

TITLE

FITTING OF CAV AC203 ALTERNATORS IN PLACE OF OBSOLETE AC8 ALTERNATORS

LOCOMOTIVES, VEHICLES OR EQUIPMENT

<u>Class</u>	<u>Description</u>
101, 102, 115 117, 118, 119, 122 & 131	Diesel Multiple Units

*See information only***INSTRUCTION****WORKS**

This Instruction supersedes Engineering Instruction MD/199 Issue 2 dated 4.2.76 which shall be destroyed. This issue incorporates a change in control box design.

The CAV Alternator Type AC8/24, BR Cat. No. 15/58501 and its associated control equipment are now obsolete and no longer obtainable at economic cost. The standard alternator now produced by Messrs C.A.V. Ltd., is designated AC203/060/24/2, B.R. Cat No. 15/11118 and together with its control gear is an acceptable alternative. This Instruction covers the fitting of the new alternator to certain vehicles originally designed to accommodate the AC8 machines, and fitted with Lead/Acid Batteries.

As it is not possible to mix alternator types on a vehicle, it is recommended that a limited number of vehicles from the above classes are converted whilst undergoing Main Works Classified Repair, to throw up a spares float of AC8 machines and control gear for normal Works and Depot spares holding.

Fitting Procedure

Disconnect the vehicle battery.

Disconnect and remove the AC8 alternators and associated RUG control unit.

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Fitting Procedure (Cont'd)

Examine wiring between alternators and regulator. If in satisfactory condition, this wiring can be retained to connect the new equipment, in-line crimps, insulated with shrink-on sleeves, being used to extend it as necessary.

NOTE: The new machine produces d.c. whereas the earlier machine produced three phase a.c., therefore the existing third power cable between alternators and regulator shall be cut and taped back at each end for security.

"Superflexit" flexible conduit shall be fitted in place of the existing flexible conduit as required.

Reclaim the pulley from the AC8 machine and if in acceptable condition fit it to new alternator. (B.R. Drg No. for pulley is DE 64601).

Re-arrange alternator mounting in accordance with relevant drawing.

NOTE: For Classes 115, 117, 118, 119, 122 and 131, the existing cradle, B.R. Drg. No. DE/46187 Item 2, can be re-used by closing the alternator mounting centres from 10" to 250 mm.

Mount the new alternators on the vehicle ensuring correct alignment of pulleys by amending the thickness of spacers as necessary. Fit belts and tension in accordance with Standard Examination Schedule Item No. 521 D.

Mount the new combined regulator unit in place of the RUG unit and make appropriate electrical connections at the unit and alternators, (B.R. Drg No. C-S-15528).

NOTE: Care must be taken to ensure correct polarity of connections. Incorrect polarity will result in rupturing of the fast fuse link.

Checking Procedure

Connect Vehicle battery.

Before starting the engine(s) check that the charge setting tap on each regulator within the control unit is set at MED. This setting has been found by experiment to maintain an adequate charge in the vehicle batteries without excessive topping up of electrolyte being necessary.

Start No. 1 engine, raise its speed above idling and check the current output to the battery by means of a 'Tong Tester' or other suitable instrument.

If no current is measured, check that the relevant fast fuse is intact. If this is intact, the alternator field must be externally energised by connecting a resistor of approximately 200 ohms, 6 W capacity between terminals B+ and F/A for a few seconds while the engine is running.

Repeat the procedure for No. 2 alternator.

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List of applicable Drawings

<u>B.R. Drg. No.</u>	<u>Subject</u>
C-S-15528 (All Classes except 115)	AC 203 Alternator Control Wiring Diagram
C-S-15670 (Class 115)	AC 203 Alternator Control Wiring Diagram
C-AO-16444	CAV Regulator Mounting Box Assembly
C-AO-16445	CAV Regulator Mounting Box Details
C-AO-15537	Arrangement of AC 203 Alternator Suspension (Classes 115, 117, 118, 122 and 131).
C-AO-15538	Arrangement and details of AC 203 Alternator Suspension (Classes 101 and 102).
DE/37049	Mounting Arrangement of Control Box, Conduit Arrangement (Classes 101 and 102).
C-A1-15574	Mounting Arrangement of Control Box. (Classes 117, 118, 119, 122 and 131).
DE/11116	Conduit Arrangement, Classes 117, 118, 119, 122 and 131.
C-A1-15667	Arrangement of Control Box fitted to Power Cars equipped with AC 203 Alternators Class 115.
DE/11301	Arrangement of Electrical Equipment and Conduit on Underframe. (Rolls Royce Power Car miscible with B.U.T. Control System) including Class 115.
C-A4-15685	Terminal place for AC 203 Alternator.
DE/64601	Pulley for AC8 Alternator.
C-A1-16584	Fuse Mounting Panel Details for Regulator Box.
C-A2-16585	Terminal Plates for Regulator Box

