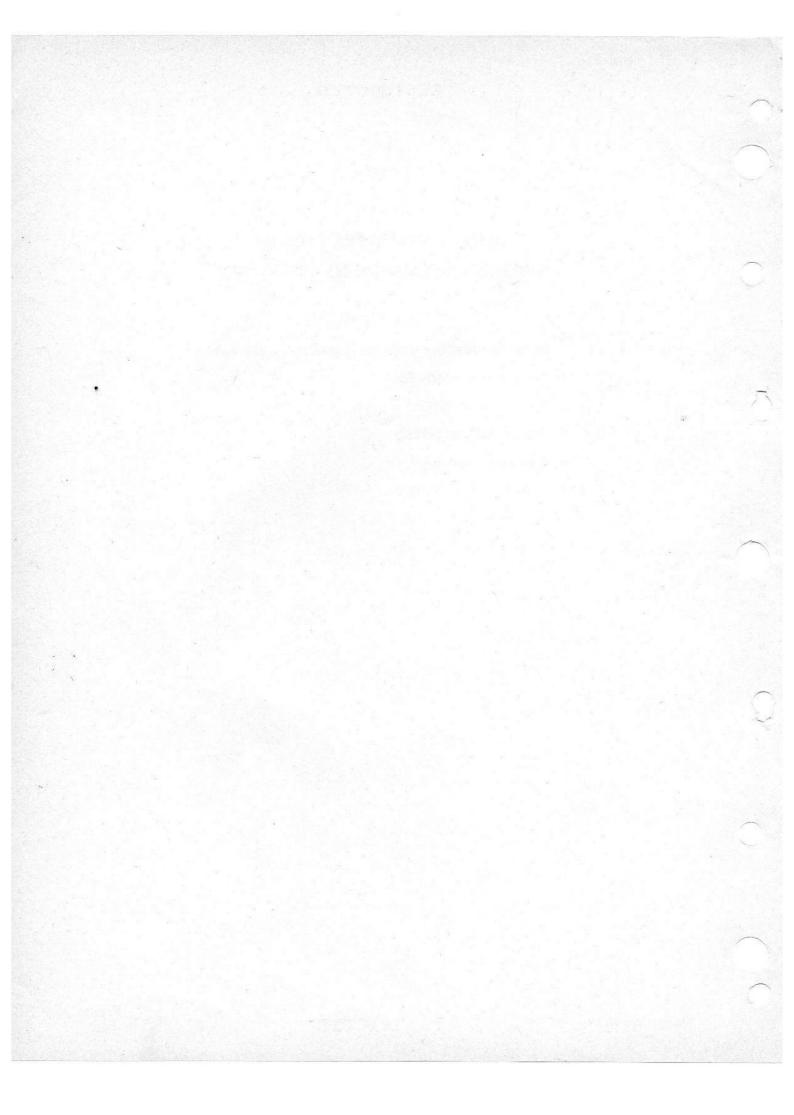
LIST OF CHAPTERS

- 1 Rotary Inverter Type 100B (Rotax 2902)
- 1-1 Rotary Inverter Type 100B (Modified)
- 1-2 Rotary Inverter Type 100D (Rotax 2909)
- 2 Standard Serviceability Test
- 3 Bay Servicing



CHAPTER 1

ROTARY INVERTER, TYPE 100B (Rotax S. 2902)

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			L	EADIN	PART	ICULA	RS				
Rotary inve	rter, Ty	pe 100 E	3	112.40.4		200	9/0/0	Б	ef. No.	5UB,	4935
Input	\$0,696 0818	50 300 60 60 4		808080	#7#C#	****	*****	***	22 to	28V	d.c.
Output	\$196765 5906		104646 104646	#CW0#0	#I#I#	***	3-phase,	115V	. 120W	(0.8	p.f.)
Phase seque	ence (at	output so	cket	of inve	rter)	* * *					-B-C
D.C. brush		1290/E2033 - (24)			inconstation	1250052 4	025585	100000			0249 03-0
Grade !	Nobrac I	AB No.	F2C	200	2000	2000		cus i	Ref. No.	5UB	5958
Spring	pressure		2 4 2 4 5	51.40S	• • •	13	6 to 164 g				
A.C. brush	The state of the s		157424	ENDAR	SCARNER	Cally A	CONTRACTOR	Acres de l'allert	enerous me		VV 77.5996.)
Grade	F2B	2007		2000	1000		0.20	I	lef. No.	5UB	/5959
Spring	pressure		(****	50500 87868	motors Tomas	2	1 to 57 gr	amme	s (0·75	to 2	0 oz)
Resistors	DALINHAMO ISS		100,100	remense	20,00000	200	encease mes and	MATERIO CARA	ALTERNATION NOTES	CONTRACTO	CONTRACTOR OF THE CONTRACTOR O
Shunt f	ield (40 o	hms) Ty	pe Z	A. 4801	/1			R	ef. No.	5UB	6085
	er (500 c	Market or the Committee of the Committee	1700	****		#0 # 0#	(*) * (*)	20212	ef. No.		
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Rotation (vi	1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m		utate	911			•.•.•		ounter-		
Dimensions			2000 1021		29200	mass.	10007/12	Western Co.		3400-522	
Height	2000 720			0.000		200	200		6666	7.7	40 in
Length	1 200		0.000 0.000	****	*****	*(*)*		2000		100	75 in
Width	- Paris Out		1075161 11 8 518	8338 8338	#:#:#:	2000 4000	8:496 8:496	RIDIA.			12 in
Weight					599	566	1000000		12000AV		10 lb
Plug, d.c.	22/00/0			****	9000 •0000	5555 ***	70000 10000		Ref. No.		- CO CO 65
Plug. a.c.	200	3000		60000 60000	222	2000	200	101707.81	Ref. No.	4112 20 20 20	100 12 A TANCOUR
Voltage reg	N. 75.753		-						ef. No.		
. C. L. B. T. C.	1	port		- 35- 1	200	75.50	2000	10000		occ,	1002

