant Heater

Thermo 90 S.21

Diesel - 24 Volt



Service Parts List for
HMMWV (Humvee)

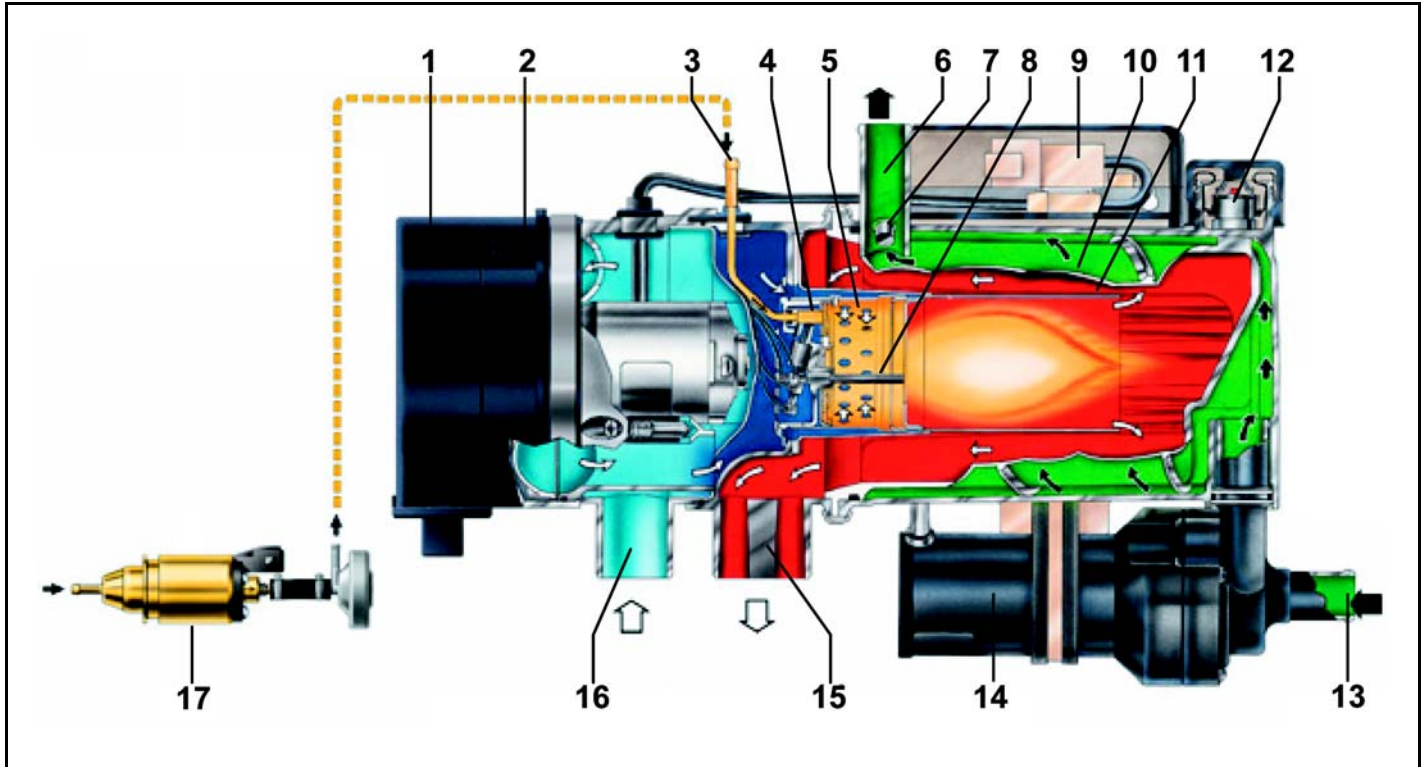
Topic

- Heaters Page 4
- Parts for heater Figure 1, 2
- Mounting parts Figure 3
- Electrical parts Figure 3
- Parts for fuel supply Figure 4
- Parts for combustion air system Figure 4
- Parts for exhaust system. Figure 4
- Parts for coolant system. Figure 4
- Diagnostic equipment Figure 5

