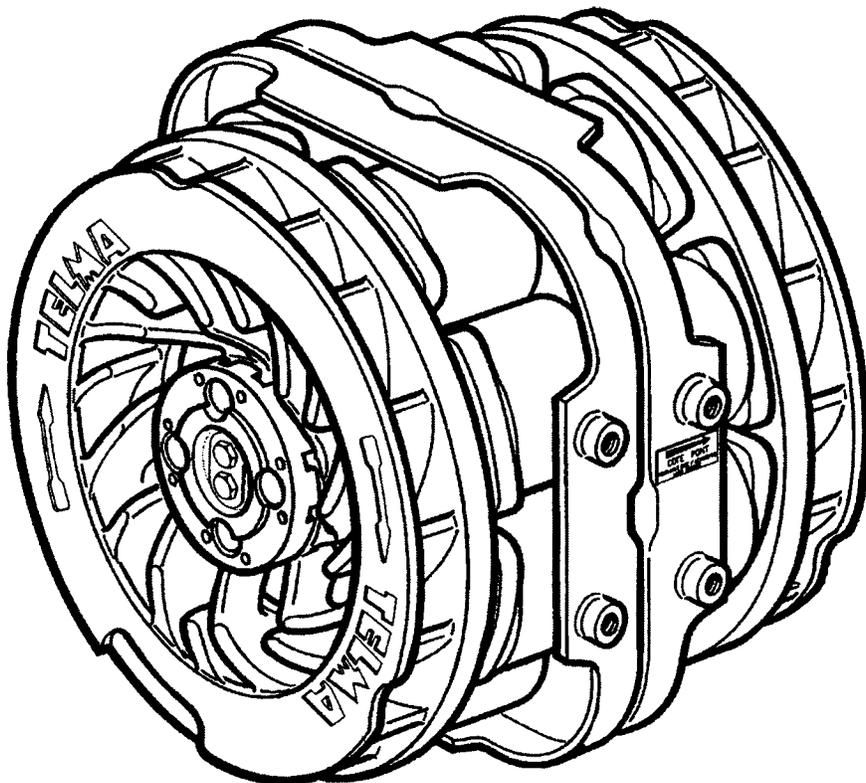




# Spare Parts Catalog

## AC – Series Axial Retarder

### Insulated Ground Return



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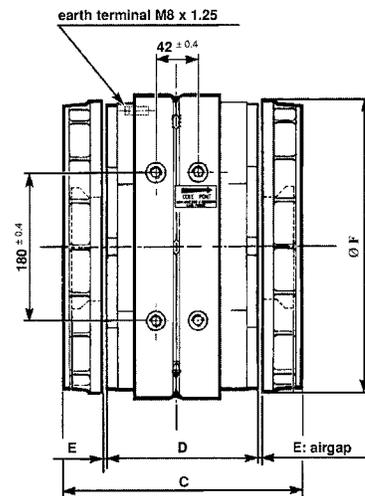
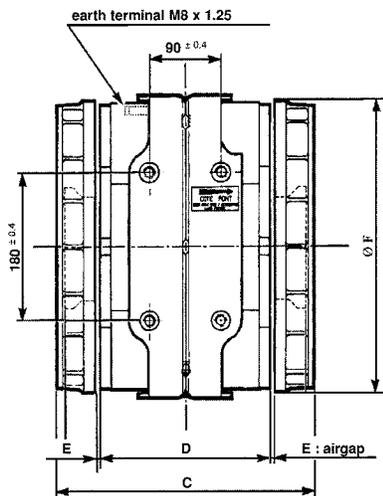
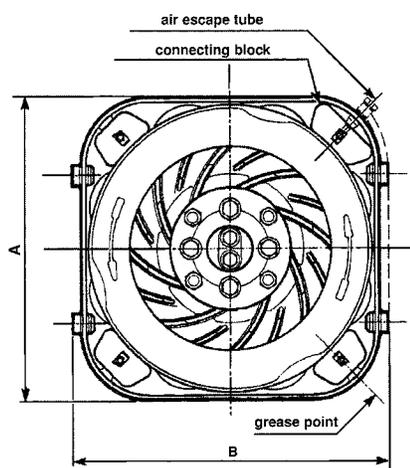
## Technical specifications of the AC series retarders

RETARDER MODEL		AC50-55	AC50-65	AC50-80	AC51-00	AC61-25	
RETARDER CODE		CN20	CN23	CP23	CM23	CE36	
MAXIMUM BRAKING TORQUE	Nm	560	650	800	1000	1250	
	lb-ft	413	479	590	737	921	
Total mass	Kg	104	132	132	148	192	
	lb	229	291	291	326	423	
Stator mass	Kg	72	98	98	114	142	
	lb	159	216	216	251	313	
Rotors mass (with flanges)	Kg	32	34	34	34	50	
	lb	70	75	75	75	110	
AIR-GAP -0.15mm/-006Inch	mm	0.8	1.5	0.8	0.8	1.0	
	inch	0.031	0.059	0.031	0.031	0.039	
RESISTANCE PER STAGE ± 5% at 20°C (68 °F)	12 Volts	Ω	0.66	0.25	0.25	0.27	0.39
	24 Volts	Ω	2.64	1.0	1.0	1.08	1.56
RESISTANCE PER COIL ± 5% at 20°C (68 °F)	Ω	0.66	0.25*	0.25*	0.27*	0.39*	
AMPERAGE PER STAGE ± 5% at 20°C (68 °F)	12 Volts	A	18.2	48	48	44.4	30.8
	24 Volts	A	9.1	24	24	22.2	15.4
INSULATION RESISTANCE (Retarder dry)	MΩ	≥1	≥1	≥1	≥1	≥1	

RETARDER MODEL		AC61-35	AC61-60	AC72-00	AC82-45	AC82-70	AC83-00	AC83-31
RETARDER CODE		CE23	CF23	CH23	CK23	CU23	CT23	CL23
MAXIMUM BRAKING TORQUE	Nm	1350	1600	2000	2550	2700	3000	3300
	lb-ft	995	1179	1474	1879	1990	2211	2432
Total mass	Kg	229	229	278	365	332	364	380
	lb	505	505	613	805	732	802	838
Stator mass	Kg	162	162	194	277	244	276	294
	lb	357	357	428	611	538	608	644
Rotors mass (with flanges)	Kg	67	67	84	88	88	88	88
	lb	148	148	185	194	194	194	194
AIR-GAP -0.15mm/-006Inch	mm	1.9	1.2	1.2	1.2	1.2	1.5	1.5
	inch	0.075	0.047	0.047	0.047	0.047	0.059	0.059
RESISTANCE PER STAGE ± 5% at 20°C (68 °F)	12 Volts	Ω	0.19	0.19	0.19	0.32	0.18	0.15
	24 Volts	Ω	0.76	0.76	0.75	/	0.7	0.6
RESISTANCE PER COIL ± 5% at 20°C (68 °F)	Ω	0.76	0.76	0.75	0.32*	0.7	0.59	0.6
AMPERAGE PER STAGE ± 5% at 20°C (68 °F)	12 Volts	A	62.8	62.8	63.6	37.5	67.8	80.0
	24 Volts	A	31.4	31.4	31.8	/	33.9	40.0
INSULATION RESISTANCE (Retarder dry)	MΩ	≥1	≥1	≥1	≥1	≥1	≥1	≥1

\* 6v coil, see page 9

# Identification of the retarders by their dimensions



(AC50-55 only)

## RETARDER

Item	AC50-55 CN20. ...	AC50-65 CN23. ...	AC50-80 CP23. ...	AC51-00 CM23. ...	AC61-25 CE36. ...
A (mm)	363	363	363	363	470
B	383	383	383	383	496
C	220	321	321	321	266
D	124	219.5	219.5	219.5	154
E	0.8	1.5	0.8	0.8	1
ØF	352	352	352	352	424

## RETARDER

Item	AC61-35 CE23. ...	AC61-60 CF23. ...	AC72-00 CH23. ...	AC82-45 CK23. ...	AC82-70 CU23. ...	AC83-00 CT23. ...	AC83-31 CL37. ...
A (mm)	470	470	495	530	530	530	530
B	496	496	519	554	554	554	554
C	358	358	383	418	418	418	418
D	220	220	239	280.2	280.2	280.2	280.2
E	1.9	1.2	1.2	1.2	1.2	1.5	1.5
ØF	446	446	480	500	500	500	500

## Indexes, designation and dimensions for identification of the coupling flanges

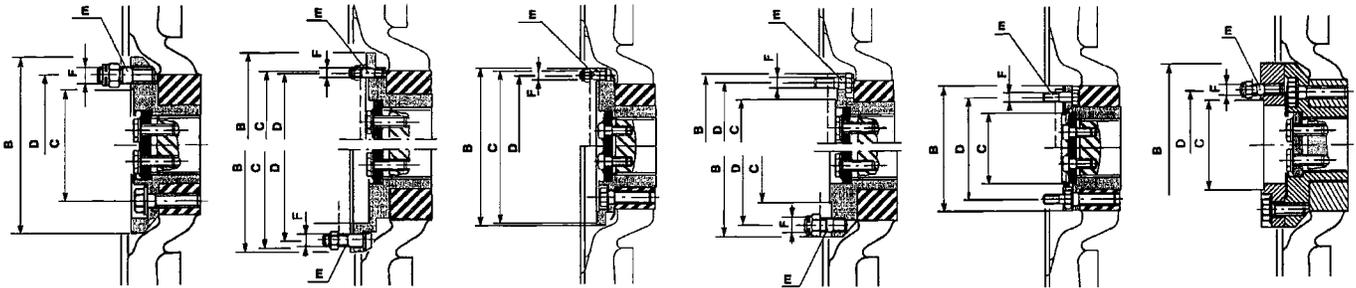


Figure I

Figure II

Figure III

Figure IV

Figure V

Figure VI

Item	Description	Fig.	B	C	D	E	F
103	SAE 1300, metric fasteners	I	151	60.32	79.37	4	10
104	SAE 1400, metric fasteners	I	151	69.85	95.25	4	12
105	SAE 1500, metric fasteners	I	151	95.25	120.67	4	14
106	SAE 1600, metric fasteners	II	174.6/203.2	168.22	155.52	8	10
107	SAE 1700, metric fasteners	III	203.2	196.85	184.12	8	10
108	SAE 1800, metric fasteners	III	203.2	196.85	184.12	12	11
110*	SAE 1800, metric fasteners	III	203.2	196.85	184.12	12	11
117	DIN Ø 150	IV/V	150	90	130	8	12
120	DIN Ø 180	IV	180	110	155.5	8	14
123	Mercedes-Benz Ø 120	VI	150	82.5	101.6	6	10
124	Mercedes-Benz Ø 130	I	130	82.56	112	8	10
134	DIN Ø 120	IV	130	75	101.5	8	10
139	DIN Ø 180	IV	180	110	155.5	8	16
140	DIN Ø 180	IV	180	110	155.5	10	16
141	DIN Ø 165	IV	165	95	140	8	16
145	SAE 1700 R reinforced	III	8"	7.75"	7.25"	12	0.394"
152	SAE 1710	III	8"	7.75"	7.25"	8	0.375"
154	SAE 1350/1410	I	5.95"	2.75"	3.75"	4	0.4375"
155	SAE 1480/1550	I	5.95"	3.75"	4.75"	4	0.5"
157	SAE 1760/1810	III	8"	7.75"	7.25"	12	0.4375"
158	SAE 1550/1610	II	6.875" / 8"	6.625"	6.125"	8	0.375"