INTRODUCTION

1. The rotary inverter, Type 100B, is a 4-pole, compound-wound machine with control panel Type 12 (Rotax F.2801) incorporated. With an input of 25 to 28 V d.c. it gives a nominal output of 115 V, 400 hz 3-phase a.c., 120 W, 0.8 power factor, at a speed of 12000 rev/min. The output voltage is maintained substantially constant by a voltage regulator Type 46.

DESCRIPTION

2. The cylindrical inverter unit is carried in a cradle and surmounts the associated control panel box. The cradle houses the shunt field resistor.

INVERTER UNIT

3. The inverter unit comprises an armature with commutator and slip ring assemblies and a fan encased in two end frames which house the yoke and the pole pieces.



Fig.1 Rotary inverter Type 100B

The commutator-end frame is enclosed by the commutator-end cap, removal of which provides access to the d.c. brushgear while the a.c. brushgear is revealed by removal of the window strap of the slip-ring end frame. The armature shaft is supported by two ball bearings, selectively fitted to give a clearance of 0.0001 to 0.0004 in on the shaft and in the housings. The fan is fitted to the end of the armature shaft. Since the bearing is located by the fan boss, no attempt should be made to run the machine without the fan fitted. Cooling is achieved by the fan, circulation of air being assisted by the perforated ends of the two end frames and the four holes in the slip-ring end frame.

- 4. The d.c. brushgear at the commutator end is secured by fixing screws through slotted holes in the end frame, the slots providing for adjustment of the brush position. The negative brush terminal is connected directly to one terminal of a terminal block mounted in the control panel box and the other to one end of the series field coil.
- 5. The four pole pieces are mounted in the bore of the yoke which is integral with the slip-ring end frame and carry the field windings, wound in compound coils. One end of the shunt and one end of the series field are connected to the positive terminal of the terminal block in the control panel box. The other end of the shunt winding is connected to the shunt resistor (housed in the cradle) whilst the remaining end of the series winding is connected to the positive brush terminal (see fig. 4).

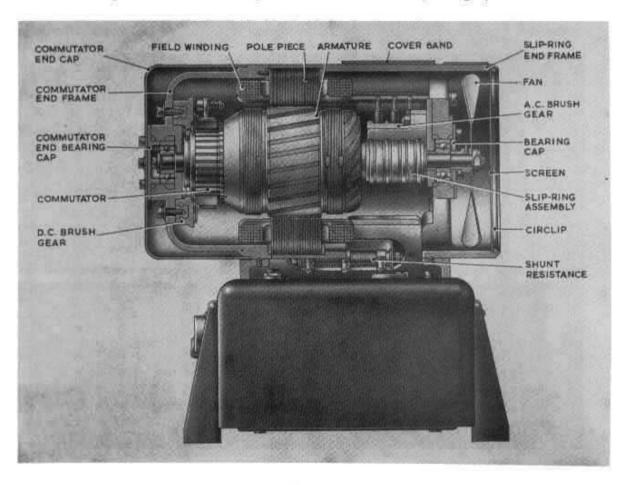


Fig.2 Sectional view of inverter unit

6. The laminated armature has both input and output windings carried in common slots, the 3-phase a.c. winding (27.5 S.W.G.) being nearest to the shaft with the a.c. winding (20 S.W.G.) outside it.

CONTROL PANEL BOX

- 7. The rectangular control panel box forms the base of the unit and houses voltage regulator Type 46 with its associated ballast and trimmer resistors, a rectifier, a two-stage suppressor (in series with the d.c. input) and the input and output plugs fitted to the end face of the box.
- 8. Access to components (other than suppressors) is by removal of the base plate. Access to the magnet core and pile compression screw is obtained by removing the appropriate plates on the sides of the control panel box. To enable small voltage adjustments to be made without removal of the base plate, the regulator trimmer resistor (slotted for screwdriver) is brought out through the end face, alongside the input and output plugs.