Subject to modification

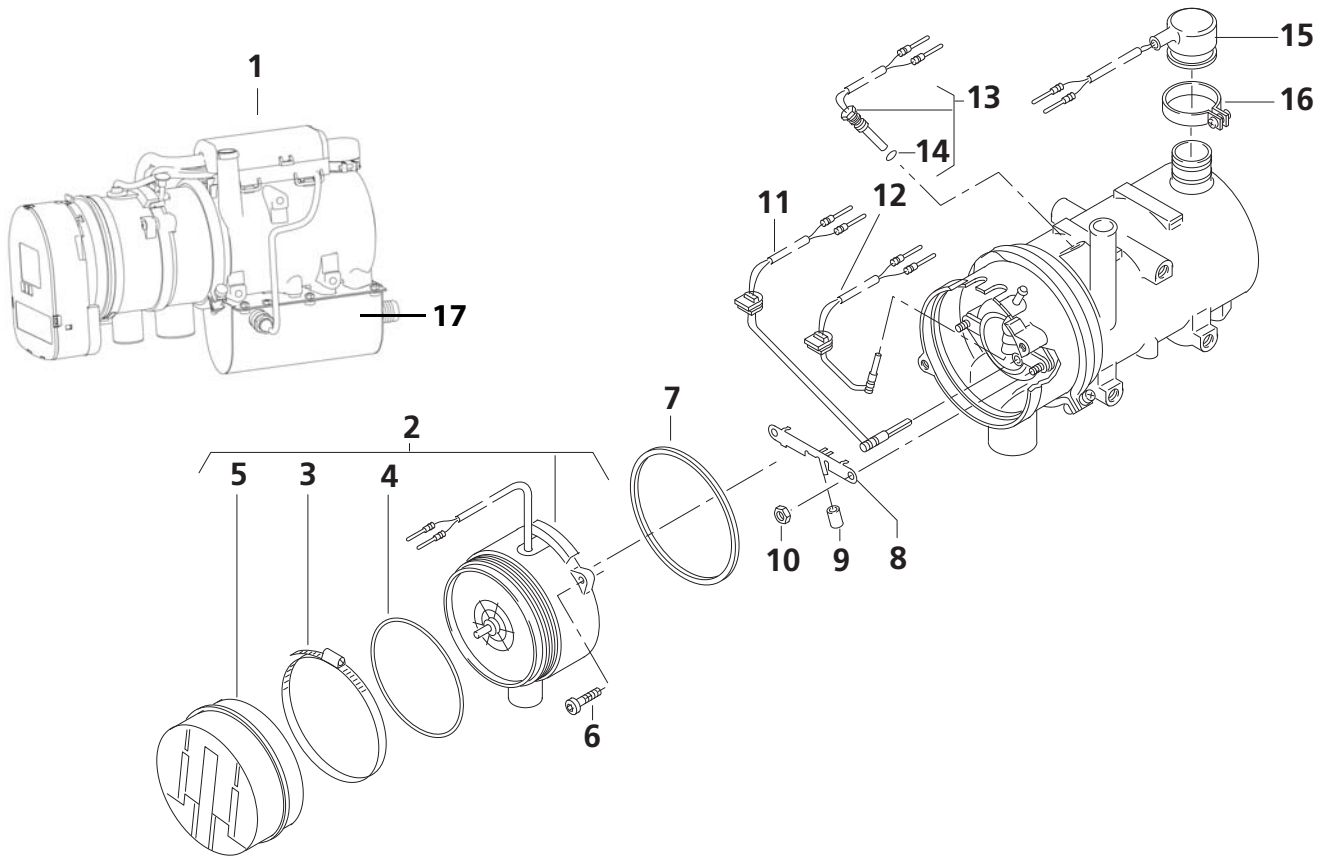
Overview

Thermo 90 S.21 Coolant Heater



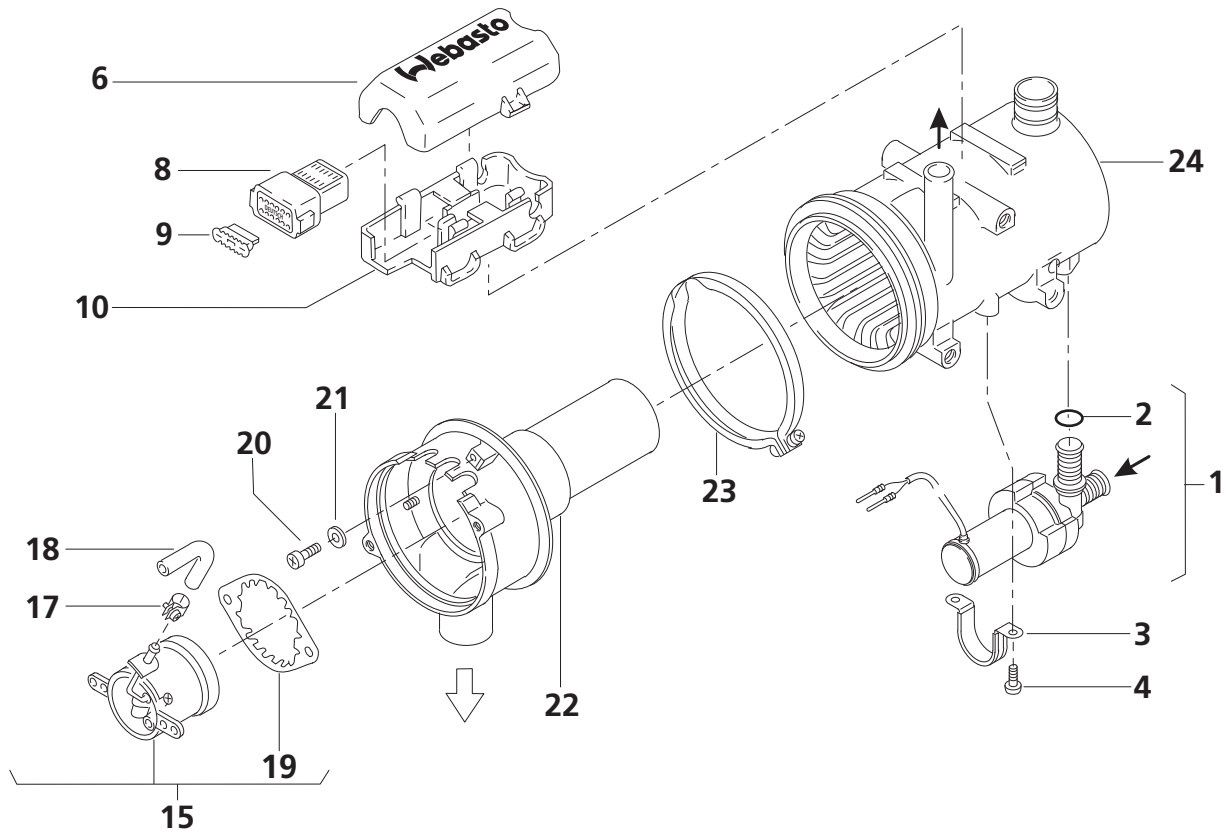
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|------------------------------|-------------------------------------|
| 1 Electronic control unit | 10 Heat exchanger |
| 2 Combustion air fan | 11 Burner head / combustion tube |
| 3 Fuel connection tube | 12 Overheat thermostat |
| 4 Ceramic igniter | 13 Water inlet connection |
| 5 Burner insert | 14 Water circulation pump |
| 6 Water outlet connection | 15 Exhaust outlet connection |
| 7 Temperature control sensor | 16 Combustion air intake connection |
| 8 Ceramic flame detector | 17 Fuel pump |
| 9 Electrical connection plug | |

