Appendix 1

GENERATOR, ROTAX, TYPE B3501

LEADING PARTICULARS

Generator, Type B3501	◄ *Ref. No. 5UA/6930* ►
Output	30 *volts, d.c.*, 300 *amp.*, 9 *kW.*
Rating (normal load)	*Continuous*
Rating (overload)	375 *amp. for* 10 *min.*
Rating (emergency overload)	450 *amp.* for 5 *min.*
Speed range	4,500 *to* 8,500 *r.p.m.*
Rotation (viewed from drive end)	*Anti-clockwise*
Brush grade	*H.A.M. EG.*11
Brush spring pressure	49—55 *oz.*
Cooling	*Self cooled by internal fan*
Ambient temperature range	—50 *deg. C. to* +70 *deg. C.*
Electrical connections—	
Positive output, *Negative output*	·375-24 *UNF studs to take two lugs per terminal post. Either pren lugs (Ref. No. 5X/6531) or A-MP lugs size* 2, *Pt. No.* 322055.
Series drop, *Positive field*	*No.* 10-32 *UNF studs*
Lubrication	*Pre-lubricated (double-seal) ballrace*
Mounting details	*Manacle ring and spigot* *Mounting attitude unrestricted*
Drive shaft	0·875 *nominal dia.* 20 *serrations*
Overall dimensions—	
Length	16·486 *in.*
Height	10·635 *in.*
Width	8·625 *in.*
Weight	54 *lb. (estimated)*

1. This generator is identical with that described and illustrated in the main chapter, being designed for manacle ring mounting.

Appendix 2

GENERATOR, ROTAX, TYPE B3502

LEADING PARTICULARS

Generator, Type B3502	*Ref. No. 5UA/*
Output	30 *volts, d.c.,* 300 *amp.,* 9 *kW.*
Rating (normal load)	*Continuous*
Rating (overload)	375 *amp. for* 10 *min.*
Rating (emergency overload)	450 *amp. for* 5 *min.*
Speed range	4,500 *to* 8,500 *r.p.m.*
Rotation (viewed from drive end)	*Anti-clockwise*
Brush grade	*H.A.M. E.G.*11
Brush spring pressure	49—55 *oz.*
Cooling	*Self cooled by internal fan*
Ambient temperature range	−50 *deg. C. to* +70 *deg. C.*
Electrical connections—	
Positive output *Negative output*	·375-24 *UNF studs to take two lugs per terminal post. Either pren lugs (Ref. No.* 5*X*/6531) *or A-MP lugs size* 2, *Pt. No.* 322055
Series drop *Positive field*	*No.* 10-32 *UNF studs*
Lubrication	*Pre-lubricated (double-seal) ballrace*
Mounting details	*Manacle ring and spigot* *Mounting attitude unrestricted*
Drive shaft	0·875 *nominal dia.* 20 *serrations*
Overall dimensions—	
Length	16·486 *in.*
Height	10·635 *in.*
Width	8·625 *in.*
Weight	54 *lb. (estimated)*

1. This generator is identical with that described and illustrated in the main chapter, except for a redesigned D.E. frame, which contains an oil seal and housing assembly, located on the armature shaft at the drive end. This seal must be adequately lubricated.

2. This generator is designed for manacle ring mounting.

Appendix 3

GENERATOR, ROTAX, TYPE B3503

LEADING PARTICULARS

Generator, Type B3503	*Ref. No. 5UA/6928*
Rated output (continuous)	30 *volts d.c.*, 300 *amp.*, 9 *kW. with air at 6 in. W.G.*
Rated output (continuous)	30 *volts d.c.*, 375 *amp. with air at 10 in. W.G.*
Rated output (emergency overload)	30 *volts d.c.*, 400 *amp. with air at 10 in. W.G. for 30 minutes*
Speed range	4,500 *to* 8,500 *r.p.m.*
Rotation (viewed from drive end)	*Anti-clockwise*
Brush grade	*H.*100
Brush spring pressure	49-55 *oz.*
Cooling	*Blast cooled*
Ambient temperature range	−50 *deg. C. to* +50 *deg. C.*
Altitude	60,000 *ft.*
Lubrication	*Pre-lubricated (double seal) ballrace*
Mounting attitude	*Flange mounting (unrestricted)*
Drive shaft	16 *teeth of involute form* 20/30 *pitch* 30 *deg. pressure angle* 0·867 *outside diameter*
Electrical connections—	
Positive output	0·375—24 *UNF studs*
Negative output	*lugs A-MP Part No.* 322097
Series drop / *Positive field*	*No.* 10-32 *UNF studs*
Overall dimensions—	
Length	14·750 *in.*
Height	10·231 *in.*
Width	6·375 *in.*
Weight	54 *lb. (estimated)*