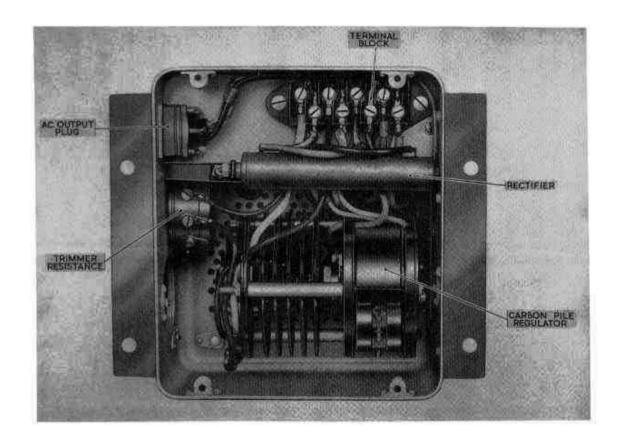


Fig.3 View of regulator, cover removed

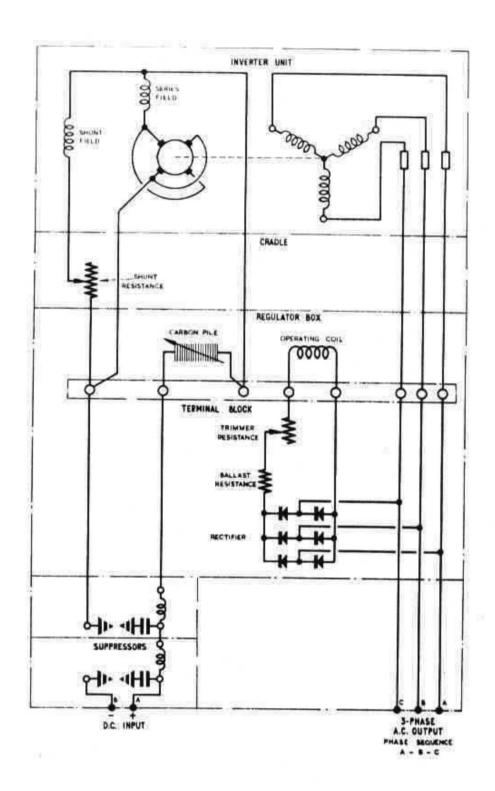


Fig.4 Circuit diagram

CHAPTER 1 -1

ROTARY INVERTER, TYPE 100B (MODIFIED)

LEADING PARTICULARS

Rotary	inverte	r, Type	100B	(Modifie	ed)		(53.5)	0.000	Ref.N	o. 5UB/6495
Input		3 * 3 * 3 *	***	****		***				- 28 V d.e.
Output	***	***			(1) 12	ow, 0-8	p.f.,	115V,		3-phase a.c.
										and
								(2)	28V d.c	. (regulated)
Phase	sequenc	e	2000						100000	A-B-C
D.C. b	rushes									
Gr	ade Nob	rac LA	B No.	F2C	100	***			Ref. No	5UB/5958
Sp	ring pre	ssure				1	36 to	164 grs	immes (4	-8 to 5-8 oz)
A.C. b	rushes								POLICE THE PROPERTY OF THE PARTY OF THE PART	. Her comments that the contract of
Gr	ade Nob	rac LA	B No.	F2B	100				Ref.N	o. 5UB/5959
Sp	ring pre	ssure		5.000	250505	10.00	21 t	o 57 gr	ammes (0.75 to 2 oz)
Resisto	ors	STATE OF THE STATE		P. Dentoy				ELWIPLIN BI	V. 1.521.541.511.611.11	ar
Sh	unt field	(40 oh	ms) Ty	pe ZA.	1801/1				Ref. N	o. 5UB/6058
Tr	immer	(500 oh	ms)	X#3#0#	1879.0		100000		CONTRACTOR OF THE	o. 5UB/6297
Ba	llast (10	000 ohn	18)	***			800011	14168		o. 5UB/6819
Rotatio	n (viewe	ed from	comm	utator e	end)	040405	2000	25252		r-clockwise
Dimens					(050 8 002)	25000	2007007	PARTOR	NAMES AND ADDRESS OF	
Не	ight			3000	2000	100				7 . 740 in
Le	ngth			***	58000E	SE 18.00	***		102.55 (TS) (2000) 4	7:375 in
Wi	dth		340404	100000	****	10.000	340904	10.010	180813	5.812 in
Weight		2.00	1207	324276						10 lb
Plug, c	.c. (2-	pole)	*****	3.00	(*C*C**	200000 200000	5500012 5500012	250000		No. Z560050
The state of the s	.c. (6-)		****	12000	940404	100000	3000	20.00		No. Z560260
	2/// /4			6 (incor				2000		o. 5UC/4852
	-	- 20	Maria Contract		NOT THE WAY	85.900.9	100000	50000	77.00	

ILLUSTRATION

Fig.		Page
1	Circuit diagram	2

DESCRIPTION

- 1. This rotary inverter is a modified version of the type 100B (Rotax S.2902) described and illustrated in Chapter 1. Two resistors, with a total resistance of 0.55 ohms have been connected in series with the positive supply to the inverter and a bank of power factor correction capacitors, each of 0.5 μ F, connected across the a.c. output lines.
- 2. The d.c. input is by a 2-pole piug marked INV.1 and the output is taken from a 6-pole socket marked INV.2 disposed at opposite ends of the box. Pins C, D and E of INV.2 are connections for the three phases A, B and C respectively of the inverter 115V a.c. output, pins A and B provide for a regulated 28V d.c. output. Additional connections have also been made within the suppression unit, see circuit diagram fig.1.