HMMWV - Thermo 90 S.21 - fig. 1



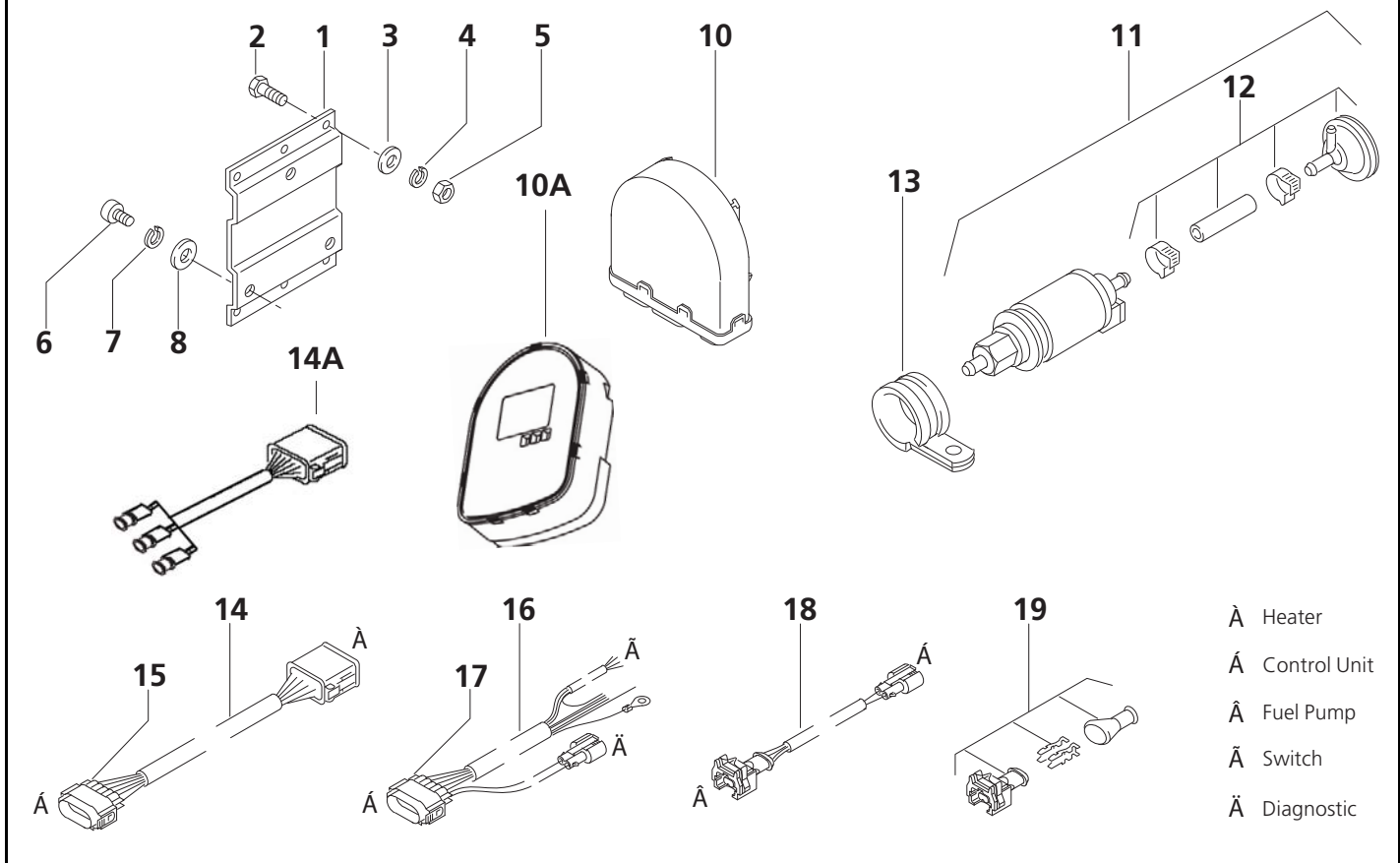
Item	Quantity	Part No.	A/N	Description	Remarks
	Thermo 90 S				
HMMWV - Thermo 90 S.21 24 Volt, Diesel Coolant Heater					
no fig.	1	5000356B		Thermo 90 S.21 24 Volt, Diesel EMI Military Kit	5000356B Contains: fuel pump, harnesses, intake, exhaust, & tube. For COMPLETE HMMWV Cold Start including all brackets, hoses, fuel lines, and switch order direct from D.O.L. Kit # 57K3497
1	1	9019557B		Thermo 90 S.21 24 Volt, Diesel replacement heater	Replaces 67582C, 67790A/B, & 9019557A
Parts for heater					
2	1	9000110A		combustion air fan - complete 24 V	
3	1	139653		• gear clamp Ø 100 - 120 mm	
4	1	34888A		• O-ring gasket Ø 110 x 2 mm	
5	1	88067E		• end cover	
6	2	34295B		screw - self tapping M5 x 20 DIN 7500	
7	1	83515B		O-ring gasket id.Ø 109 / od.Ø 113	
8	1	20817D		support	
9	1	19937B		tube - insulating	
10	2	689184		nut - hexagon M5	
11	1	82407B		flame detector - ceramic	
12	1	82410B		igniter - ceramic 24 V	
13	1	41244G		temperature sensor 90° C (194° F)	
14	1	431567		• O-ring gasket Ø 7 x 2 mm	
15	1	37955C		overheat protection 127° C (260° F)	
16	1	82096A		hose clamp Ø 37 mm	
17	1	1316730A		Water Pump Cover	

