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Sect. 26, Chap. 7)

TACHOMETER GENERATORS, Mk. 8 SERIES

**GENERAL AND TECHNICAL INFORMATION
PARTS CATALOGUE-NAVAL**

BY COMMAND OF THE DEFENCE COUNCIL

L. T. Dunnett

Ministry of Defence

FOR USE IN THE

ROYAL NAVY

ROYAL AIR FORCE

(Prepared by the Ministry of Technology)

AMENDMENT RECORD SHEET

To record the incorporation of an Amendment List in this publication, sign against the appropriate A.L. No. and insert the date of incorporation.

A.L. No.	AMENDED BY	DATE
1	H. V. Kemp	24/10/69
2	LOS	1/79
3	ML	13/5/90
4	MAS 7.7	
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MODIFICATION RECORD

This publication is technically up-to-date in respect of the modifications listed below.

Manufacturers Mod No.. (Strike off)	Service Mod.No.	Class	Brief Description
1413	Inst. A325	B/4	To facilitate locking of Breeze plug on Smiths Part No. 106RV/SB

GENERAL AND TECHNICAL INFORMATION (—1)

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GENERAL AND TECHNICAL INFORMATION (—1)

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- 1 Tachometer generators, Mk. 8 (Part No. 106RV, Mod.01) and Mk. 8C (Part No. 106RV, Mod.02)**

Chapter 1

TACHOMETER GENERATORS, Mk.8 SERIES

Introduction

1. The tachometer generators Mk.8 series, are used with tachometer indicators for measuring the speed of either reciprocating or gas turbine engines. These tachometer generators are each capable of driving two corresponding tachometer indicators of the drag cup type.

DESCRIPTION

Tachometer generator Mk.8 (Part No. 106RV) Ref.No.6A476147

2. The basic generator comprises a three-phase stator clamped between two end casings and a two-pole permanent magnet rotor supported at each end by bearings. The generator is designed to operate at rotor speeds up to 6000 rev/min; provision for higher engine speed monitoring being accommodated by reduction gearing at the engine concerned.

3. The output frequency of the generator is proportional to its shaft speed of rotation. Typically, at 3000 rev/min the output voltage will be in the range 19.5 to 21V r.m.s, at a current of 500mA 50 Hz.

4. The rotor of the generator runs in ball-races and is driven directly from the engine via a spline coupling. To prevent engine oil entering the generator, an oil seal is provided at the drive end. This comprises a synthetic rubber ring which is held against the shaft by a garter spring exerting a pressure consistent with both efficient sealing and free movement of the rotor.

Tachometer generator Mk.8 (Part No. KGA0404) Ref. No.6A/4676147

5. This generator is covered in AP 112G-1205-1.

Tachometer generator Mk.8B (Part No.KGA0902) Ref.No.6A/4676149

6. Although the generator, Mk.8B is basically similar to the Mk.8 KGA series generator, the fixing flange has been reduced in thickness, and one side of it has been cut-away as shown in fig.5. The oil seal at the driving end of the shaft has been omitted to enable this generator, which has a splined shaft coupling, to be used on engines having a two-pin output drive. A