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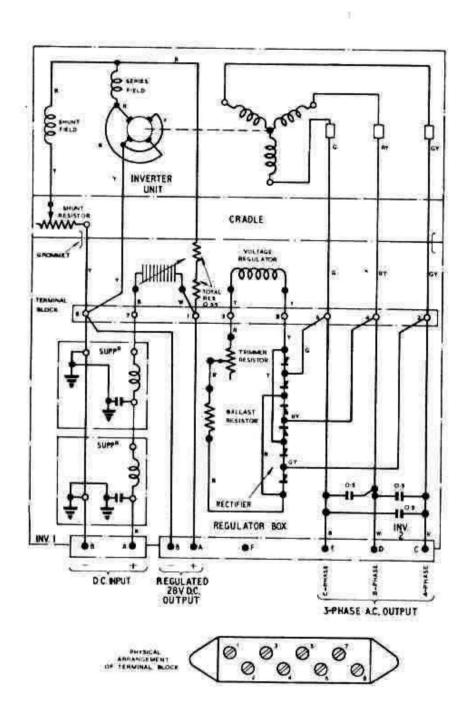


Fig.1 Circuit diagram

CHAPTER 1-2

ROTARY INVERTER, TYPE 100D (Rotax 5.2909)

LEADING PARTICULARS

	787954 767954	Ref. No. 5UB/8353
		17
	3-pnase,	115V, 150W (0·8 p.f.)
EE35 3843	18000 (6	· · · · · · · · · A-B-C
1)	15900 15000	Ref. No. 5UB/8348
N9990 NEWS	136 to 164 gra	immes (4.8 to 5.8 oz)
		CONTRACTOR OF THE
58 E (550)	363634 363634	Ref. No. 5UB/5959
	21 to 57 gran	mmes (0.75 to 2.0 oz)
	BOOK TO THE STATE OF	ACCURAGE AND CONTRACTOR WATERS
	2000 2000	Ref. No. 5UB/6058
Foste Busin	121202 747202	
see est	2000 2000	Ref. No. 5UB/6819
	1600 1600	Counter-clockwise
		Carried Manifesta
	1535 B 1535	· · · 7 · 375 in .
	195619 195619	5.812 in.
	181912 191913	· · · 7 · 740 in .
	*** ***	· · · 10 lb
S1972: 107578	N2250 N250	Ref. No. 5X/6001
***	***	Ref. No. 5X/6006
	CORNER INSTITUTE	Ref. No. 5UC/4852
	***	· · · to 30,000 ft.
		3-phase, 1) 136 to 164 gra 21 to 57 gra d)

GENERAL

- 1. The inverter Type 100D is similar to the inverter Type 100B, described and illustrated in Chapter 1, except that a different grade of d.c. brushes have been introduced, KC5EG11 to Mod. Elect. B/611 (Rotax R6361). This grade of brush is of the film forming type and general information on brush bedding and commutator servicing is given in A.P.113A-0301-1 (formerly A.P.4343, Vol.1, Sect.1, Chap.1, para.5-6 and 11-18).
- 2. Servicing, testing and bay servicing for the Type 100D are as detailed in Chapters 1, 2 and 3.

Chapter 2

STANDARD SERVICEABILITY TESTS

		C	ONTE	VTS				Para.
Introduction	0.52	1515/51						1
Test equipment				F (* (*)	9 0€0 5	*0*0*	***	2
Test procedure								
Control panel		25.826		5555	1.100	2.003	50565	3
Inverter			2010					5

Introduction

1. The following tests should be applied prior to installation or at any time when the serviceability of the unit is suspect.

TEST EQUIPMENT

2. The following test equipment, or suitable equivalents, will be required:-

General

Ref. No.	Description	Purpose/Remarks
5G/9156675	Tester, insulation resistance, Type C	
ZA/6625-99-	Megohmmeter Type 70154 (ARMY only)	
102-5386	Activities of the same and the same was a second of the same and the s	

Fig. 1		
Ref. No.	Description	Purpose/Remarks
5Q/9002144	Voltmeter, 0-40V d.c.	V1
5CW/4189	Switch, two pole, on-off	SI
5UB/4939	Control panel, Type 12	
5CW/6172	Switch, phase selector	S2
5CW/898	Switch, push, Type B No. 1	S3, S4
5Q/4350451	Voltmeter, 0-150V a.c.	V2
5Q/1003731	Frequency meter	F1
5G/565	Inductive loading unit	See Note
5G/3201	Phase rotation indicator	122
/	Variable d.c. supply 20 to 35V	()

Note ...