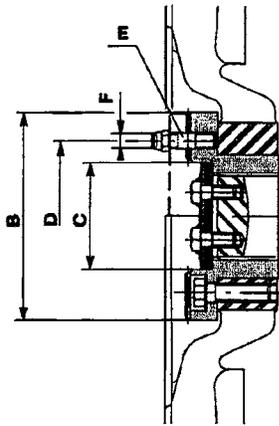
\* Index 110:

Similar to index 108, but rear propshaft securing is offset by 45°, anti-clockwise, in relation to front propshaft.

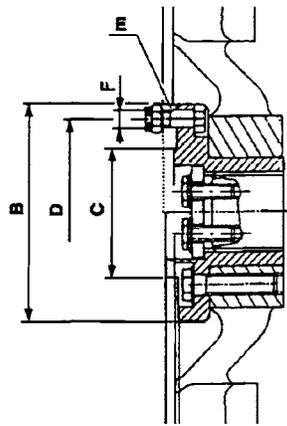
### Dimensions (mm)

- B external diameter of the retarder coupling flange
- C pilot diameter
- D diameter between fasteners
- E number of securing bolts or holes
- F bolt diameter

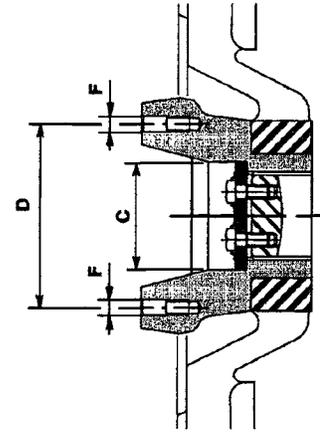
## Indexes, designation and dimensions for identification of the coupling flanges



**Figure VII**



**Figure VIII**



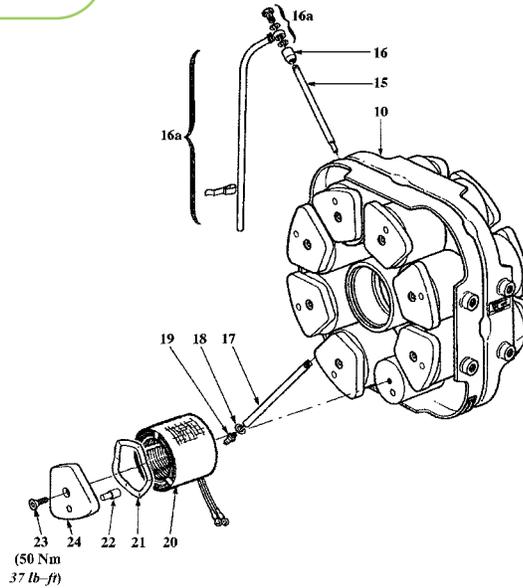
**Figure IX**

Item	Description	Fig.	B	C	D	E	F
128	Cross-serration Ø 120	VII	150 (AD50-55 to AD50-90) 165 (AD61-30 to AD61-55)		100	4	10
129	Cross-serration Ø 150	VII	150 (AD50-55 to AD50-90) 165 (AD61-30 to AD61-55) 180 (AD72-00)		130	4	12
135	Nissan diesel Ø 165	VIII	165	90	80x116	4	16
136	SCANIA P40/P400	IX			131.9x85	4	12
137	SCANIA P50/P500	IX			125.7x95	4	12
138	Cross-serration Ø 180	VII	180		150	4	14

### Dimensions (mm)

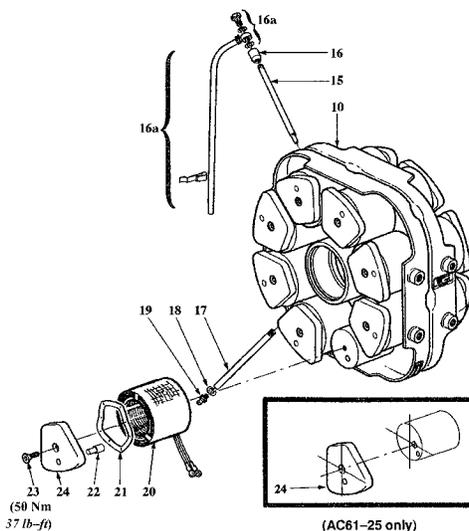
- B external diameter of the retarder coupling flange
- C centering diameter
- D drilling diameter (P.C.D.) or distance between fasteners
- E number of securing screws or holes
- F diameter of securing screws or studs

# Stator assembly



Item	Description	Qty	RETARDER CODE		
			AC50-55 CN20. ...	AC50-65 AC50-80 CN23. ... CP23. ...	AC51-00 CM23. ...
10	Stator assembly 12 Volts 24 Volts	1	VB107714 VB107715	VB107716 VB107717	VB107718 VB107719
15	Vent tube	1	VB500320	VB500320	VB500320
16	Vent tube connection	1	VB501150	VB501150	VB501150
16a	Vent tube extension set	1	JZ100110	JZ100110	JZ100110
17	Lubricating tube	1	VB500220	VB500220	VB500220
18	Flat washer	1	VF200100	VF200100	VF200100
19	Grease nipple	1	VF500100	VF500100	VF500100
20	Coil or coil assembly (see details on page 9)	16	see page 9	see page 9	see page 9
21	Pressure washer	16	VD503722	VD503722	VD503722
22	Locating dowel	16	VF210650	VF210650	VF210650
23	90° countersunk cap socket screw (internal hexagonal head screw)	16	VF109100	VF109100	VF109100
24	Pole shoe	16	VB514786	VB506990	VB506990
	Wiring assembly	1	see pages 21 and 22	see pages 19 and 20	see pages 19 and 20
	Connecting block and ground terminal	1	see page 24	see page 24	see page 24
	Junction block assembly	3	see page 23	see page 23	see page 23

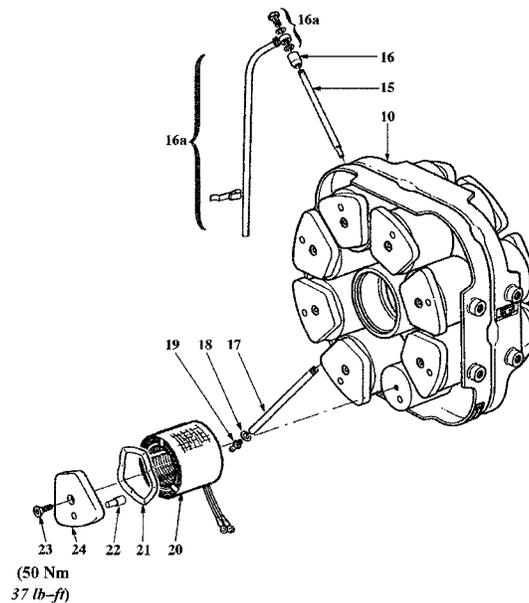
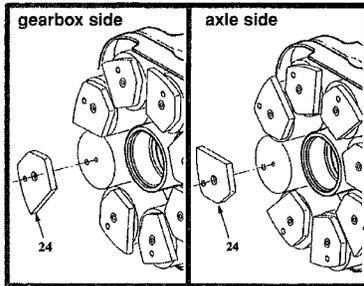
# Stator assembly



Item	Description	Qty	RETARDER CODE	
			AC61-25 CE36. ...	AC61-35 AC61-60 CE23. ... CF23. ...
10	Stator assembly 12 Volts 24 Volts	1	VB107720 VB107721	VB107724 VB107725
15	Vent tube	1	VB500330	VB500330
16	Vent tube connection	1	VB501150	VB501150
16a	Vent tube extension set	1	JZ100110	JZ100110
17	Lubricating tube	1	VB500260	VB500260
18	Flat washer	1	VF200100	VF200100
19	Grease nipple	1	VF500100	VF500100
20	Coil or coil assembly (see details on page 9)	16	VD310601	VD310602
21	Pressure washer	16	VB501470	VB501470
22	Locating dowel	16	VF210650	VF210650
23	90° countersunk cap socket screw (internal hexagonal head screw)	16	VF109100	VF109100
24	Pole shoe	16	VB515076	VB515076
	Wiring assembly	1	see pages 21 and 22	see pages 19 and 20
	Connecting block and ground terminal	1	see page 24	see page 24
	Junction block assembly	3	see page 23	see page 23

# Stator assembly

(AC82-45, AC82-70 and AC83-31 only)