HMMWV - Thermo 90 S.21 - fig. 2



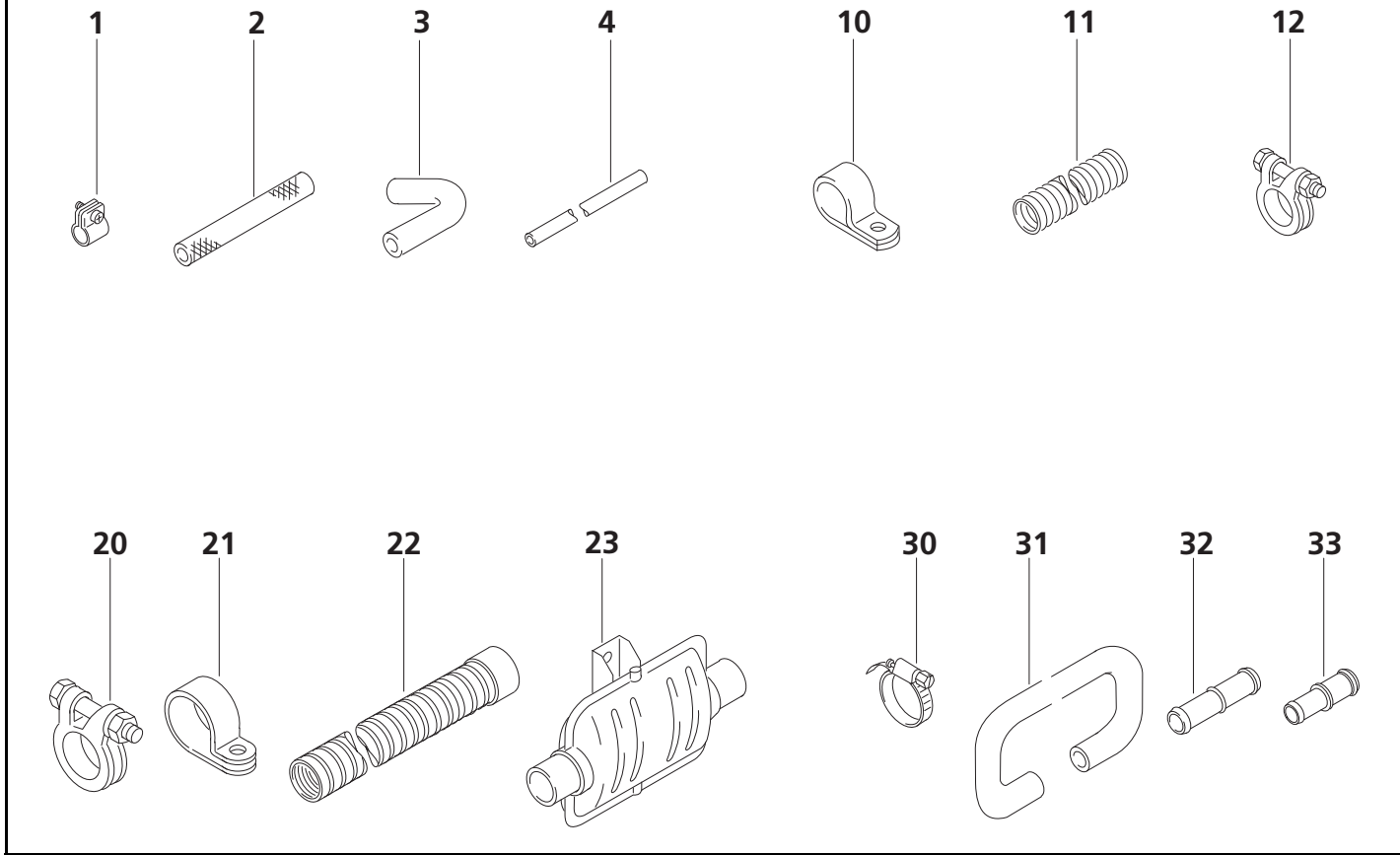
Item	Quantity	Part No.	A/N	Description	Remarks
	Thermo 90 S				
Parts for heater					
1	1	9000111A		coolant circulating pump 24 V	with radio suppression
2	1	22405B		O-ring gasket Ø 19.8 x 2.3 mm	
3	1	38634A		mounting clamp	
4	2	35283A		screw - self tapping M5 x 12	
5					
6	1	38641C		protective cap	
8	1	85042A		• pin housing - 12 pole	
9	1	41025A		• locking wedge	
10	1	38638B		connector housing	
11-14					
15	1	9010916A		burner insert - complete Diesel	
17	1	330027		• clamp - fuel line coupler	
18	1	34859C		• fuel line coupler - 90° id.Ø 4.5 mm	
19	1	32151B		• swirler - combustion air	
20	1	34296B		screw - self tapping M5 x 8	
21	1	153257		washer - flat B5.3	
22	1	1301836A		burner head	
23	1	21295A		clamp Ø 129 mm	
24	1	86244B		heat exchanger	