For information on the inductive loading unit refer to AP120E-0403-1.

TEST PROCEDURE

Control panel

Insulation resistance tests

- 3. Remove base cover, disconnect the earth cable from the terminal block and using Type 'C' insulation resistance tester, measure the insulation resistance between pin 'A' of the two-pole d.c. input plug and the frame. The reading shall be not less than 0.5 megohm. Reconnect the earth cable to the terminal block.
- Measure the insulation resistance between pin 'A' of the three-pole a.c.
 output plug and the frame. The reading shall be not less than 2 megohms.
 Refit the base cover.

Chap, 2 Page 1

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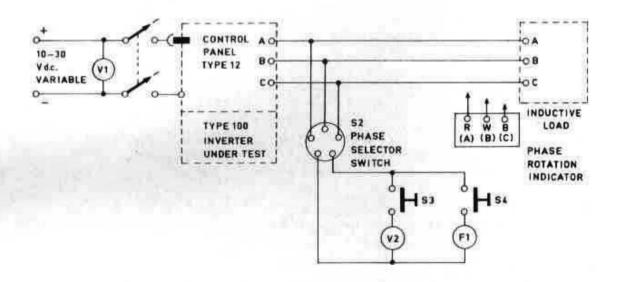


Fig. 1 Test circuit

Inverter

5. Connect the inverter to the test circuit shown in fig. 1 and proceed as detailed in the following paragraphs.

Note ...

The test circuit is identical to that used for testing inverters Type 100A and 100C as detailed in AP113D-0104-16.

Warming up

- 6. Remove the commutator-end cover. Adjust the input voltage to 27V and run on no load for one hour. Ensure that the a.c. output is between 119 and 121V, adjusting if necessary by means of the trimmer resistor on the control panel. Check that phase sequence is A-B-C using the phase rotation indicator (ref. para.2).
- 7. Ensure that the output frequency is 395 Hz; adjustment, if necessary, is to be made by means of the shunt field resistor.

Regulation test

- 8. Switch 'ON' full load and ensure that the voltage does not fall below 115V.
- 9. Switch the load 'OFF' and 'ON' three times and ensure that the frequency remains at 395 Hz. If the frequency falls with loading then the brushgear will need to be moved in a clockwise direction and conversely if the frequency increases, the brushgear should be moved counter-clockwise. Adjust frequency, if necessary, to 395 Hz by means of the shunt field resistor. Switch 'Off' load and inverter supply.
- 10. Switch 'ON' inverter supply and REPEAT operations para. 6, 7, 8 and 9.
- 11. Increase the input voltage to 35V and ensure that the frequency does not exceed 400 Hz and that the a.c. output voltage does not exceed 121V.
- Lift each d.c. brush in turn and ensure that the sparking is not excessive at the diametrically opposed brush.

AP113D-0120-1

 Switch off inverter supply and disconnect the test equipment before refitting the commutator-end cover.

CHAPTER 3

BAY SERVICING

CONTENTS

	1	Diagra	am of fit	s and c	learanc	es	2000	8	
	Fig.	11.	LUSTRA	TION			p	age	
	ñ	LEGATION OF THE PERSON OF THE	LUSTRA	en admicin	Charles all a charles	555	#0#J#X	g	
	No.	Schedi	ale of fit	s and	elegran	PAG	1900	age 9	
	No		TABI	LE)22		
			C 101	1123340	2000	52565		T (\$62)	
Insulation re	sistance to	ests	25247		200		2000	• • •	7
Sparking		0.0005 0.0000	20000 20000	(0)(0)(0) (0)(0)(0)	(808/8) (800/6)	9509090 2505000	100000 1400000	(*)(*)#(
Inverter					10.30	•.•		2500	7
Regulator ad		***	25000 105000		10000	\$1905 1.0000	±(*)*	(*************************************	6
Brush beddin		***						5.00	-
Setting up		140404	941454 945464	200	10000	200		***	6
Testing		2000 2000	500000 5000000	ff1688	25/515 315/515	3555	250555 500055	(50 5)5	
Rectifier				25.55	15841	1830	200	250575	6 6
Inverter	9858 9004	2000 10000	(#X#### 50000	000.050	(*)(*)(*	(0:0)(0	140909	36.4.4	5
Brushgear				• • •	300	150818	55000	55156	5
Armature	1455004	***	36000 61000	24/14/2			12.2	• • •	5
Bearings	12000	B089	325432	051508	(\$15)P	36000	3000	240664	5
Accombly	181818	10000	2275			95855	2000	15050	
Preliminary Breese plug			100	\$ \$ (\$)%	64/4/4		12/214	22000	5
Regulator		CV-2004	55.5E	93788	080908	(*//k)*).e(#0#	() () ()	5
		7500		12.75		***	12013	050505	4
Control unit	35555	1000001	(• ? • · •	8035	560014	2000		547414	4
Bearings Lubrication	72-14	**	13.1	92311	1111	75-5	***	4.24	4
Armature	104-041-4	9904.5	\$4.78E4	2010	11:35				4
Brushgear	3,51,51.5	355.535	MENES	00000		(9/9/30)	1414040		4
General	525/27		100	300	4.4.	15559	(\$85.5)	(505)	4
Examination and r			30,000	35300	35.865	10.34	1000		4
Control unit	177	HTATSTO	\$25.5	25.036	350000	500000		(4/4/48	4
Commutator		e		7.2.2				8717325	3
Brushgear	11/25/00	(*************************************	20.000 K		2000	0.000	44.4	****	3
Commutator	-end		Contract of the last of the la	(4152)	52555	RESIDE	5519.00	130741401	3
Inverter		Excellen		2004	orang.	10.00	***	0.715050	3
Rectifier	20 (2000) 20 (2000)	50/6/67	53-59596	G#140#3	(30)	1919597	X305048	(3
Control pane	el, base c	over		A15.50	3555	201000	(*(*;*)	00000	3
Dismantling		7500ELAS	2514230	3404045	2012345	1000	92.592	13.5	3
Cleaning	Mary .	7.515.74	8575.00	35(8)5)	1/4145/65	1919:01	DE3000	0.85%	2
Initial testin		CARSON MARINE	CHINA	1232	116				2
Special tools mate			inment	CASS	5556 (4556)	115500 116505	10000	100000 100000	2
Introduction	4.4								Pag