Item	Description	Qty	RETARDER CODE					
			AC72-00 CH23. ...	AC82-45 CK23. ...	AC82-70 CU23. ...	AC83-00 CT23. ...	AC83-31 CL23. ...	
10	Stator assembly 12 Volts 24 Volts	1	VB107726 VB107727		VB107728 VB107729	VB107730 VB107731	VB107733	
15	Vent tube	1	VB500340	VB512520	VB512520	VB512520	VB512520	
16	Vent tube connection	1	VB501150	VB501150	VB501150	VB501150	VB501150	
16a	Vent tube extension set	1	JZ100110	JZ100110	JZ100110	JZ100110	JZ100110	
17	Lubricating tube	1	VB500250	VB512510	VB512510	VB512510	VB512510	
18	Flat washer	1	VF200100	VF200100	VF200100	VF200100	VF200100	
19	Grease nipple	1	VF500100	VF500100	VF500100	VF500100	VF500100	
20	Coil or coil assembly (see details on page 9)	16	VD310603	See page 9	VD310604	VD310605	VD310606	
21	Pressure washer	16	VB501440	VB509770	VB509770	VB509770	VB509770	
22	Locating dowel	16	VF210650	VF210650	VF210650	VF210650	VF210650	
23	90° countersunk cap socket screw (internal hexagonal head screw)	16	VF109100	VF109100	VF109100	VF109100	VF109100	
24	Pole shoe	gearbox side	8	VB500530	VB515311	VB515311	VB500540	VB515311
		axle side	8		VB515312	VB515312		VB515312
	Wiring assembly	1	see pages 21 and 22	see pages 21 and 22	see pages 19 and 20	see pages 19 and 20	see pages 19 and 20	
	Connecting block and ground terminal	1	see page 24					
	Junction block assembly	3	see page 23					

## Coil assembly

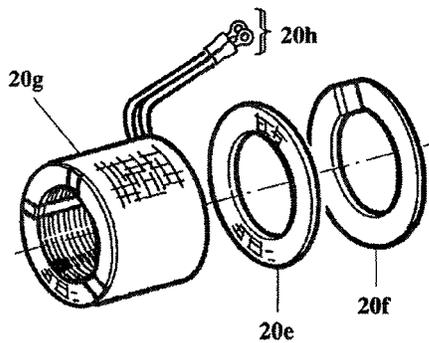


Figure I

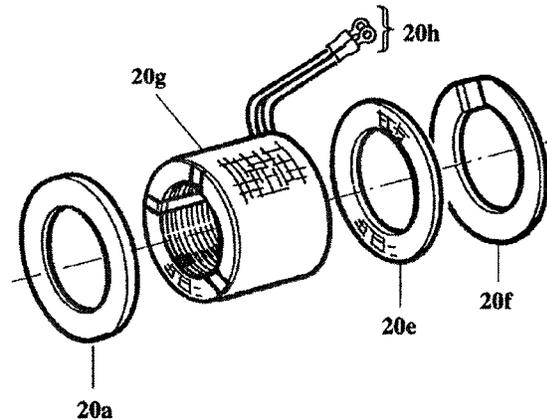


Figure II

### RETARDER

	Figure	Number found on coil <sup>1</sup>	Replacement Coil assembly including 20a to 20h	Coil end protective cover item 20a	Coil end insulator item 20e	Protective washer on housing side item 20f	External protective sleeve item 20g	Set of 16 terminals item 20h
AC50-55	I	VD310659	VD310597	n/a	VD503582	VD503699	VB202036 *	VD407872
AC50-65 (6 volt coil) <sup>2</sup>	I	n/a	VD310598	n/a	VD503582	VD503699	VB202036 *	VD407872
AC50-80 (6 volt coil) <sup>2</sup>	I	n/a	VD310598	n/a	VD503582	VD503699	VB202036 *	VD407872
AC50-65 (12 volt coil) <sup>2</sup>	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AC50-80 (12 volt coil) <sup>2</sup>	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AC51-00 (6 volt coil) <sup>3</sup>	I	VD310730	VD310732	n/a	VD503582	VD503699	VB202036 *	VD407872
AC51-00 (12 volt coil) <sup>3</sup>	n/a	n/a	(two 6v coils)	n/a	n/a	n/a	n/a	n/a
AC61-25 (6 volt coil) <sup>4</sup>	I	VD310663	VD310601	n/a	VD503589	VD503611	VB202036 *	VD407872
AC61-25 (12 volt coil) <sup>4</sup>	n/a	VD310737	(two 6v coils)	n/a	n/a	n/a	n/a	n/a
AC61-35	I	n/a	VD310602	n/a	VD503589	VD503611	VB202036 *	VD407872
AC61-60	I	VD310664	VD310602	n/a	VD503589	VD503611	VB202036 *	VD407872
AC72-00	I	VD310609	VD310603	n/a	VD500360	VD503763	VB202036 *	VD407872
AC82-45 (12 volt coil) <sup>5</sup>	I	VD310563 VD310643	Replace with two 6v coils	n/a	n/a	n/a	n/a	n/a
AC82-45 (6 volt coil) <sup>5</sup>	I	VD310654 VD310668 VD310722	VD310607	n/a	n/a	n/a	n/a	n/a
AC82-70	I	VD310667	VD310604	n/a	VD503613	VD503545	VB202036 *	VD407872
AC83-00	II	VD310721	VD310605	VD503559	VD503614	VD503545	VB202036 *	VD407872
AC83-31	II	VD310669	VD310606	VD503753	VD503613	VD503545	VB202036 *	VD407872

\* set of 8 pieces, to be cut to the dimensions of the coils.

1 - Refer to the number found on coil located on a white tag on the coil of your retarder to reference the replacement coil assembly listed above.

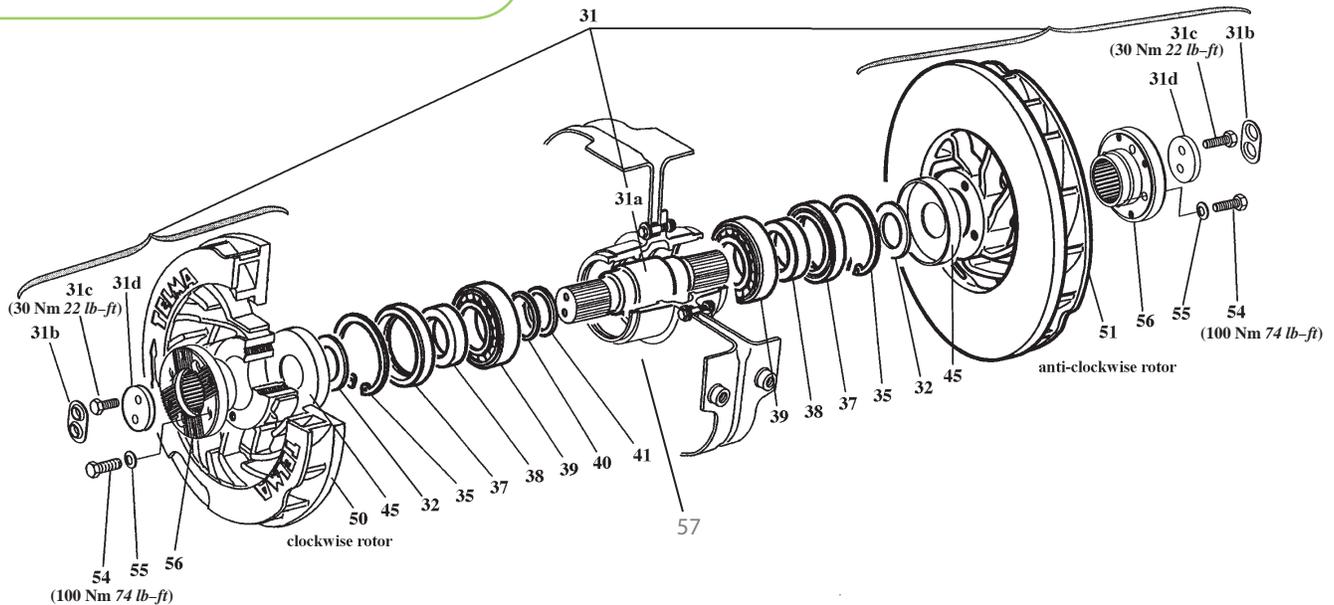
2 - Retarder has 6 volt coil since May 2006