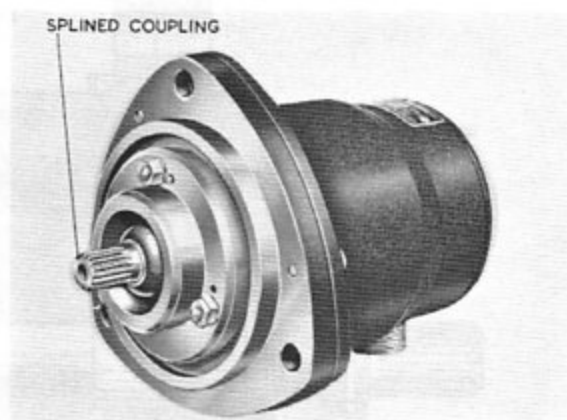


Fig.1. Tachometer generator Mk.8, 106RV series

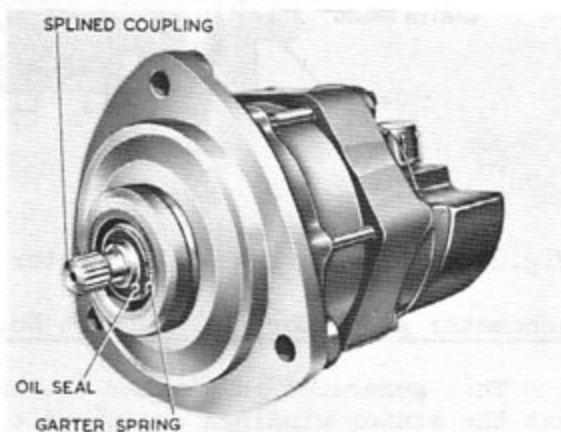
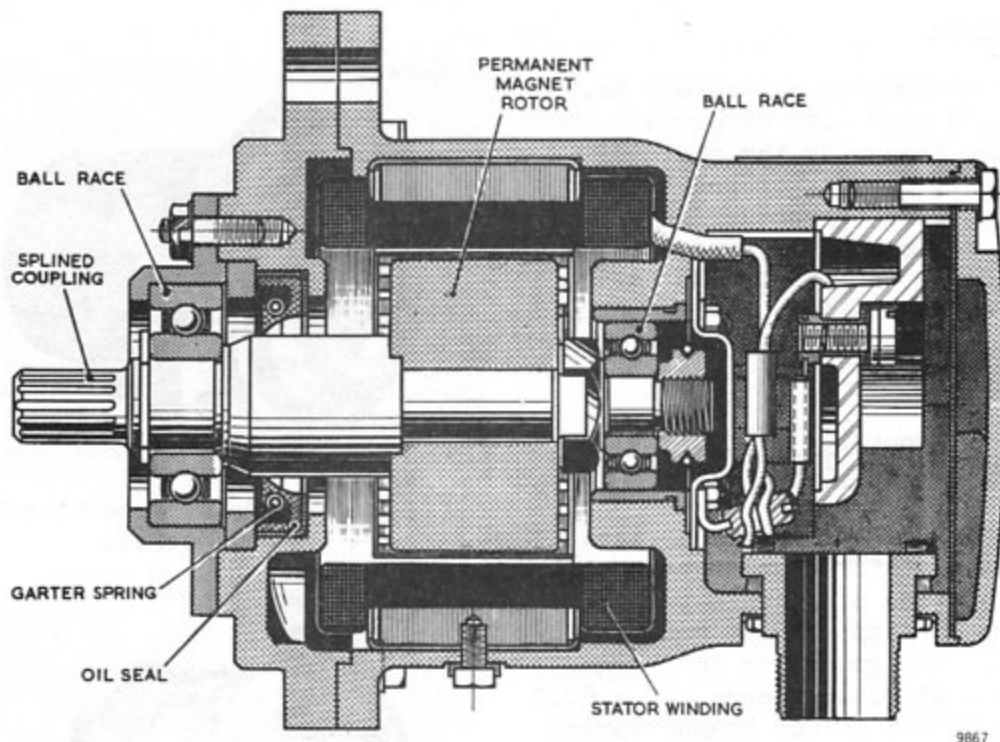


Fig.2. Tachometer generator Mk.8, KGA series

- coupling adapter (fig. 5) is available for these engines in the form of a drive adapter (Ref.No.6A/4337888) and a leather coupling washer, type B (Ref.No. 6A/3143).