INTRODUCTION

1. The function of this chapter is to describe the Bay Servicing procedures for Rotary Inverters Type 100B(S.2902), the modified version of 100B, and Type 100D (S.2909). Further details of the incorporated control panel, Type 12 (Rotax F.2801) can be found in A. P. 113D-0721-16.

SPECIAL TOOLS, MATERIALS AND TEST EQUIPMENT

2. The following tools and test equipment will be required in addition to those called up in Chapter 2.

TOOLS

Ref. No.

5UA/1201

Tool kit, E.D.G.

Variable d.c. supply 19 to 35V

5UA/1206

Extractor for fan, complete with pads

MATERIALS

33B/943354

Varnish

33C/890

Glasspaper, grade '00'.

33C/1172

Silicone compound, insulating

34B/9105058

Grease XG-278

34D/467

Trichloroethane

34D/293

Oil, OM-13, lubricating

TEST EQUIPMENT

1H/96

Spring balance, 0 to 2lb.

INITIAL TESTING

3. Prior to Bay Servicing the tests detailed in Chapter 2 should be applied to determine the serviceability of the unit.

CLEANING

4. Clean the inverter, externally, using Trichloroethane on cotton rag.

Page 2

DISMANTLING

CONTROL PANEL, BASE COVER

5. Withdraw the 6 B.A. screws to remove the base cover.

RECTIFIER (FIG. 3)

6. Disconnect the rectifier from the terminal block, identifying the leads to facilitate correct re-assembly. Unscrew and remove the cap nut and shakeproof washer (on the outside of the control panel) and the screw that secures the rectifier bracket at the opposite end. Remove the rectifier from its mounting.

INVERTER

7. Disconnect the remaining six leads from the terminal block and identify the leads to facilitate re-assembly. Remove four 2 B.A. bolts to separate the inverter from the control panel.

COMMUTATOR-END

8. Remove screws to permit removal of the commutator end cap and withdraw four cheesehead screws to remove the commutator-end bearing cap.

BRUSHGEAR

- 9. Remove the window-strap assembly with the cork liner and the circlip and screen from the slip-ring end.
- 10. Disconnect the two yellow leads and one red lead from the d.c. brushgear assembly and remove the four d.c. brushes from their boxes. If there is need to remove the d.c. brushgear assembly, identify the position with marks on the back plate and on the end frame.
- 11. Remove the six a.c. brushes from their boxes by turning the small slotted pins at the top of the brush boxes by one quarter of a turn.
- 12. Hold the armature stationary and remove the screw, spring washer and plain washer from the commutator end of the armature shaft; the nut and lockwasher which secures the fan at the other end; collect shims.
- Remove the fan and collar, using extractor 5UA/1206 or suitable alternative with pads. Remove the outer bearing cap.

COMMUTATOR END FRAME

14. Disconnect the field windings and remove the two drawbolts. Withdraw the two bolts that secure the cradle to the commutator-end frame and remove the frame from the yoke to remove the armature. 15. Remove the bearings from the housings. Collect shims from the d.c. end.

CONTROL UNIT

16. Clean the control unit externally, using Trichloroethane and remove the compression-screw cover plate and the magnet-core-screw cover plate.

EXAMINATION AND REPAIR

GENERAL

17. Examine the dismantled components for damage and corrosion; clean where necessary using air blast.

BRUSHGEAR

- 18. With a Type 'C' insulation resistance tester measure the insulation resistance between the brush holders and the frame. The reading shall be not less than $0\cdot 1$ megohm.
- 19. Examine the d.c. brush springs for corrosion and security of attachment; if a white deposit has formed, clean the springs and work a drop of oil OM-13 into the coils of the springs.
- 20. Measure the brush spring tension with the face of the spring balance level with the top of the brush holder; the reading shall be between 4.75 and 5.75 oz.