3 - Retarder has 6 volt coil since October 2006

4 - Retarder has 6 volt coil since December 2006

5 - Retarder has 6 volt coil since January 2004

# Retarder shaft assembly



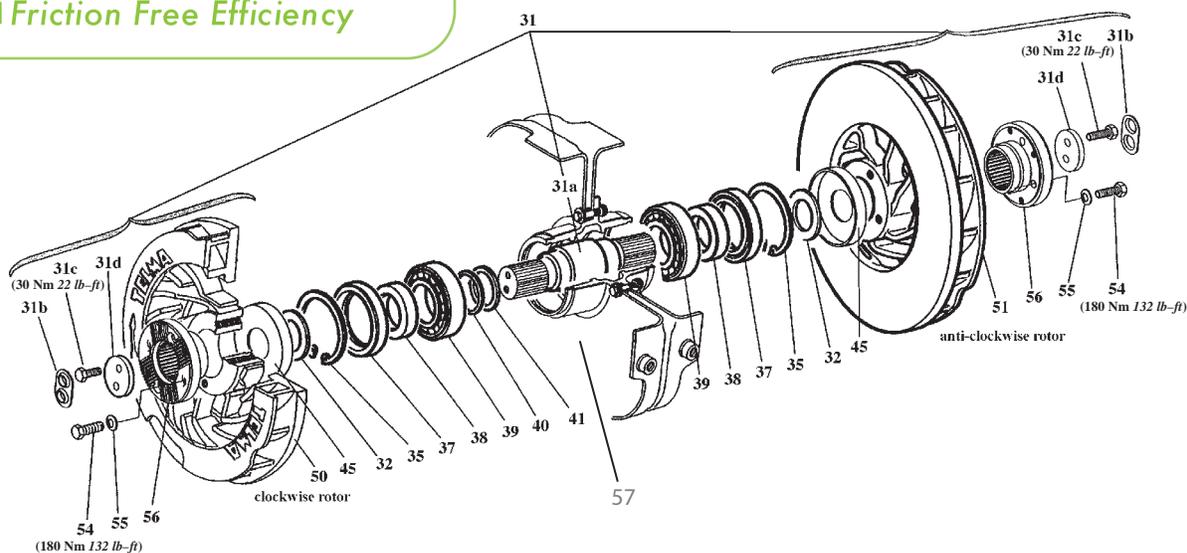
RETARDER				
Item	Description	Qty	AC50-55	AC50-65 AC50-80 AC51-00
▲ 31	Shaft assembly, including:	1	Supplied in item 57	Supplied in item 57
▲ 31a	shaft with counter sunk holes	1	supplied under the assembly part number	supplied under the assembly part number
●▲ 31b	lock tab	2	VB515160	VB515160
●▲ 31c	shaft end screw	4	VF100380	VF100380
▲ 31d	plate	2	VB515157	VB515157
●▲ 32	Set of air-gap adjusting shims	1	VB100150	VB100150
●▲ 35	Snap ring for bore	2	Supplied in item 37	Supplied in item 37
●▲ 37	Double lip seal Kit	2	VB107909	VB107908
●▲ 38	Seal race	2	Supplied in item 37	Supplied in item 37
▲ 39	Tapered roller bearing	2	Supplied in item 57	Supplied in item 57
▲ 40	Set of bearing adjusting shims	1	Supplied in item 57	Supplied in item 57
▲ 41				
▲ 45	Dust cover (Supplied with item 57)	2	VB515167	VB515167
50 & 51	Clockwise & Anti-clockwise rotor set	1	VB107947	VB107948
54	Coupling flange securing screw to rotor	8	VF100540	VF100500
55	Spring washer for flange securing screw	8	VF200600	VF200600
56	Coupling flange	2	see pages 13 to 18	see pages 13 to 18
▲ 57	Hub Assembly	1	VB107963	VB107956
	Grease (see page 25)	1	TIJ05001	TIJ05001

▲ = Included or pre-installed in Item 57 Hub Assembly

● = Included in Item 37 Double lip seal kit

(Item 37 and 57 supplied 1 per retarder)

# Retarder shaft assembly



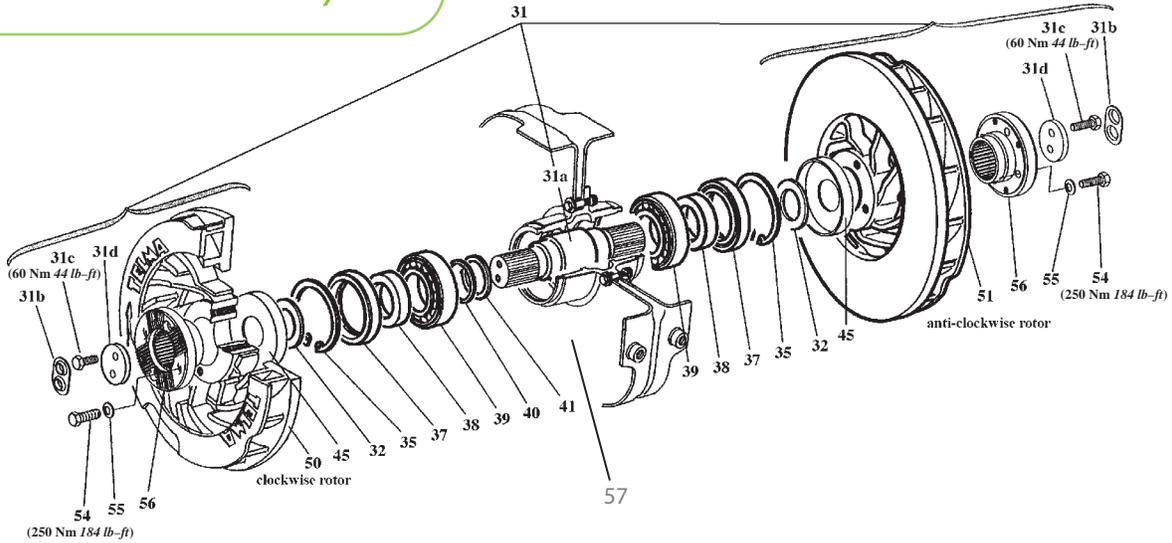
Item	Description	Qty	RETARDER	
			AC61-25	AC61-35 AC61-60
▲ 31	Shaft assembly, including:	1	Supplied in item 57	Supplied in item 57
▲ 31a	shaft with counter sunk holes	1	supplied under the assembly part number	supplied under the assembly part number
●▲ 31b	lock tab	2	VB515160	VB515160
●▲ 31c	shaft end screw	4	VF100380	VF100380
▲ 31d	plate	2	VB515158	VB515158
●▲ 32	Set of air-gap adjusting shims	1	VB100160	VB100160
●▲ 35	Snap ring for bore	2	Supplied in item 37	Supplied in item 37
●▲ 37	Double lip seal Kit	2	VB107907	VB107907
●▲ 38	Seal race	2	Supplied in item 37	Supplied in item 37
▲ 39	Tapered roller bearing	2	Supplied in item 57	Supplied in item 57
▲ 40	Set of bearing adjusting shims	1	Supplied in item 57	Supplied in item 57
▲ 41				
▲ 45	Dust cover	2	Supplied in item 57	Supplied in item 57
50 & 51	Clockwise & Anti-clockwise rotor set	1	VB107949	VB107950
54	Coupling flange securing screw to rotor	8	VF100820	VF100800
54	Coupling flange securing screw to rotor only for indexes 134 and 136	8	VF108330	VF108330
55	Spring washer for flange securing screw	8	VF200820	VF200820
55	Spring washer for flange securing screw only for index 134	8	VF200810	VF200810
56	Coupling flange	2	see pages 13 to 18	see pages 13 to 18
▲ 57	Hub Assembly	1	VB107969	VB107962
	Grease (see page 25)	1	TIJ05001	TIJ05001

▲ = Included or pre-installed in Item 57 Hub Assembly

● = Included in Item 37 Double lip seal kit

(Item 37 and 57 supplied 1 per retarder)

# Retarder shaft assembly



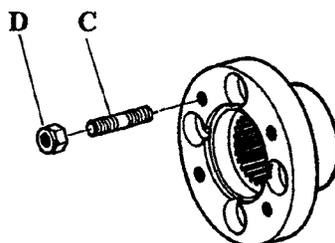
Item	Description	Qty	RETARDER	
			AC72-00	AC82-45, AC82-70 AC83-00, AC83-31
▲ 31	Shaft assembly, including:	1	Supplied in item 57	Supplied in item 57
▲ 31a	shaft with counter sunk holes	1	supplied under the assembly part number	supplied under the assembly part number
●▲ 31b	lock tab	2	VB515119	VB515119
●▲ 31c	shaft end screw	4	VF100500	VF100500
▲ 31d	plate	2	VB515159	VB515159
●▲ 32	Set of air-gap adjusting shims	1	VB100170	VB100170
●▲ 35	Snap ring for bore	2	Supplied in item 37	Supplied in item 37
●▲ 37*	Lip seal (IE VITON type) Kit* To Serial # 394333 / From Serial # 394334	2	VB107906	VB107905 / VB107906
▲ 38	Seal race	2	Supplied in item 37	Supplied in item 37
▲ 39	Tapered roller bearing	2	Supplied in item 57	Supplied in item 57
▲ 40	Set of bearing adjusting shims	1	Supplied in item 57	Supplied in item 57
▲ 41	Set of bearing adjusting shims	1	Supplied in item 57	Supplied in item 57
▲ 45	Dust cover (Supplied in item 57)	2	VB515264	VD503754
50 & 51	Clockwise & Anti-clockwise rotor set	1	VB107951	VB107952
54	Coupling flange securing screw to rotor	8	VF101100	VF101100
54	Coupling flange securing screw to rotor only for indexes 136 and 137	4 4	VF108260 VF108320	VF108260 VF108320
55	Spring washer for flange securing screw	8	VF200830	VF200830
56	Coupling flange	2	see pages 13 to 18	see pages 13 to 18
▲ 57	Hub Assembly	1	VB107961	VB107957
	Grease (see page 25)	1	TIJ05001	TIJ05001

▲ = Included or pre-installed in Item 57 Hub Assembly

● = Included in Item 37 Double lip seal kit

(Item 37 and 57 supplied 1 per retarder)

# SAE coupling flanges with metric fasteners



INDEXES { 103  
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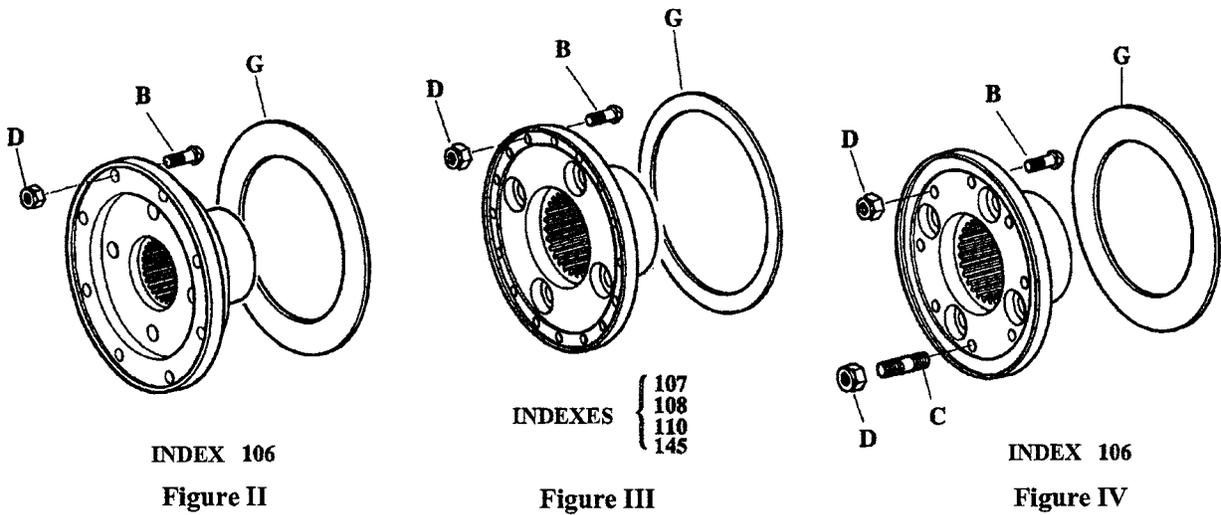
Figure I

INDEX	RETARDER	Fig.	Fastener* assembly	REFERENCES		
				Screw (item B)	Stud (item C)	Nut (item D)
103	AC50-55	I	VB107085		VF131150 Qty: 4	VF120140 Qty: 4
104	AC50-55	I	VB107086		VF131300 Qty: 4	VF120160 Qty: 4
	AC50-65 AC50-80 AC51-00	I	VB100940		VF131300 Qty: 4	VF120160 Qty: 4
105	AC50-65 AC51-00	I	VB100950		VF131420 Qty: 4	VF120170 Qty: 4
	AC61-35 AC61-60	I	VB100980		VF131420 Qty: 4	VF120170 Qty: 4

\* including the flange and items C and D.