► Fig.3 Sectional view of tachometer generator, Mk.8 and 8C - 106RV series. ◀

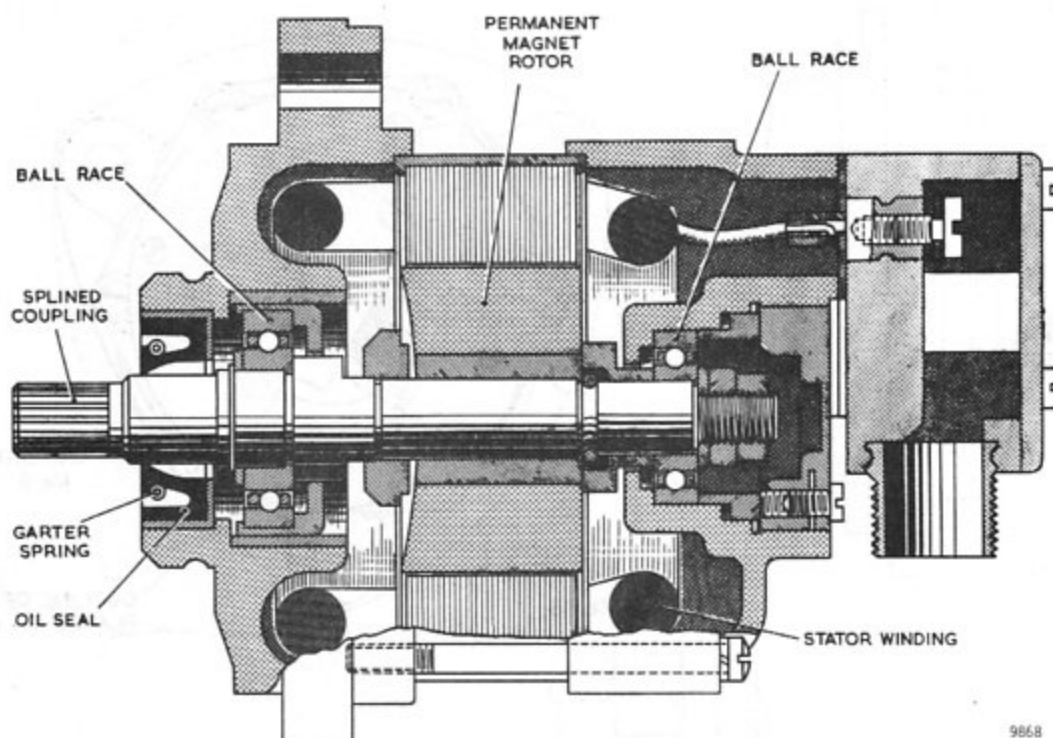
Tachometer generator, Mk.8C (Part No.106RV/SB) Ref.No. 6A/4333280

7. This generator is similar to the Mk.8 Part No.106RV generator, except that the stator windings are wired to a 4-pole plug (pins A, B and C only being used) instead of a terminal block.

INSTALLATION

8. The tachometer generator is mounted in a suitable position on the engine, the actual position depending on the type of engine to which the instrument is fitted. For further details in this respect, reference should be made to the appropriate power plant handbook and to the relevant section of the aircraft handbook.

9. Any reasonable length of 3-core cable may be used to connect the generator to its associated indicator, but it is important to establish the direction of rotation of the generator splined coupling before effecting the interconnections.