ARMATURE

- 21. Examine the armature for signs of overheating, thrown solder or damage and examine the slip-rings for pitting and security of attachment.
- 22. Measure the insulation resistance between the commutator and the shaft and between the slip-rings and the shaft. The reading shall be not less than 0.2 megohm.

BEARINGS

23. Clean the bearings with Trichloroethane and dry using air blast. Lubricate the bearing lightly and rotate by hand to detect any roughness. Do not rotate a dry bearing. If roughness is evident, clean again and if the trouble persists renew the bearing.

LUBRICATION

24. Fill the bearing one third full with grease XG-278 and rotate the bearing to distribute the grease evenly.

CONTROL UNIT

- 25. Examine the terminal block for damage and security of attachment.
- 26. Use a testmeter to ensure that the contact arm of the trimmer resistance makes good contact over the whole range of movement and set the arm in mid-position.

Page 4

Regulator

27. Remove the compression screw of the regulator and examine for damage. Slide the pile washers on to the shaft of a small screwdriver and examine for pitting and burning. If any pile washer needs to be renewed, fit a complete pile stack.

Preliminary mechanical setting

- Unlock the core screw of the regulator and unscrew it until two threads are protruding.
 - (2) Unlock the pile compression screw and turn 'IN' (clockwise) until the pile is fully compressed but do not use undue force or damage to the pile will result.
 - (3) Turn the core screw 'IN' (clockwise) until resistance to further movement is felt. This is the flush or zero gap position of the assembly.
 - (4) Now turn the pile compression screw 'OUT' (counter-clockwise) for three-quarters of a turn and then the core screw 'OUT' one quarter of a turn. Lock both the core screw and the compression screw temporarily to await the procedure for testing (see para. 42).

Breeze plug

29. Examine the breeze plug for corrosion, damage and security of attachment. Lubricate the threads lightly with grease XG-278. If the pins are corroded, clean and then smear lightly with silicone compound.

ASSEMBLY

Bearings

- 30. Fit the bearings into their housings after greasing (as para. 24), replacing shims.
- 31. Fit the outer bearing cap at the a.c. end and lock the securing screws with varnish. Fit the armature into the yoke and fit the commutator-end frame to the yoke with the drawbolts. Secure the cradle to the commutator-end frame with two bolts and reconnect the field windings.

Armature

- 32. Using a new tabwasher, re-assemble the cooling fan into position and refit the commutator-end bearing clamp screw.
- 33. Fit the bearing shim and refit the outer bearing cap at the commutator end, locking the securing screws with varnish. Fit the fan guard, securing with a new circlip if required.

Brushgear

34. If the d. c. brushgear assembly has been moved, refit in the position

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identified during dismantling and fit new brushes.

Inverter

- 35. Thread the leads of the inverter unit through the grommet in the control unit and, after ensuring that the position is correct, secure with four 2. B. A. screws.
- Reconnect the six leads to the terminal block.

Rectifier

37. Refit the rectifier to its mounting, connect the leads to the terminal block and lock the screw and nut with varnish.

TESTING

Setting up

- 38. Connect a 19 to 35V variable d.c. supply to the d.c. input plug with a 0 to 40V voltmeter connected across the d.c. input.
- 39. Connect the testmeter across pin 'A' and pin 'B' of the a.c. output plug and connect the loading panel 5G/565 across pins 'A', 'B' and 'C' of the a.c. output plug.

Brush bedding

- 40. The brushes should be pre-bedded as described in AP113A-0308-1, Servicing Technique No. 2. With supply to the inverter adjusted to 27V, run the inverter on 'no load' until the brushes are bedded in over the entire thickness and at least 80 per cent of their axial width.
 - 41. After satisfactory bedding-in, remove all carbon dust (using air blast) and refit the slip-ring cover, locking it with tie-wire.

Regulator adjustment

- 42. Adjust the voltage of the inverter input supply to 27V and: -
 - (1) Unlock the core screw and the compression screw.
 - (2) Turn the compression screw clockwise until the output voltage rises, then watching the voltmeter, turn the screw counter-clockwise until the output voltage reaches a minimum. Then make a further one-eighth of a turn counter-clockwise and switch 'OFF' the inverter supply.
 - (3) Switch the inverter supply 'ON' and adjust the output voltage to 115V by means of the magnet core screw. Switch 'OFF'.
 - (4) Switch 'ON' and repeat the operation described in (2).
 - (5) With the inverter supply 'ON' ensure that the output voltage is between 119 and 121V; failure to achieve these limits will necessitate the repetition of operations (2) and (3). Switch 'OFF'.
 - (6) Adjust the input supply to 19V and increase the input voltage until

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the output voltage is 115V; ensure that the input voltage is then between 21 and 22.5V.

- (7) Increase the input voltage until the output voltage does not increase any further. Ensure that the output voltage is 119 to 121V and note the reading.
- (8) Increase the input voltage to 32V and ensure that the output voltage is within 0.5V of the output voltage noted in sub-para. (7). Switch 'OFF'.