1. The B3503 generator is similar to that described and illustrated in the main chapter, except that cooling is by blast air supply from the aircraft. The air enters at the drive end and leaves at the commutator end. Air ducts are not provided.

2. Installation differs to that described and illustrated in the main chapter, in that the B3503 is designed for flange and spigot mounting; for installation details see *fig.* 1 of this appendix.

3. An involute type of spline has been introduced to a quill drive, that forms an integral part of the main armature drive shaft. The spline details will be found in the Leading Particulars as illustrated in *fig.* 1.

4. The electrical connections are identical to those shown in *fig.* 2 of the main chapter, except for terminal markings; terminals 1, 4, 2 and 3 are now B+, A, E— and D respectively for the B3503 generator.

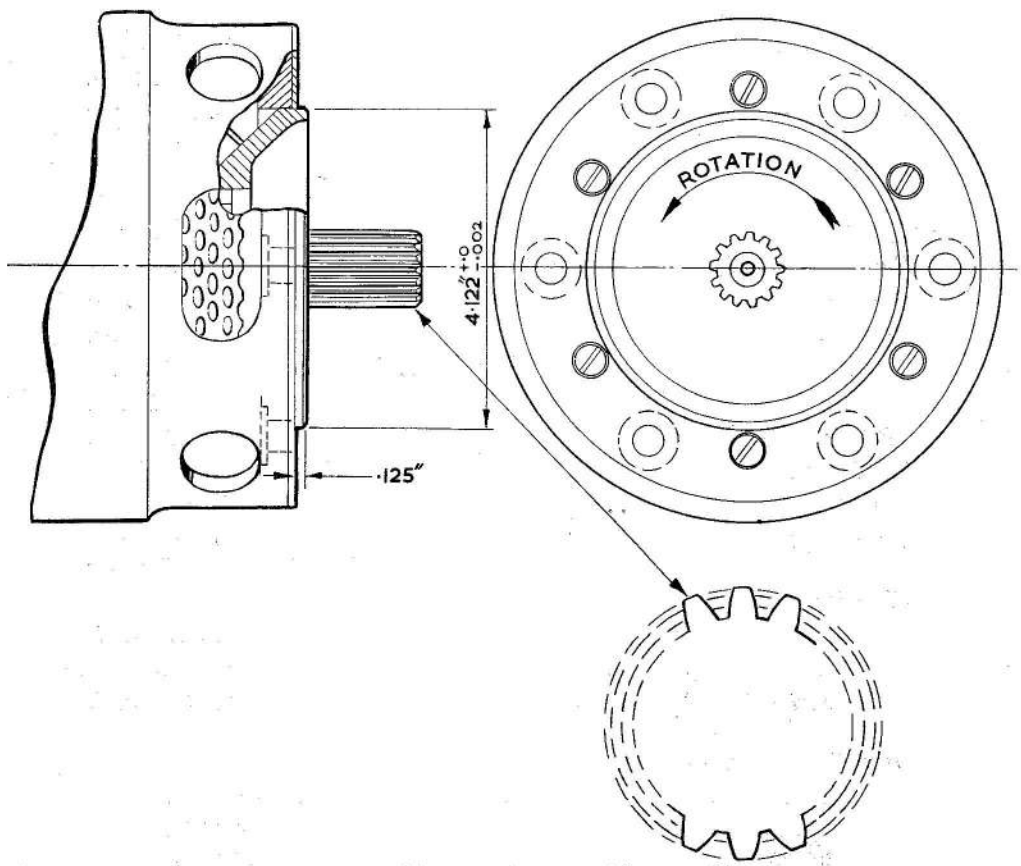

Fig. 1. Installation details of generator, Type B3503

Appendix 4

GENERATOR, ROTAX, TYPE B3505

LEADING PARTICULARS

Generator, Type B3505	*Ref. No. 5UA/*
Rated output (continuous)	30*V d.c.*, 300 *amp. (air at 6 in. W.G.)*
Rated output (continuous)	30*V d.c.*, 375 *amp. (air at 10 in. W.G.)*
Rated output (emergency overload)	30*V d.c.*, 400 *amp. (air at 10 in. W.G.) for 30 minutes*
Speed range	4,500–8,500 *r.p.m.*
Rotation (viewed from drive end)	*Anti-clockwise*
◀ *Brush length (new)*	1·187 *in.*
Brush length (minimum permissible)	0·730 *in.* ▶
Commutator diameter (new)	2·875 *in.*
Commutator diameter (minimum permissible)	2·785 *in.*
Brush grade	*H.A.M. EG.*11
Brush spring pressure	49–55 *oz.*
Cooling	*Blast cooled*
Ambient temperature range	−50 *deg. C to* +50 *deg. C.*
Altitude	60,000 *ft.*
Lubrication	*Pre-lubricated (double seal) ballrace (Grease XG–277)*
Mounting attitude	*Flange mounting (unrestricted)*
Drive shaft	16 *teeth of involute form*, 20/30 *pitch*, 30 *deg. P.A.*, *O/D* 0·867 *in.*

Electrical connections (fig. 2) —

Internal —

Positive output (B+)	0·375 *in.* —24 *U.N.F. studs*
Negative output (E—)	*Lugs A-MP. No.* 322097