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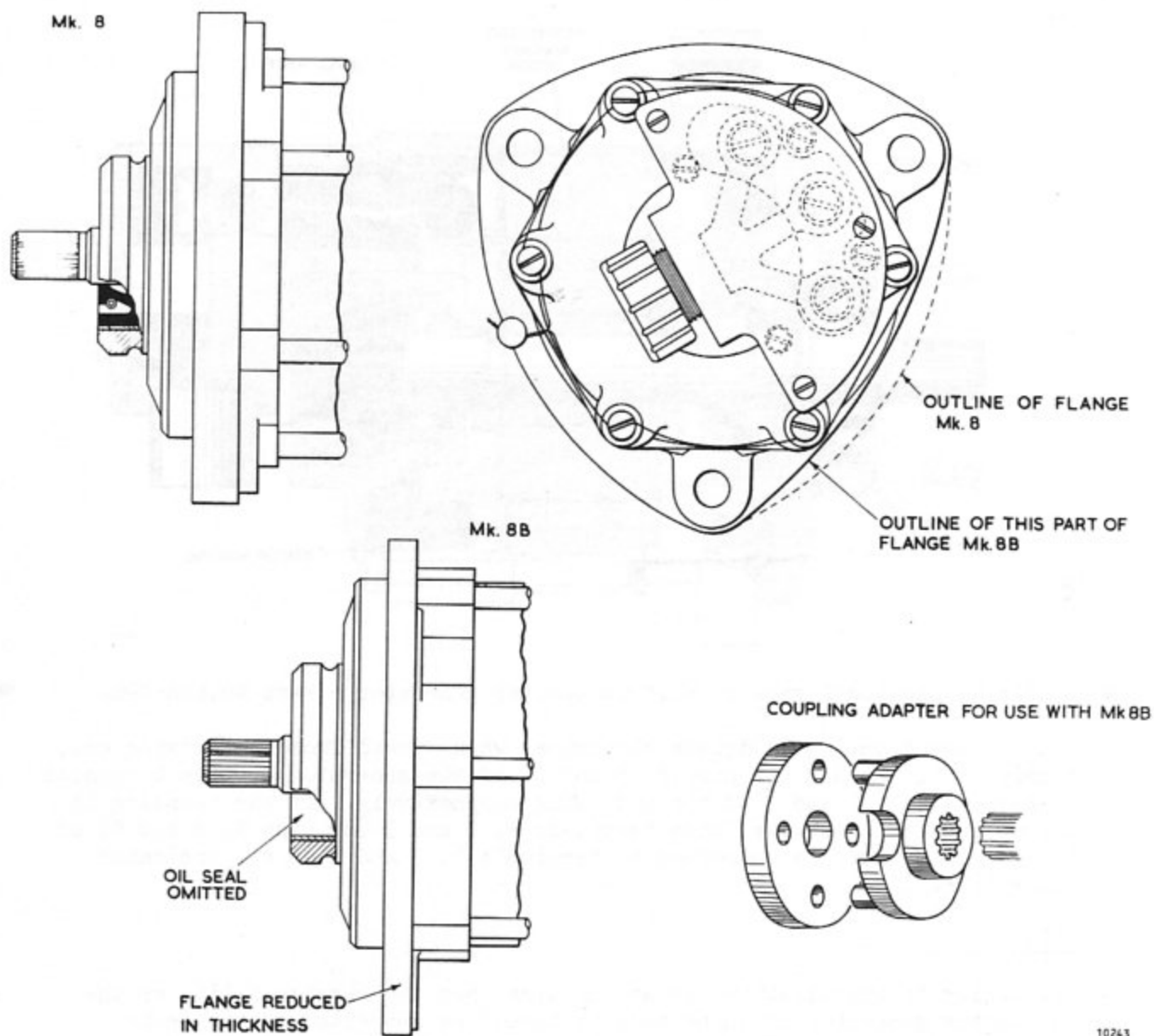
► Fig.4. Sectional view of Mk.8 tachometer generator - Part No.KGA-0902 ◀

10. If the coupling is driven clockwise, when viewed from the driving end, terminals 1, 2 and 3 (or pins A, B and C) of the generator must be connected to terminals 1, 2 and 3 of the indicator respectively. If the coupling is driven counter-clockwise, then terminals 1, 2 and 3 (or pins A, B and C) of the generator must be connected to terminals 1, 3 and 2 of the indicator respectively.

SERVICING

11. Prior to installation, or at any time when the serviceability of the tachometer generator is suspected, it should be subjected to the tests specified in the Standard Serviceability Test, Chapter 2. When handling the generators, care must be taken to avoid damaging the splined coupling.

12. The tachometer generators must not be dismantled by Units other than properly equipped Repair Depots.



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► Fig.5 Differences between KGA series tachometer generators Mk.8 and 8B. ◀

Chapter 2
STANDARD SERVICEABILITY TEST
for
TACHOMETER GENERATORS MK8 SERIES

Introduction

1. The tests detailed in this chapter are to be applied to the above mentioned equipment immediately prior to installation in aircraft, or if serviceability is suspect. The tests are also to be applied at reinspection periods at Equipment Depots. Any tolerances specified are not to be exceeded.