CAUTION: After degreasing the parts, the studs must be fitted to the coupling flange with LOCTITE 270.

# SAE coupling flanges with metric fasteners

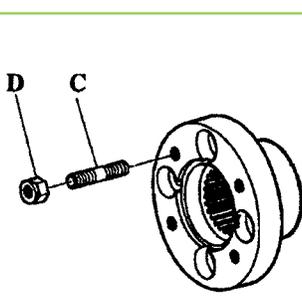


INDEX	RETARDER	Fig.	REFERENCES				to be ordered separately Retaining plate (item G)
			Fastener* assembly	Screw (item B)	Stud (item C)	Nut (item D)	
106	AC50-65 AC50-80 AC51-00	II	VB102920	VF119210 Qty: 8		VF120140 Qty: 8	VB515031 Qty: 1
	AC61-25	IV	VB107199	VF119230 Qty: 8		VF120140 Qty: 8	VB515030 Qty: 1
	AC61-35 AC61-60	IV	VB107190	VF119230 Qty: 8		VF120140 Qty: 8	VB515031 Qty: 1
	AC72-00 AC82-70	IV	VB107173		VF131100 Qty: 8	VF120140 Qty: 8	
107	AC61-60	III	VB107191	VF119230 Qty: 8		VF120140 Qty: 8	VB515031 Qty: 8
	AC72-00	III	VB107174	VF119230 Qty: 8		VF120140 Qty: 8	VB502830 Qty: 1
108	AC61-25	III	VB107201	VF119120 Qty: 12		VF120150 Qty: 12	VB515030 Qty: 1
	AC61-35 AC61-60	III	VB107192	VF119120 Qty: 12		VF120150 Qty: 12	VB515031 Qty: 1
	AC72-00 AC82-70 AC83-00 AC83-31	III	VB107176	VF119120 Qty: 12		VF120150 Qty: 12	VB502830 Qty: 1
	AC72-00 AC82-70 AC83-00 AC83-31	III	VB107176	VF119120 Qty: 12		VF120150 Qty: 12	VB502830 Qty: 1
145	AC61-35 AC61-60	III	VB107193	VF119230 Qty: 12		VF120140 Qty: 12	VB515031 Qty: 1
	AC72-00 AC82-70 AC83-00	III	VB107175	VF119230 Qty: 12		VF120140 Qty: 12	VB502830 Qty: 1

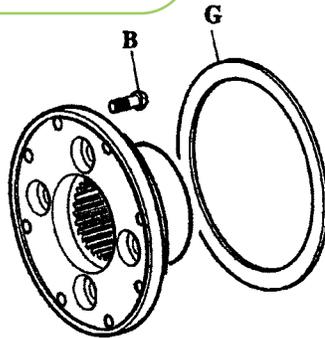
\* including the flange and items B, C and D.

CAUTION: After degreasing the parts, the studs must be fitted to the coupling flange with LOCTITE 270.

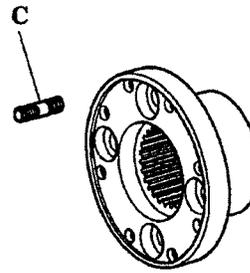
# SAE coupling flanges with anglo american fasteners



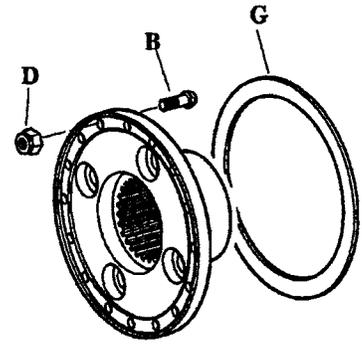
INDEXES { 154  
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Figure V



INDEX 158  
Figure VI



INDEX 158  
Figure VII



INDEXES { 152  
157  
Figure VIII

INDEX	RETARDER	Fig.	Fastener* assembly	REFERENCES		
				Screw (item B)	Stud (item C)	Nut (item D)
152	AC61-25	VIII	VB107400	VF119270 Qty: 8		
	AC61-35 AC61-60	VIII	VB107194	VF119270 Qty: 8		
	AC72-00	VIII	VB107180	VF119270 Qty: 8		
154	AC50-55	V	VB107215		VF130120 Qty: 4	VF120370 Qty: 4
	AC50-65 AC50-80 AC51-00	V	VB107211		VF130120 Qty: 4	VF120370 Qty: 4
	AC50-55	V	VB107216		VF100203 Qty: 4	VF120340 Qty: 4
155	AC50-65 AC50-80 AC51-00	V	VB107212		VF100203 Qty: 4	VF120340 Qty: 4
	AC61-25	V	VB107203		VF100203 Qty: 4	VF120340 Qty: 4
	AC61-35 AC61-60	V	VB107267		VF100203 Qty: 4	VF120340 Qty: 4
157	AC61-60	VIII	VB107398	VF104180 Qty: 12		VF120370 Qty: 12
	AC72-00 AC82-45 AC82-70 AC83-00 AC83-31	VIII	VB107182	VF104180 Qty: 12		VF120370 Qty: 12
	AC50-80 AC51-00	VI	VB107213	VF119250 Qty: 8		
158	AC61-25	VI	VB107207	VF119270 Qty: 8		
	AC61-35 AC61-60	VI	VB107195	VF119270 Qty: 8		
	AC72-00	VII	VB107179		VF130110 Qty: 4	

to be ordered separately

Retaining plate (item G)

VB515030  
Qty: 1

VB515031  
Qty: 1

VB502830  
Qty: 1

VB515031  
Qty: 1

VB502830  
Qty: 1

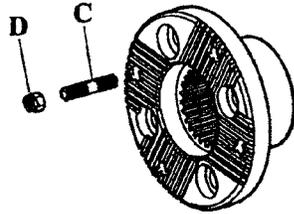
VB515030  
Qty: 1

VB515031  
Qty: 1

\* including the flange and items B, C and D.

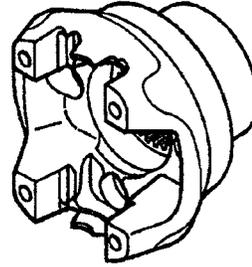
CAUTION: After degreasing the parts, the studs must be fitted to the coupling flange with LOCTITE 270.

# 70° cross-serrated coupling flanges and SCANIA yokes



INDEXES { 128  
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Figure IX



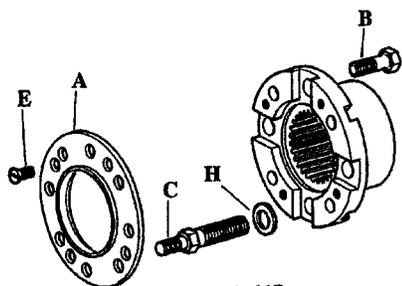
INDEXES { 136  
137

Figure X

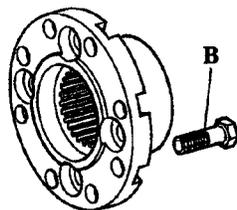
INDEX	RETARDER	Fig.	REFERENCES			
			Fastener* assembly	Screw (item B)	Stud (item C)	Nut (item D)
128	AC50-65 AC50-80 AC51-00	IX	VB106994		VF131110 Qty: 4	VF120140 Qty: 4
	AC61-25	IX	VB107505		VF131110 Qty: 4	VF120140 Qty: 4
	AC61-35 AC61-60	IX	VB107206		VF131110 Qty: 4	VF120140 Qty: 4
129	AC50-80 AC51-00	IX	VB106995		VF131360 Qty: 4	VF120160 Qty: 4
	AC61-25	IX	VB107319		VF131360 Qty: 4	VF120380 Qty: 4
	AC61-35 AC61-60	IX	VB107196		VF131360 Qty: 4	VF120380 Qty: 4
	AC72-00 AC82-70 AC83-00	IX	VB107183		VF131360 Qty: 4	VF120380 Qty: 4
136	AC61-60	X	VB107630			
	AC72-00 AC82-70 AC83-00	X	VB107001			
	AC72-00 AC82-70 AC83-00	X	VB107002			
138	AC61-25	IX	VB107616		VF131500 Qty: 4	VF120390 Qty: 4
	AC61-35 AC61-60	IX	VB107452		VF131500 Qty: 4	VF120390 Qty: 4
	AC72-00 AC82-70 AC83-00	IX	VB107185		VF131500 Qty: 4	VF120390 Qty: 4

\* including the flange and items B, C and D.

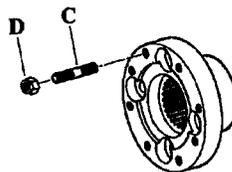
CAUTION: After degreasing the parts, the studs must be fitted to the coupling flange with LOCTITE 270.