Inverter

- 43. Adjust the input voltage to 27V, switch 'ON' and ensure that the a.c. voltage is between 119 and 121V inclusive. Ensure that the output frequency is 395 Hz, adjustment to meet this requirement is made by means of the shunt field resistor in the inverter cradle.
- 44. Switch 'ON' full load and ensure that the output voltage does not fall below 115V.
- 45. Switch the load 'OFF' and 'ON' three times during which the frequency shall be between 393 and 397 Hz. If the frequency falls on load, adjust by moving the brushgear in a clockwise direction until the frequency remains stable. Conversely frequency increase on load is adjusted to stability by counter-clockwise movement of the brushgear.
- 46. Adjust the frequency, if necessary, to 395 Hz by means of the shunt field resistor. Switch 'OFF' both the load and inverter supply.
- 47. With input voltage of 32V ensure that the frequency does not exceed 400 Hz and that the a.c. output voltage does not exceed 121V.

Sparking

- 48. Lift each d.c. brush in turn and ensure that sparking is not excessive at the diametrically opposed brush. Switch 'OFF' and disconnect.
- 49. Lock the pile compression screws and the magnet core lock screws with varnish and refit the pile compression cover plate and lock the screws with varnish.

Insulation resistance test

- 50. (1) Disconnect the earth cable from the terminal block and using 250V insulation resistance tester measure the insulation resistance between pin 'A' of the d. c. 2-pole input plug and the frame. The reading shall be not less than 0.5 megohm.
 - (2) Reconnect the earth cable to the terminal block and using 250V insulation resistance tester measure the insulation resistance between pin 'A' of the 3-pole output plug and the frame. The reading shall be not less than 2 megohms.

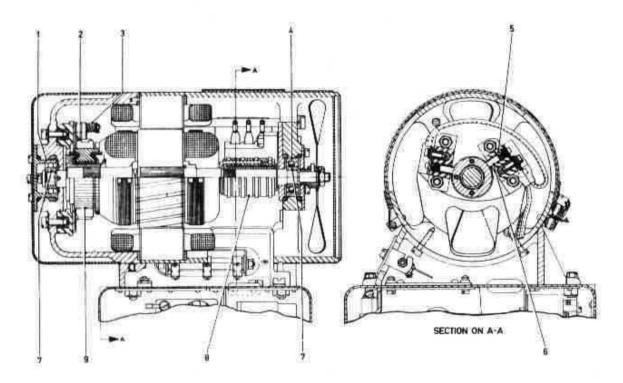


Fig. 1 Diagram of fits and clearances

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TABLE

Schedule of fits, clearances and repair tolerances for

✓ rotary inverters Type 100B and 100D

(all dimensions in inches)

Ref. No.			Design	ng.	Acceptal	Acceptable worn	
in fig. 1	Parts and description (2)	ion	Dimension (3)	Fit (4)	Dimension (5)	Fit (6)	Remarks (7)
	BALLRACE IN COMMUTATO HOUSING Commutator housing i/d	UTATOR i/d	0:86640 0:86590	0.0001	0.8667	0.0001	By selective assembly.
	Ballrace	p/0	0-86615	0.0004	0.8653	9000-0	Renew at each overhaul.
N	Brush length		0. 572 L. S.	8	×	1	Minimum brush length measured from top of long side to arrow head marking = 0.387. Renew at each overhaul.
m	Spring Spring pressure	essure	5.8 4.8 164 136 grm	E .	6	E	Spring pressure is measured when top of short side of brush is level with top of brush box.
•	BALLRACE IN SLIP RING HOUSING Slip ring housing i/	i/d	0.86640	0.0001	0.8667	0.0001	By selective assembly.
	Ballrace	p/o	0.86615	0.0004	0.8653	9000-0	Renew at each overhaul 0-

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Ref. No. in fig. 1 (1)	Parts and description (2)	Design Dimension (3)	Fit (4)	Acceptable worn Dimension Fit (5) (6)	Worn Fit (6)	Remarks (7)
ະທ	BRUSH GEAR A.C. Spring pressure	2.000 oz 21 grm	ir .	Ĭ	ě	With spring retaining pin just released,
×0.	Brush length	0.353	1	×	r	Minimum brush length 0.200 measured from top to arrow head marking. Renew at each overhaul.
	BALLRACE ON ARMATURE SHAFT					
Ĕ.	(Commutator end and slip ring end) Ballrace i/d 0	ig end) 1 0.27570 0.27520	0.0001	0-2760	0.0001	By selective assembly.
	Armature shaft o/	d 0.27545 0.27495	0-0004	0.2746	9000	Renew at each overhaul.
•	ARMATURE AND FAN ASSEMBLY Slip rings o/d 0.	d 0.877 0.873		0.812		Slip rings to be inspected for score or burn marks.
6	ARMATURE AND FAN ASSEMBLY Commutator o/d 1:	EMBLY d 1·380 1·375		1-312		Bar to bar lift 0:0001 max. Total commutator eccentricity not to exceed 0:0008.