Test equipment

2. The following test equipment is required:-

- (1) Tester insulation resistance, Type C (Ref.No.5G/152).
- (2) A serviceable, compatible tachometer indicator.
- (3) Dual tachometer tester (Ref.No.6C/3000, 6C/2391 or 6C/2392).
- (4) Tachometer tester, bench type (Ref.No.6C/1879 or 6C/1880).
alternative to item (3).
- (5) Tachometer calibrator, Mk.2 (Ref.No.6C/869).
alternative to item (3).

TEST PROCEDURE

Note...

For generator Type 106 RV, read 'terminal' in place of 'pin' when carrying out these tests.

Continuity test

3. Using a ohmmeter connected across each pair of pins in turn, check that the resistance between each phase is 15.5 ± 1.0 ohms (Smiths Part No.106 RV, and 106 RV/SB), or 18.5 ± 2 ohms (Smiths Part No.KGA 0403 and KGA 0902).

Insulation resistance test - room temperature

4. Before the generator undergoes its synchronization and ranging tests, measure the insulation resistance between pin A and the unit case, in turn. The resistance in each instance must not be less than 2 megohms at 250V.

Synchronization and ranging tests

5. Turn the generator by hand to ensure that it rotates freely. Mount the generator on the tester or calibrator, then connect the generator to the compatible indicator. Switch on the test equipment, and allow the generator and indicator to run at approximately $\frac{2}{3}$ of the full scale range of the indicator for ten minutes. At the end of the exercising run, slowly reduce the speed to zero.

6. To check the synchronization of the generator and indicator, start the test equipment and slowly increase the speed from zero. Check the speed at which the indicator synchronizes; this will be apparent by cessation of pointer oscillation, and must occur at the speed stated in the Standard Serviceability Test applicable to the indicator being used.

7. Provided that the generator can be driven freely, and the generator and indicator synchronize at the specified speed, the generator will not possess any inherent inaccuracies, since it is frequency and not voltage which is being measured.

◀ 8. ▶

PARTS CATALOGUE—NAVAL

MAIN EQUIPMENT			GENERATOR, TACHOMETER MK.8 Part No.106 RV MOD 01 6A/2237 MK.8C Part No.106 RV MOD 02 6A/3344											
(1) Item No.	(2) Ref. No.	(3) Part No.	(4)								(5) No. Off	(6) Remarks	(7) C of E	(8) Plate/ Cct Ref
			1	2	3	4	5	6	7	8				
1	6A/2237	106 RV	GENERATOR, TACHOMETER MK.8								1	Mod 01	P	
2	6A/3344	106 RV/SB	GENERATOR, TACHOMETER MK.8C Spares for :-								1	Mod 02	P	
3	28M/9403519	A27B	. NUT 4BA ful st. cad. pl.								3		2C	1-2
4	6A/3196	RV 927	. WASHER, TAB LOCKING								3		2C	1-3
5	6A/3191	RV 880	. COVER, TERMINAL								1		2C	1-1
6	6A/3192	RV 683/B	. DISC INSULATING								1		2C	1-5
7	6A/9319	STD 14	. SCREW TERMINAL AND WASHER								3	MK.8	C	1-37
8	28S/9435714	A31/A32	. SCREW 6BA x 1 in. lg. ch.at cad pl.								3		C	1-38
9	6A/3194	RV 879	. STUD 4BA								3		C	1-4
10	6AA/3947	RV 954	. BLOCK TERMINAL COMPLETE								1	MK.8	C	1-32
11	6AA/9312	31-731-129	. PROTECTOR, THREAD								1	MK.8	C	1-46
12	6A/7255	RV.925	. BOLT SPECIAL								4	MK.8	C	1-42
13	6A/3195	RV.878	. WASHER LOCKING								1	MK.8	C	1-43
14	6A/3193	RV.877	. GASKET								1	MK.8	2C	1-41
15	6AA/3933	RV.876	. CONDUIT CABLE								1	MK.8	C	1-40
16	5X/1963	Plessey Z22164	. CAP PLUG SEALING TYPE 'A'								1	MK.8C	C	1-54
17	6AA/9316	RV.894	. BOLT SPECIAL, CAD PLATED 6BA								4	MK.8C	C	1-51
18	6AA/9443	RV.1047	. WASHER, LOCKING								1	MK.8C	C	1-52
19	5X/6006	Plessey CZ 28091	. PLUG 4 PIN STEEL SHELL Spares for :-								1	MK.8C	2C	1-47
20	5X/3240	Plessey Z 28146	. . PIN, SPECIAL 7AMP								1	MK.8C	C	1-48
21	5X/3238	Plessey Z.27323	. . PIN 7AMP								3	MK.8C	C	1-49
22	5X/3148	Plessey Z.49428	. SLEEVE FOR PINS								3	MK.8C	C	1-50
23	6AA/9314	RV 862	. PLATE CLAMPING								1	MK.8C	C	1-53
24	6AA/9320 3941	30-27-077-11 30237-077-11	. SCREW 4BA x 7/16in. hex hd. cd. plated.								3		C	1-22