HMMWV - Thermo 90 S.21 - fig. 3



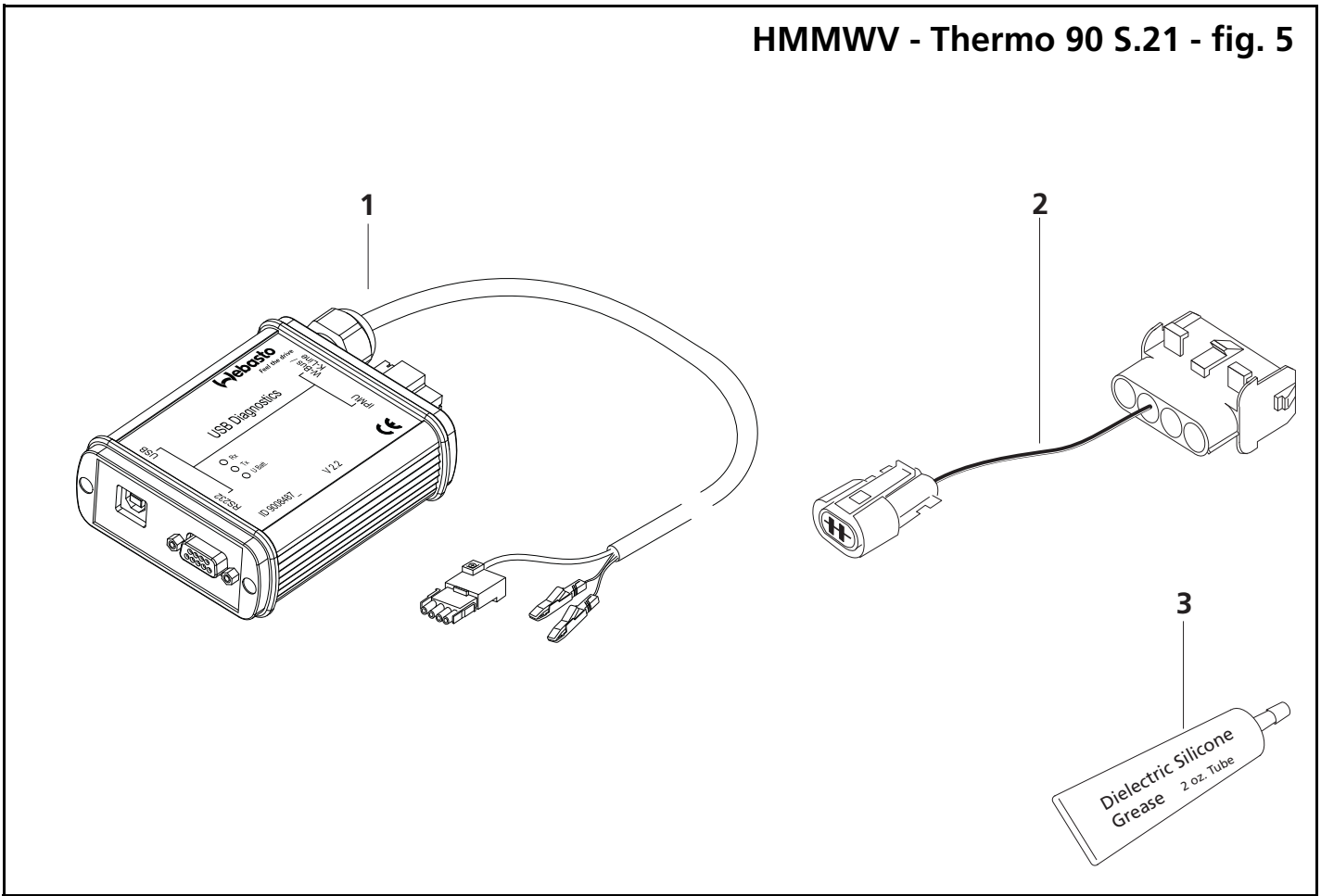
Item	Quantity	Part No.	A/N	Description	Remarks
	Thermo 90 S				
Mounting parts					
1	1	20583A		mounting plate - Thermo 90 S	Universal bracket
2	4	147249		screw - hexagon M6 x 20	
3	4	153265		washer - flat B6.4	
4	4	152560		washer - locking A6	
5	4	146714		nut - hexagon M6 ISO 4032	
6	3	902888		screw - allen socket M8 x 16 8.8	
7	3	902712		washer - locking 5/16 in.	
8	3	902713		washer - flat 5/16 in.	
Electrical parts					
10	1	89093C		control unit - SG 1577 24 V	Before April 2011
10A	1	9011399A		control unit - SG 1577 24 V	April 2011 (Also Requires harness - 14A)
11	1	91473A		fuel pump DP 30.02 24 V	
12	1	478814		• membrane damper	
13	1	21499A		Clamp Ø 35 mm	
14	1	67134A		wiring harness - heater to control unit	Before April 2011
14A	1	1300813B		harness - heater to control unit	April 2011 (Only use with new control unit - 10A)
15	1	88655A		• connector plug - 12 pole	
16	1	905782A		wiring harness - power, ground, switch and diagnostic	
17	1	88654A		• connector plug - 12 pole	
18	1	5000922A		wiring harness - fuel pump	
19	1	19439A		connector plug with terminals - fuel pump	