Series drop terminal (D)	*No.* 10–32 *U.N.F. studs*
Positive field terminal (A)	*Lugs A-MP. No.* 32544

External connections for (B+) and (E—)
(Conduit fitting and screened cable)

Superflexit assembly SCF–2149–28S comprises—

(1)	*Nipple*	*V*797
(2)	*Ferrule*	*V*446/1
(3)	*Nut*	*V*3025
(4)	*'O' ring*	*V*596

*P.T.F.E. screened conduit SC.*001/1
or
*P.V.C. screened conduit SC.*011/1

*Generator is suppressed to BS.*26100 *when used in conjunction with capacitors ZA*13402 *(one in each output lead).*

Overall dimensions—

Length	14·796 *in.*
Height	9·563 *in.*
Width	7·125 *in.*
Weight	54 *lb.*

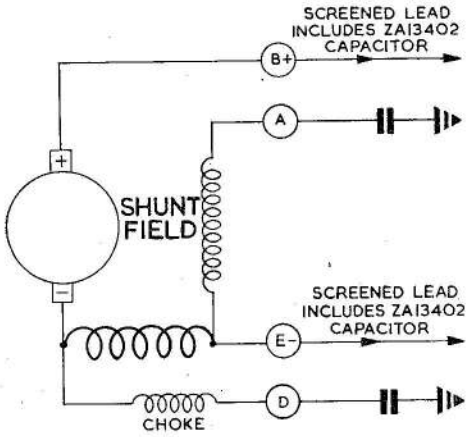

Fig. 1. Diagram of internal connections

1. The B3505 generator is similar to that described and illustrated in the main chapter, except that cooling is by blast air supply from the aircraft. The air enters at the commutator end and leaves at the drive end. Air ducts are not provided.

2. Installation differs to that described and illustrated in the main chapter, in that the B3505 is designed for flange and spigot mounting. Installation details of generator, Type B3503 (fig. 1, Appendix 3) also apply to the B3505 generator of this appendix.

3. An involute type of spline has been introduced to a quill drive that forms an integral part of the main armature driveshaft. The spline details will be found in Leading Particulars, and illustrated in the installation details for the B3503 (Appendix 3, fig. 1).

4. The B3505 generator has a new terminal box, and additional suppression added, this being in the form of two capacitors and a choke coil fitted in the terminal box; two special capacitors (ZA13402) are incorporated in the Superflexit screened cable, which is fitted during installation in the aircraft (fig. 1 and 2).

Insulation resistance test

5. With suppression capacitors disconnected, the insulation resistance when measured with a 250-volt insulation resistance tester, between all live parts and the frame, should not be less than 0·5 megohm (for R.N.) or 0·05 megohm (for R.A.F.).