MAIN EQUIPMENT		GENERATOR, TACHOMETER MK.8 Part No. 106 RV MOD. 01 6A/2237 MK.8C Part No.106 RV/SB MOD 02 6A/3344												
(1) Item No.	(2) Ref. No.	(3) Part No.	(4)								(5) No. Off	(6) Remarks	(7) C of E	(8) Plate/ Cct Ref
			1	2	3	4	5	6	7	8				
25	6A/3196	RV 927	.	WASHER,	TAB	LOCKING					3		C	1-3
26	6AA/3946	RV 678	.	SPRING	RETAINING						1		C	2-28
27	6AA/3937	RV 677	.	NUT	SPECIAL						1		C	2-27
28	6AA/9318	RV 1053	.	COVER	PROTECTIVE						1		C	2-31
29	6AA/3935	RV 875	.	HOUSING	BALL	RACE					1		C	2-16
30	6A/3194	RV 879	.	STUD		4BA					3		C	2-4
31	6A/7390	30-581-151	.	CIRCLIP							1		2C	2-17
32	6AA/3927	40-172-021-20	.	BALL	RACE	RIGID	LIGHT	DUTY			1		C	2-18
33	6AA/3940	RV 874	.	RING	OIL	SEAL	RETAINING				1		C	2-19
34	6A/7254	RV 688/1	.	SEAL,	OIL						1		C	2-20
35	6AA/6609	RV 873	.	FLANGE							1		C	2-21
36	6AA/9442	RV 1037	.	SHAFT							1		C	2-23
37	6AA/3936	RV 916	.	MAGNETIC	(SUPPLIED	UNMAGNETISED)					1		C	2-24
38	6AA/3945	RV 919	.	SPACER							1		C	2-25
39	6AA/3928	40-173-101	.	BALL	RACE,	RIGID	WITH	GREASE	RETAINER		1		C	2-26
40	28M/9503518	A27A	.	NUT		6BA	full	st.	cad.	pl.	4		C	2-10
41	6A/7256	RV 928	.	WASHER,	TAG	LOCKING					4		2C	1-9
42	6AA/3934	30-781-314	.	GROMMET							1		C	1-7
43	6AA/3931	RV 913	.	CAP,	GREASE	AND	HOLDER	COMPLETE			1		C	1-6
44	6AA/3948	RV 910	.	WASHER,	SEALING						1		C	1-8
45	6AA/9317	RV 908	.	STUD		6BA					4		C	1-13
46	6AA/9315	RV 1034	.	BODY-STATOR	ASSEMBLY						1		C	1-11
47	6AA/9313	RV 659	.	PLATE	NAME						1		C	1-14