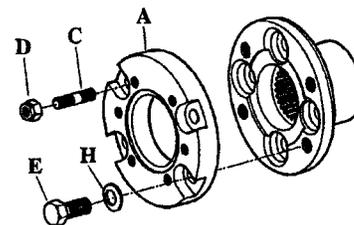
**INDEX 117**  
**Figure XI**



**INDEXES { 117  
120**  
**Figure XII**



**INDEXES { 117  
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**Figure XIII**

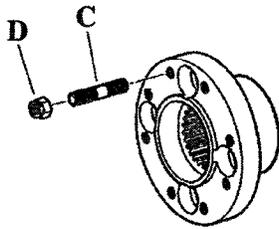


**INDEX 123**  
**Figure XIV**

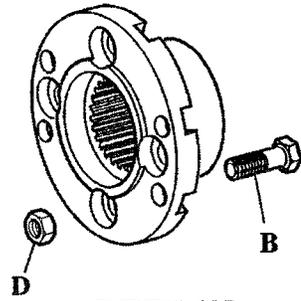
INDEX	RETARDER	Fig.	REFERENCES						
			Fastener assembly	Adaptor (item A)	Screw (item B)	Stud (item C)	Nut (item D)	Screw (item E)	Washer (item H)
117	AC50-80 AC51-00	XIII	VB105120			VF131260 Qty: 8	VF131260 Qty: 8		
	AC61-25	XII	VB107209		VF100510 Qty: 8				
	AC61-35 AC61-60	XII	VB101100		VF100510 Qty: 8				
	AC72-00 AC82-70	XI	VB100840	VB502910 Qty: 1	VF100510 Qty: 4	VF130520 Qty: 4		VF109300 Qty: 4	VF200830 Qty: 4
120	AC61-60	XII	VB101120		VF100820 Qty: 8				
	AC72-00	XII	VB107178		VF101430 Qty: 8				
123	AC50-55	XIV	VB107139	VB503890 Qty: 1		VF131150 Qty: 6	VF120140 Qty: 6	VF100850 Qty: 4	VF200810 Qty: 4
	AC50-65 AC50-80 AC51-00	XIV	VB102930	VB503890 Qty: 1		VF131150 Qty: 6	VF120140 Qty: 6	VF100850 Qty: 4	VF200810 Qty: 4
	AC50-55	XIII	VB107089			VF131180 Qty: 8	VF120140 Qty: 8		
124	AC50-65 AC50-80 AC51-00	XIII	VB100960			VF131180 Qty: 8	VF120140 Qty: 8		
	AC61-25	XIII	VB107734			VF131180 Qty: 8	VF120140 Qty: 8		
	AC61-35	XIII	VB107326			VF131180 Qty: 8	VF120140 Qty: 8		
		XIII	VB107326			VF131180 Qty: 8	VF120140 Qty: 8		

CAUTION: After degreasing the parts, the studs must be fitted to the coupling flange with LOCTITE 270.

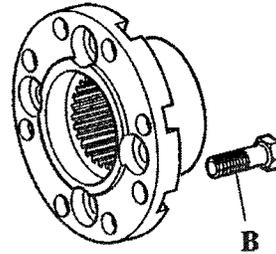
# DIN flat coupling flanges



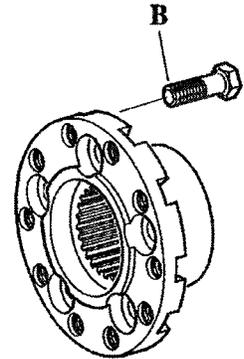
**INDEX 134**  
**Figure XV**



**INDEX 135**  
**Figure XVI**



**INDEXES { 139  
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**Figure XVII**



**INDEX 140**  
**Figure XVIII**

INDEX	RETARDER	Fig.	Fastener assembly	REFERENCES		
				Screw (item B)	Stud (item C)	Nut (item D)
134	AC50-55	XV	VB107090		VF131180 Qty: 8	VF120140 Qty: 8
	AC50-65 AC50-80 AC51-00	XV	VB100970		VF131180 Qty: 8	VF120140 Qty: 8
	AC61-35 AC61-60	XV	VB103230		VF131160 Qty: 8	VF120130 Qty: 8
135	AC61-25	XVI	VB107735	VF101120 Qty: 4		VF120180 Qty: 4
139	AC50-65 AC50-80 AC51-00	XVII	VB107186	VF101120 Qty: 8		
140	AC50-65 AC50-80 AC51-00	XVIII	VB100900	VF101230 Qty: 10		
141	AC61-60	XVII	VB101130	VF101120 Qty: 8		
	AC61-35 AC61-60	XVII	VB100890	VF101120 Qty: 8		

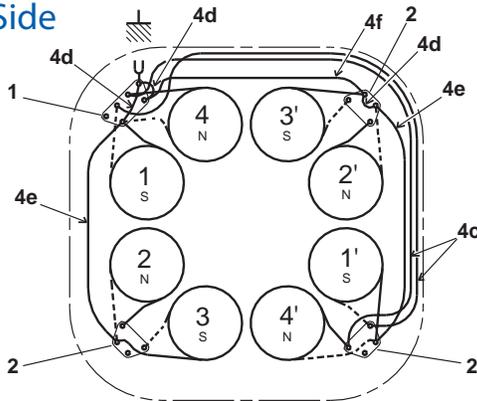
\* including the flange and items B, C and D.

CAUTION: After degreasing the parts, the studs must be fitted to the coupling flange with LOCTITE 270.

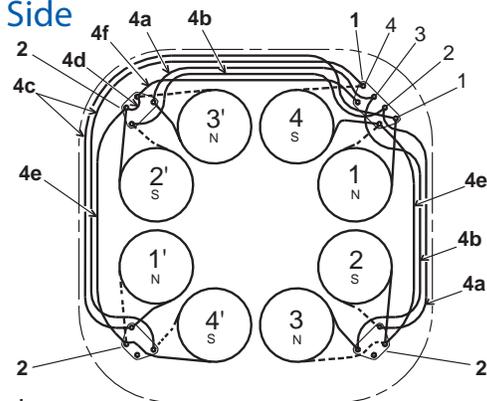
# Internal Wiring Configuration

## 12v retarder 12v coil

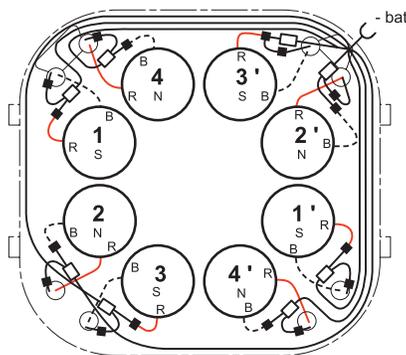
Front Side



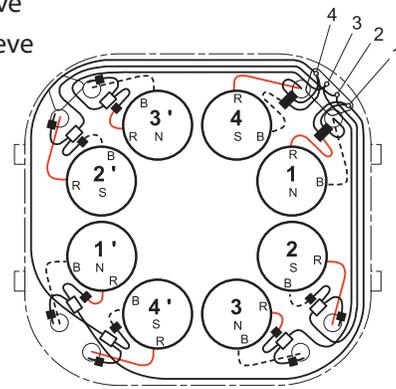
Rear Side



With corner junction blocks



— red sleeve  
 - - - blue sleeve



Without corner junction blocks

Item	Qty	Description	RETARDER			
			AC50-65 AC50-80 AC51-00	AC61-25 AC61-35 AC61-60	AC72-00	AC82-70 AC83-00

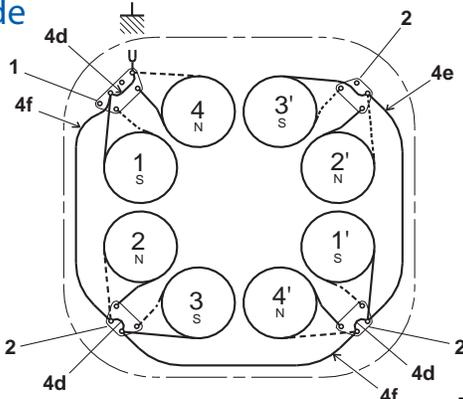
1	1	Connecting block assembly with fasteners and insulated ground terminals (see details on page 24)	VD408573	VD408573	VD408573	VD408573
2	3	Junction block assembly with fasteners (see details on page 23)	VD407390	VD407390	VD407390	VD407390
4	1	12 V and 24 V internal wiring set, including:	VD408575	VD408576	VD408577	VD408578
	12V					
4a	2	connecting wire (short)				
4b	2	connecting wire (medium)				
4c	4	connecting wire (long)				
4d	4	ground shunt				
4e	4	ground wire				
4f	2	double ground wire				

# Internal Wiring Configuration

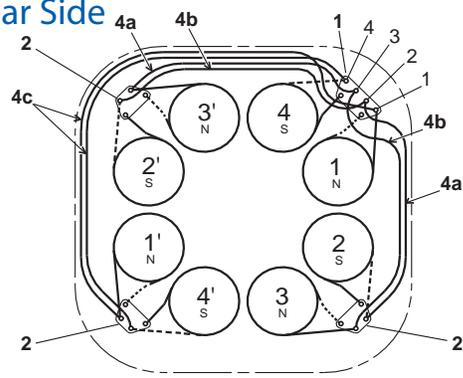
24v retarder 12v coil

12v retarder 6v coil

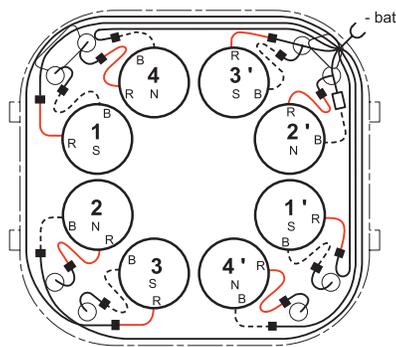
Front Side



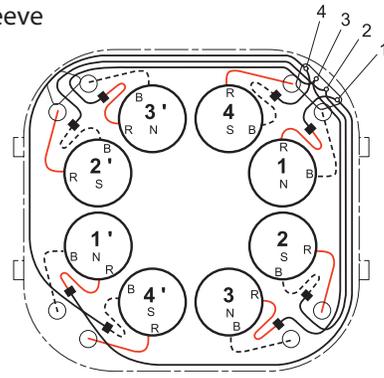
Rear Side



With corner junction blocks



— red sleeve  
- - - blue sleeve



Without corner junction blocks

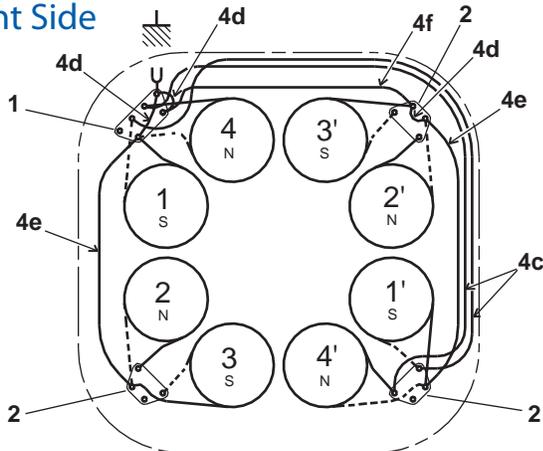
Item	Qty	Description	RETARDER			
			AC50-55 AC50-80 AC51-00	AC61-25 AC61-35 AC61-60	AC72-00	AC82-70 AC83-00 AC83-31