New Items(a) Proprietary Components

<u>Item</u>	<u>Manufacturers Part No.</u>	<u>B.R. Cat No.</u>	<u>No per Vehicle</u>
Alternator	CAV Pt. AC 203/060/24/2	15/11118	2
Regulator	CAV Pt. 460 C/3	15/11119	2
Fuses	Brush Pt. 75 LET or equivalent	54/80191	2 + spares
Shrink on Sleeve	Ampliversal 603024	55/22386	as req'd
Flexiform Grommet Strip - Nylon	Hellermann G51H/B	54/19058	180 mm
Termate Blocks	15126MBL Red	54/101426	2
Termate Blocks	15126 MBR Red	54/101425	2
Termate Blocks	16126 MBL Red	54/101429	1
Termate Blocks	16126 MBR Red	54/101428	1
Rivet Bush Steel GKN M6		3/171150	22

(b) Manufactured Items

<u>Item</u>	<u>B.R. Drg. No.</u>	<u>B.R. Cat No.</u>	<u>no. per Vehicle</u>
CAV Regulator Mounting Box (housing all relevant components as listed, that comprise the C.A.V. Regulator).	C-A0-16444	15/11132	1
CAV Regulator Mounting Box	C-A0-16445	15/11133	1
Terminal Plate R.H.	C-A2-16585/3	15/11141	1
Terminal Plate L.H.	C-A2-16585/3	15/11140	1
Terminal Plate	C-A2-16585/2	15/11139	1
Terminal Plate	C-A2-16585/1	15/11138	1
Outer Shield	C-A1-16584/4	15/11137	2
Inner Shield	C-A1-16584/3	15/11136	1
Fuse Mounting Panel	C-A1-16584/1	15/11134	1
Backing Sheet	C-A1-16584/2	15/11135	1
Terminal Cover	C-A4-15685/1	15/1151	2
Screwed Rod M5 x 25	C-A2-16585/4	15/11142	2
Screwed Rod M6 x 25	C-A2-16585/5	15/11143	1
Screwed Rod M6 x 30	C-A2-16585/6	15/11144	2
Screwed Rod M8 x 35	C-A2-16585/7	15/11145	1
Screwed Rod M10 x 35	C-A2-16585/8	15/11146	1

(c) Standard Items

Item	B.R. Cat No.	No. per Vehicle
1.1/2" Male Entry Bush	54/55040	2
1.1/2" Solid Elbow	54/56640	3
1.1/2" Locknut	54/57376	3
1.1/2" Coupler	54/55880	3
Screw Hex. Head M6 x 16 BS. 3692 Grade 8.8 ECP	35/100504	22
Screw Hex. Head M6 x 30 BS. 3692 Grade 8.8 ECP	35/100534	3
Washer Steel Spring Square Section M8 BS. 4464 ECP	3/195111	2
Washer Steel Spring Square Section M10 BS. 4464 ECP	3/195113	2
Washer Steel Bright M5 (Form A) BS. 4320 ECP	3/190923	6
Washer Steel Bright M6 (Form A) BS. 4320 ECP	3/190925	10
Washer Steel Bright M8 (Form A) BS. 4320 ECP	3/190931	2
Washer Steel Bright M10 (Form A) BS. 4320 ECP	3/190933	2
Nut M4 BS. 3696 Grade 8 ECP	3/175109	6
Nut M5 BS. 3696 Grade 8 ECP	3/175111	6
Nut M6 BS. 3696 Grade 8 ECP	3/175113	16
Nut M8 BS. 3696 Grade 8 ECP	3/175115	2
Nut M10 BS. 3696 Grade 8 ECP	3/175117	2
Screw Slotted Csk. Head M3 x 20, BS. 4183 Grade 4.8 ECP	35/104562	9
Screw Slotted Csk. Head M4 x 16, BS. 4183 Grade 4.8 ECP	35/104596	4
Screw Slotted Csk. Head M6 x 25, BS. 4183 Grade 4.8 ECP	35/104715	2
Screw Slotted Csk. Head M6 x 20, BS. 4183 Grade 4.8 ECP	35/104708	4

(c) Standard Items (Cont'd)

<u>Item</u>	<u>B.R. Cat No.</u>	<u>No. per Vehicle</u>
Screw Slotted Cheese Head M4 x 16, BS. 4183 Grade 4.8 ECP	35/104279	6
Washer Steel Spring Square Section M4 BS. 4464 ECP	3/195105	6
Washer Steel Spring Square Section M5, BS. 4464 ECP	3/195107	6
Washer Steel Spring Square Section M6, BS. 4464 ECP	3/195109	38
Terminal Crimped M5 AMP Ref: 153413	54/119485	10
Terminal Crimped M6 AMP Ref. 33469	54/119472	4
Terminal Crimped M6 AMP Ref: 327268	54/119405	4
Terminal Crimped M8 AMP Ref: 328525	54/119408	4
Terminal Crimped M10 G. Corner DK10	54/120420	2
Butt Connector AMP Ref. 322246 Solistrand 2	54/119229	As required

(d) Displaced Items

<u>Item</u>	<u>Manufacturers Part No.</u>	<u>B.R. Cat No.</u>	<u>No. per Vehicle</u>
Alternator	CAV Pt. AC8/24	15/58501	2
Rectifier/regulator unit	CAV Pt. RUG 10	15/65643	1