HMMWV - Thermo 90 S.21 - fig. 4



Item	Quantity	Part No.	A/N	Description	Remarks
	Thermo 90 S				
Parts for fuel supply					
1	8	330027		clamp - fuel line coupler	
2	4	484032		fuel line coupler	id.Ø 4.5 mm
3	1	34859C		fuel line coupler - 90°	id.Ø 4.5 mm
4	X	9028379A		fuel line	id.Ø 2 mm
5-9					per meter
Parts for combustion air system					
10	1	499021		pipe clip	Ø 33 mm
11	1	5029842A		tube - combustion air inlet	id.Ø 30 mm x 400 mm Lg. stainless steel with end cap
12	1	9011844B		pipe clamp	Ø 30 - 33 mm
13-19					
Parts for exhaust system					
20	3	367400		exhaust clamp	Ø 39 - 42 mm
21	1	126830		pipe clip	Ø 42 mm
22	1	5000286A		exhaust tube	id.Ø 38 mm x 400 mm Lg. stainless steel with end cap
23	1	19562E	A	exhaust muffler	od.Ø 38 mm
24-29					
Parts for coolant system					
30	6	901097		hose clamp	Ø 23 - 32 mm
31	1	50126840A		formed hose	Ø 20 mm x 2200 mm lg. 180° formed ends
32	2	66934B		hose connector	20 x 20 mm
33	2	66908B		hose connector	18 x 20 mm

HMMWV - Thermo 90 S.21 - fig. 5



Item	Quantity	Part No.	A/N	Description	Remarks
	Thermo 90 S				
Diagnostic equipment					
1	1	9009064D	A	PC diagnosis Kit	Includes software. Item 2 must be ordered separately.
2	1	92556A		test adapter	Thermo 90 S
3	1	50000043		dielectric silicone grease 2 oz.	For electrical connectors (anti-corrosion)



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