1	1	Connecting block assembly with fasteners and insulated ground terminals (see details on page 24)	VD408573	VD408573	VD408573	VD408573
2	3	Junction block assembly with fasteners (see details on page 23)	VD407390	VD407390	VD407390	VD407390
4	1	12 V and 24 V internal wiring set, including:	VD408575	VD408576	VD408577	VD408578
	24V					
4a	2	connecting wire (short)				
4b	2	connecting wire (medium)				
4c	2	connecting wire (long)				
4d	3	ground shunt				
4e	1	ground wire				
4f	2	double ground wire				

# Internal Wiring Configuration

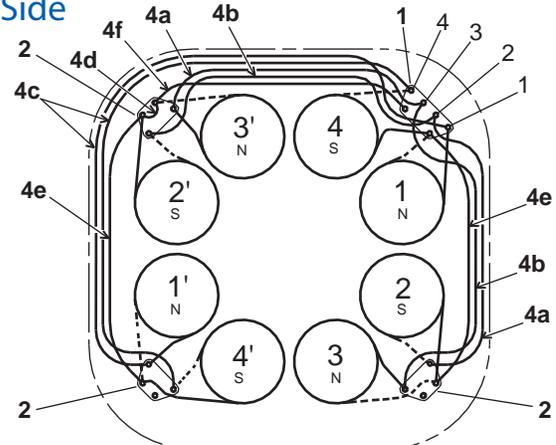
## 12v retarder 12v coil

Front Side

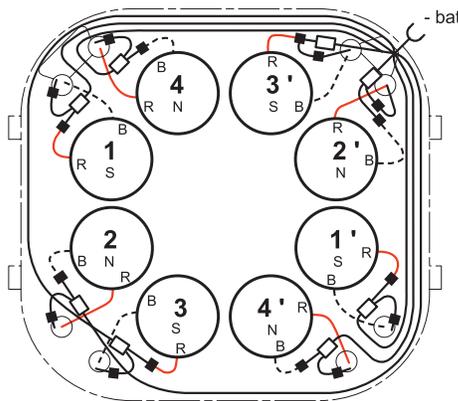


With corner junction blocks

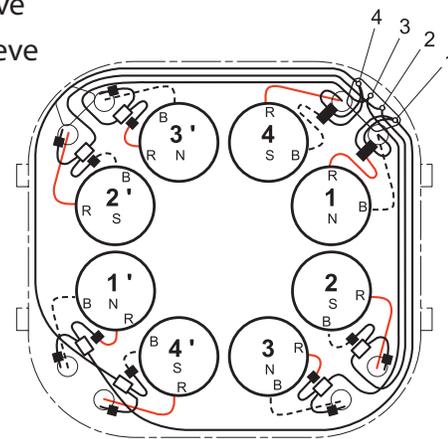
Rear Side



— red sleeve  
 - - - blue sleeve



Without corner junction blocks



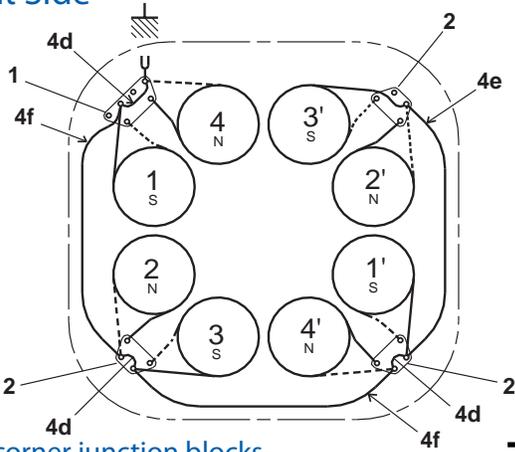
Qty	Item	Description	RETARDER AC50-55
1	1	Connecting block assembly with fasteners and insulated ground terminals (see details on page 24)	VD408573
2	3	Junction block assembly with fasteners (see details on page 23)	VD407390
4	1	12 V and 24 V internal wiring set, including:	VD408575
	12V		
	4a	connecting wire (short)	
	4b	connecting wire (medium)	
	4c	connecting wire (long)	
	4d	ground shunt	
	4e	ground wire	
	4f	double ground wire	

# Internal Wiring Configuration

24v retarder 12v coil

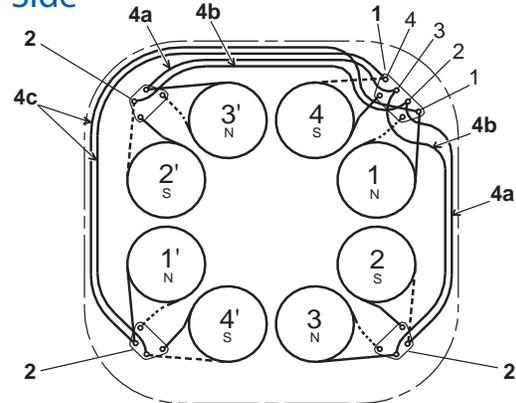
12v rearder 6v coil

## Front Side

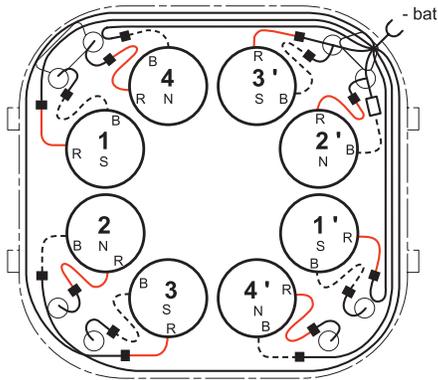


With corner junction blocks

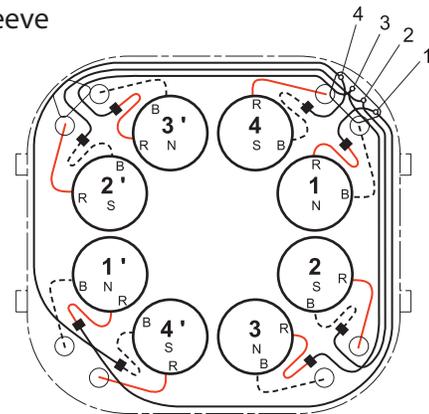
## Rear Side



— red sleeve  
 - - - blue sleeve



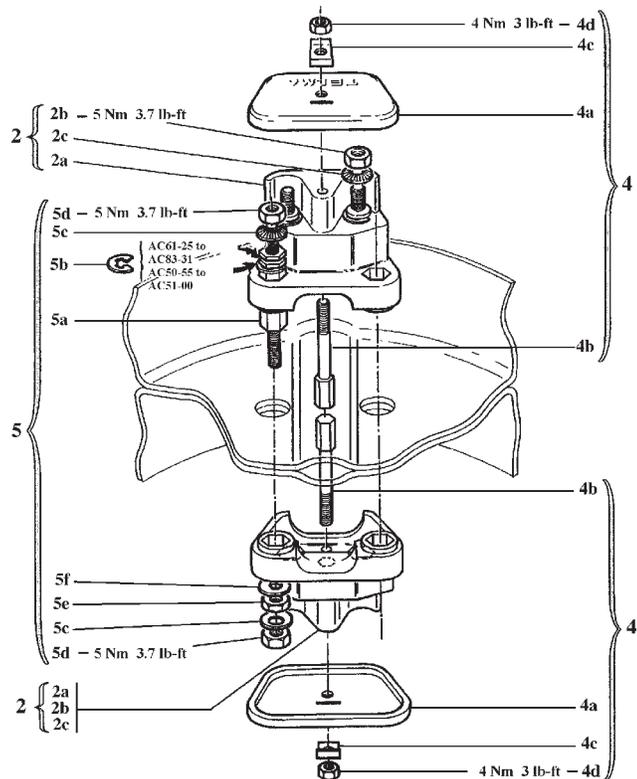
Without corner junction blocks



Qty	Item	Description	RETARDER AC50-55
1	1	Connecting block assembly with fasteners and insulated ground terminals (see details on page 24)	VD408573
2	3	Junction block assembly with fasteners (see details on page 23)	VD407390
4	1	12 V and 24 V internal wiring set, including:	VD408575
	24V		
4a	1	connecting wire (short)	
4b	1	connecting wire (medium)	
4c	4	connecting wire (long)	
4d	2	ground shunt	
4e	1	ground wire	
4f	/	double ground wire	

## Junction Block Assembly Insulated Ground Block

### Junction Block Assembly

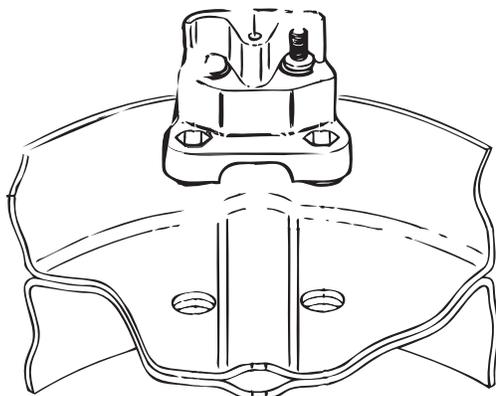


Note: Most 2001 and newer retarders do not have junction blocks in the corners of the retarder.