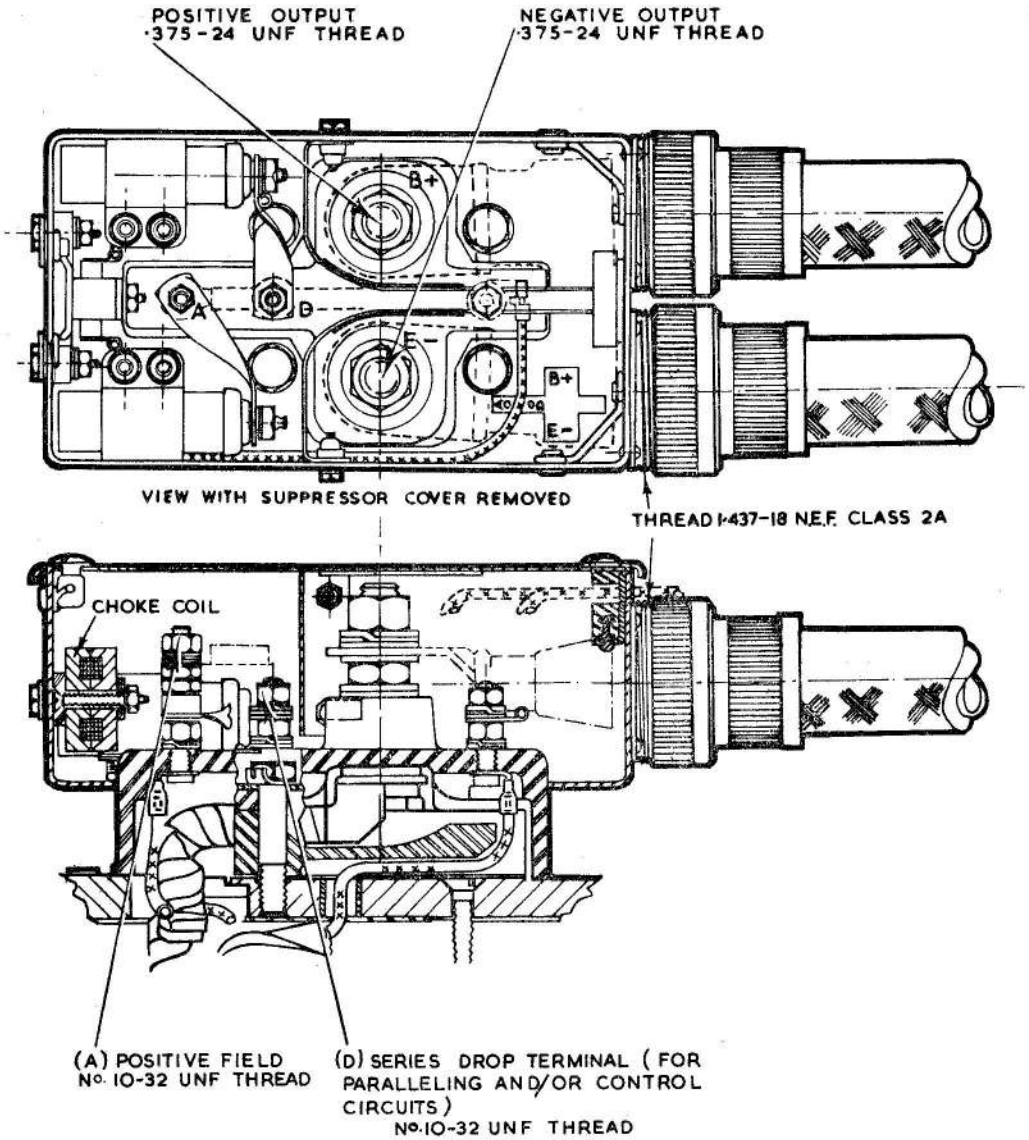

Fig. 2. Terminal box

P31855 243077/2382 8/62 2750 C & P Gp 375

Appendix 5

GENERATOR, ROTAX, TYPE B3507

LEADING PARTICULARS

Generator, Type B3507	*Ref. No. 5UA/*
Rated output (continuous)	30*V d.c.*, 300 *amp.*, 9 *kW*
Speed range	4,500-8,500 *r.p.m.*
Rotation (viewed from drive end)	*Anti-clockwise*
Cooling	*Internal fan*
◄ *Brush length (new) on short edge*	1·187 *in.*
Brush length (minimum permissible)	0·730 *in.* ►
Commutator diameter (new)	2·875 *in.*
Commutator diameter (minimum permissible)	2·785 *in.*
Brush grade	*H.A.M. EG.*11
Brush spring pressure	49-55 *oz.*
Ambient temperature range	−50 *deg. C to* +50 *deg. C.*
Altitude	60,000 *ft. (max.)*
Lubrication	*Pre-lubricated (double seal) ballrace (grease XG-277)*
Mounting details	*Manacle ring and spigot* *Mounting attitude unrestricted*
Drive shaft	0·875 *in. nominal dia. 20 serrations to BESA A19 coarse*
Electrical connections—	
Terminal 1 (*positive output*) }	0·375 *in.*—24 *U.N.F. studs* (*two*)
Terminal 2 (*negative output*) }	*Lugs A-MP Part No.* 322055 (*two*) (*Size* 2)