Item	Description	Qty	Reference
	Junction block assembly including:		VD 407 390
2	Small junction block assembly (2 insulated terminals) including:	2	
2a	1 small junction block (2 insulated terminals)		
2b	2 M6 nuts		
2c	2 contact washers Ø 6		
4	Small cover assembly with fasteners, including:	2	VD 407 230
4a	1 small cover		
4b	1 lid securing screw		
4c	1 locking plate		
4d	1 M5 nut		
5	Set of feed through terminals with fasteners, including:	1	
5a	2 feed through terminals		
5b	2 snap-rings		
5c	4 contact washers Ø 6		
5d	4 M6 nuts		
5e	2 M6 nuts		
5f	2 MN 6 washers		

Note: For retarder models without connecting block in each corner, refer to page 25.

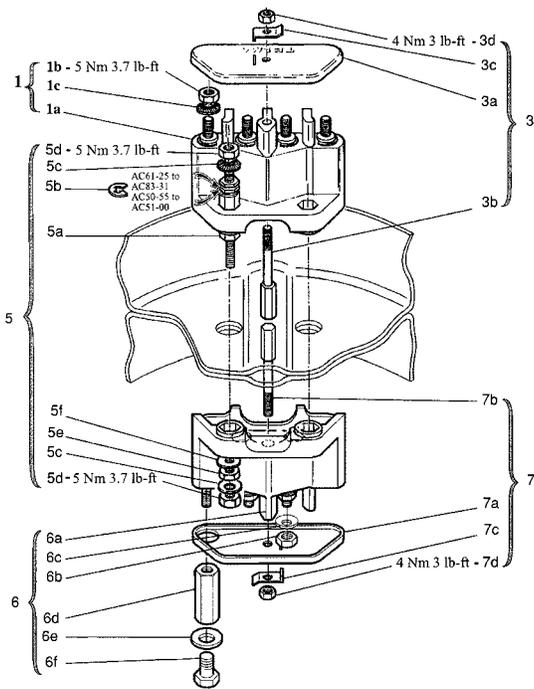
### Insulated Ground Block



Note: Ground connecting block located in top left front side of retarder.

Item	Description	Qty	Reference
6	Insulated ground connecting block including:	1	VD 408 086
6a	Small junction block assembly (1 insulated terminal)		
6b	M8 stud		

# Connecting block and insulated ground terminal VD 408 573



Note: For this connecting block, the ground connection is located in top right front side of retarder.

Item	Description	Qty	Reference
	Connecting block and insulated ground terminal, including:		VD 408 573
1	Large connecting block assembly (4 insulated terminals) including:	1	
1a	1 large connecting block (4 insulated terminals)		
1b	4 M6 x 1.00 nuts		
1c	4 contact washers Ø 6		
3	Large cover assembly with fasteners, including:	1	VD 407 220
3a	1 large cover		
3b	1 lid securing screw		
3c	1 locking plate		
3d	1 M5nut		
5	Set of double terminals with fasteners, including:	1	Included in assembly only
5a	2 feed through terminals		
5b	2 snap-rings		
5c	4 contact washers Ø 6		
5d	4 M6 nuts		
5e	2 M6 nuts		
5f	2 MN 6 washers		
6	Large connecting block assembly with ground terminals, including:	1	Included in assembly only
6a	1 large connecting block (4 insulated terminals)		
6b	2 M6 x 1.00 nuts		
6c	2 contact washers Ø 6		
6d	1 hexagonal ground adapter		
6e	1 contact washer Ø 8		
6f	1 M8 x 1.25 screw		
7	Large cover assembly with, including:	1	VD 408 579
7a	1 large cover		
7b	1 lid securing screw		
7c	1 locking plate		
7d	1 M5 nut		

## Greasing

Using a manual grease gun, fill the retarder hub with «SUPERTELMACO 3 (AMSOIL)» grease until it starts to appear at the air escape pipe aperture.

### IMPORTANT:

For retarders with a grease nipple, in order to guarantee proper operation of the retarder and maintain warranty conditions, it is necessary that only «SUPERTELMACO 3 (AMSOIL)» grease or another TELMA approved grease is used exclusively.

- ❑ RECOMMENDED GREASING INTERVAL  
Greasing must be carried out every 40,000 miles (60,000 km), ensuring there is no mixing with other kinds of greases.
- ❑ MISCIBILITY  
Any mixing of this high performance grease with other kinds of grease is not accepted.
- ❑ PACKAGING  
«SUPERTELMACO 3 (AMSOIL)» grease is available in the following packs:

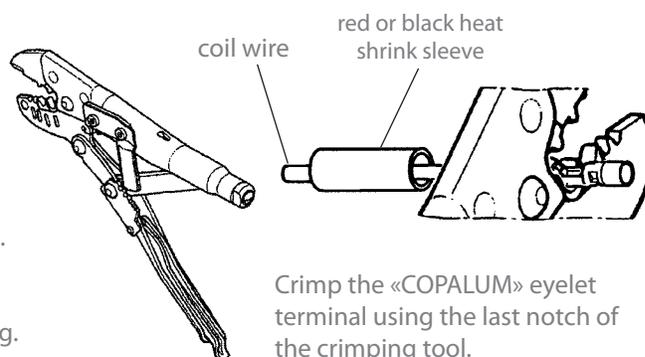
PACKAGING	TELMA n°
14 oz (397 g) cartridge (AMSOIL Multipurpose GLC)	TIJ05001 (AMSOIL # GLC-14)

## Crimping tool

In certain cases, it can be necessary to replace coil eyelet terminals.

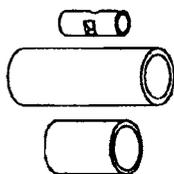
Only genuine TELMA parts (see below repair kit VD 408 491) and a suitable crimping tool, should be used.

**IMPORTANT:**  
Remove the insulating varnish of the wire before crimping.



## Wiring repair kit

The kit VD 408 491 (one kit per side) includes:

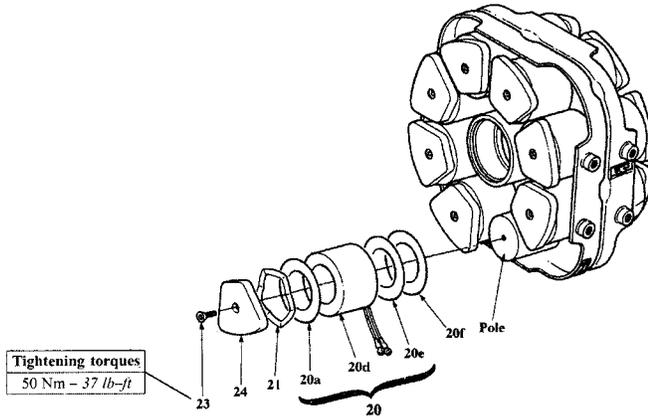


Description	Qty
Butt connector .....	16
Black heat shrinking sleeve .....	16
Red heat shrinking sleeve .....	8

## Protection of terminals against corrosion

To protect the connecting and junction terminals, use a Di-Electric Grease.

## Replacement of a coil



### 1 – REMOVAL OF A DAMAGED COIL

- Remove the cover of the junction block which corresponds to the faulty coil.
- Disconnect the faulty coil after having carefully marked the position of each wire (red and blue sleeves).
- Remove the pole shoe securing screw (item 23)
- Remove the pole shoe (item 24), the pressure washer (item 21) and the faulty coil or coil assembly (item 20).

### 2 – CLEANING OF THE STATOR

- Remove all traces of varnish, insulation material, Araldite and corrosion from the pole, the pole shoe and the stator.

### 3 – PREPARATION OF THE MIXTURE OF ARALDITE AND HARDENER

In the following text, the mixture will be designated by Araldite.

**IMPORTANT:** for hygiene and health reason it is recommended not to breath Araldite vapor. Contact of Araldite with the skin must also be avoided. Therefore use gloves and keep the tools and the work bench clean.

- As mentioned on the page 9, there are 2 types of coils for AC retarders. The coils are bonded on the poles with an Araldite/hardener mixture, to be prepared with:
  - a 1 kg (2.2 lb) can of Araldite n° VH 510 160
  - a 0.4 (0.8 lb) can of hardener n° VH 510 310

Take a very clean metal container and just before use, mix 4 parts of hardener with 10 parts of Araldite for each coil to be bonded.

The required quantity of mixture depends on the number of coils to be bonded. Approximately 60 to 80 grams (2 to 3 oz) of mixture are required per coil.

Polymerization time at ambient temperature of 20°C (68°F): approx. 12 hours.

#### IMPORTANT:

Before bonding the coil with Araldite, make a preliminary test installation to check that the set consisting in the coil itself, the insulating washer, the protective cover and the pressure washer fits properly on the pole. The mating face for the pressure washer on the coil must be below the face of the pole shoe. Should the coil be much lower than the pole, then the gap must be filled by additional insulation washers (item 20e).

### 4 - FITTING OF THE NEW COIL

Non molded coil (details on page 9)

- If the coil assembly includes the following components, coat with Araldite and install on the pole:

- the stainless protective washer (item 20f)
- the coil end insulation washer(s) (item 20e)

- Before installing the coil on the pole, coat the inside of the new coil (item 20d), if the following items are included in the concerned coil assembly, install:

- the stainless protective washer (item 20a)
- the pressure washer (item 21).

- Secure the pole shoe (item 24) by means of the screw (item 23)

Tightening torque 50 Nm (37 lb-ft).

- Reconnect the coil wires to the terminals marked during disassembly (red and blue sleeves, see wiring diagrams).
- Install the contact washers Ø 6 mm and tighten the M6 nuts.

Tightening torque 5 Nm (3.7 lb-ft).

- To protect the connecting and junction block terminals against corrosion, spray or brush liberally these connections with Body-Coating n° VH 520 100.
- Refit the cover of the junction block, the locking tab and the nut.

Tightening torque 4 Nm (3 lb-ft).

- Deform the locking tab to avoid the rotation of the nut.



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