Terminal 3 (*series drop*) }	*No.* 10-32 *UNF studs* (*two*)
Terminal 4 (*positive field*) }	*Lugs A-MP Part No.* 32544 (*two*) (*size* 12-10)
Overall dimensions—	
Length	16·486 *in.*
Height	11·831 *in.*
Width	8·562 *in.*
Weight	53 *lb.* 5 *oz.*

1. The B3507 generator is similar to that described and illustrated in the main chapter, except that full internal suppression is incorporated within the terminal box located on top of the unit.

2. The main output and series drop terminals have 2 micro-farad capacitors connected between the terminals and the earthing frame; additional suppression is included by the introduction of special 3·5

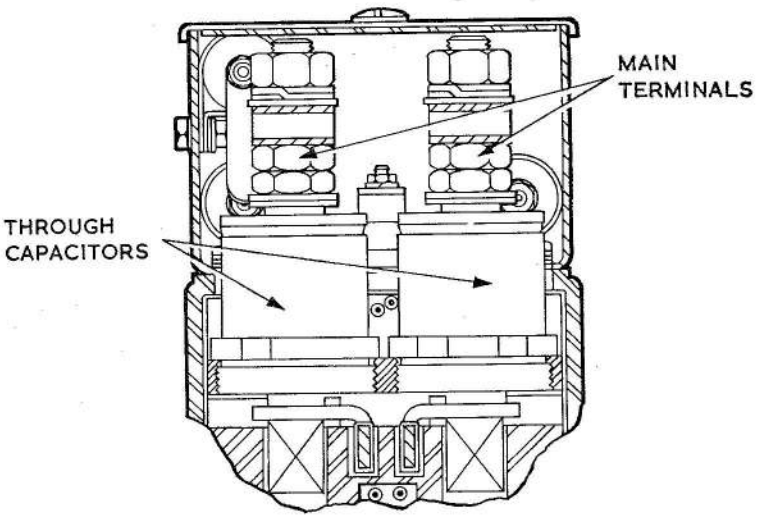

Fig. 1. Scrap view of main terminals

micro-farad through capacitors fitted over the positive and negative output terminal studs, the capacitors are securely screwed into the earthing frame of the machine as shown in fig. 1. The internal connections are given in fig. 2.

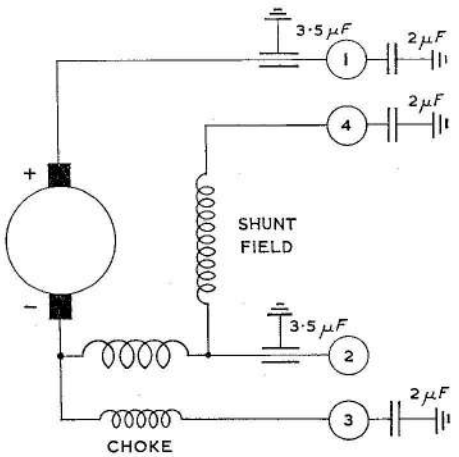

Fig. 2. Diagram of internal connections