



MANUFACTURERS

AIRPLANE MANUFACTURER:

Moravan Aviation Ltd.
765 81 Otrokovice
Czech Republic

Tel.: +420 57 608 3900

Fax.: +420 57 608 3929

ENGINE MANUFACTURER:

TEXTRON Lycoming
Williamsport
Pennsylvania 17701
U.S.A.

PROPELLER MANUFACTURER:

MT - Propeller Entwicklung GmbH
Airport Straubing-Wallmühle
94348 Atting
Germany

PROPELLER GOVERNOR MANUFACTURER:

WOODWARD Governor Company
Rockford, Illinois
U.S.A.

or

AVIA PROPELLER
P.O.Box 22
250 02 Stará Boleslav
Czech Republic

NOSE LANDING GEAR MANUFACTURER:

AXL Ltd.
513 01 Semily
Czech Republic

EFFECTIVITY:

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Z 143 L

AIRPLANE MAINTENANCE MANUAL

MANUAL DESCRIPTION

The **Z 143L AIRPLANE MAINTENANCE MANUAL** complies with GAMA specification providing instruction for preparation and edition of less complicated instruction books for general aviation airplane. The GAMA specification utilizes ATA 100 specification.



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	34-18	1998-06-30	all
	34-19	1998-06-30	all
	34-20	1998-06-30	all
37 - CONTENT	1	2008-03-15	all
	2	1998-06-30	all
37-00-00	37-1	2008-03-15	all
37-10-00	37-2	1998-06-30	all
	37-3	1998-06-30	all
	37-4	1998-06-30	all
	37-5	1998-06-30	all
	37-6	1998-06-30	all
	37-7	1998-06-30	all
	37-8	1998-06-30	all
	37-9	1998-06-30	all
37-11-00	37-10	1998-06-30	all
	37-11	2008-03-15	all
	37-12	1998-06-30	all
	37-13	1998-06-30	all
	37-14	2008-03-15	all
	37-15	2008-03-15	all
	37-16	2008-03-15	all
	37-17	1998-06-30	all
37-12-00	37-18	2008-03-15	all
	37-19	2008-03-15	all
	37-20	2008-03-15	all
	37-21	2008-03-15	all
	37-22	2008-03-15	all
	37-23	2008-03-15	all
	37-24	2008-03-15	all

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57-10-00	57-2	1998-06-30	all
	57-3	1998-06-30	all
	57-4	1998-06-30	all
	57-5	1998-06-30	all
	57-6	1998-06-30	all
	57-7	1998-06-30	all
	57-8	1998-06-30	all
	57-9	1998-06-30	all
	57-10	1998-06-30	all
	57-11	1998-06-30	all
	57-12	1998-06-30	all
57-40-00	57-13	1998-06-30	all
	57-14	1998-06-30	all
	57-15	1998-06-30	all
	57-16	2007-11-20	all
	57-17	2007-11-20	all
	57-18	2007-11-20	all
	57-19	1998-06-30	all
	57-20	1998-06-30	all
	57-21	1998-06-30	all
	57-22	1998-06-30	all
	57-23	1998-06-30	all
	57-24	1998-06-30	all
57-50-00	57-25	1998-06-30	all
	57-26	1998-06-30	all
	57-27	1998-06-30	all
	57-28	1998-06-30	all
	57-29	1998-06-30	all
	57-30	1998-06-30	all
	57-31	1998-06-30	all
	57-32	1998-06-30	all
	57-33	1998-06-30	all
	57-34	1998-06-30	all
	57-35	1998-06-30	all
	57-36	1998-06-30	all
	57-37	1998-06-30	all
	57-38	1998-06-30	all
	57-39	1998-06-30	all
	57-40	1998-06-30	all
61 - OBSAH	1	1998-06-30	all
	2	1998-06-30	all
61-00-00	61-1	1998-06-30	all
61-10-00	61-2	1998-06-30	all
	61-3	1998-06-30	all
61-20-00	61-4	1998-06-30	all
	61-5	1998-06-30	all
	61-6	1998-06-30	all
	61-7	1998-06-30	all
	61-8	1998-06-30	all
	61-9	1998-06-30	all
	61-10	1998-06-30	all
	61-11	1998-06-30	all
	61-12	1998-06-30	all
	61-13	1998-06-30	all
	61-14	1998-06-30	all

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All

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71 - CONTENT	1	1998-06-30	all
	2	1998-06-30	all
71-00-00	71-1	1998-06-30	all
71-10-00	71-2	1998-06-30	all
	71-3	1998-06-30	all
	71-4	1998-06-30	all
	71-5	1998-06-30	all
71-20-00	71-6	1998-06-30	all
	71-7	1998-06-30	all
	71-8	1998-06-30	all
	71-9	1998-06-30	all
	71-10	1998-06-30	all
	71-11	1998-06-30	all
	71-12	1998-06-30	all
71-30-00	71-13	1998-06-30	all
71-60-00	71-14	1998-06-30	all
	71-15	1998-06-30	all
	71-16	1998-06-30	all
72 - CONTENT	1	1998-06-30	all
	2	1998-06-30	all
72-00-00	72-1	1998-06-30	all
72-10-00	72-2	1998-06-30	all
	72-3	1998-06-30	all
	72-4	1998-06-30	all
	72-5	1998-06-30	all
	72-6	1998-06-30	all
	72-7	1998-06-30	all
	72-8	2000-04-20	all
	72-9	1998-06-30	all
	72-10	1998-06-30	all
	72-11	2000-04-20	all
	72-12	1998-06-30	all
74 - CONTENT	1	1998-06-30	all
	2	1998-06-30	all
74-00-00	74-1	1998-06-30	all
74-10-00	74-2	1998-06-30	all
	74-3	1998-06-30	all
	74-4	2001-04-20	all
	74-5	1998-06-30	all
	74-6	2000-04-20	all
75 - CONTENT	1	1998-06-30	all
	2	1998-06-30	all
75-00-00	75-1	1998-06-30	all
75-10-00	75-2	1998-06-30	all
	75-3	1998-06-30	all
	75-4	1998-06-30	all
	75-5	1998-06-30	all
	75-6	1998-06-30	all
	75-7	2008-03-15	all
	75-7A	2007-06-08	all
	75-7B	2007-06-08	all
	75-8	2007-06-08	all
75-20-00	75-9	1998-06-30	all
	75-10	1998-06-30	all

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76 - CONTENT	1	1998-06-30	all
	2	1998-06-30	all
76-00-00	76-1	1998-06-30	all
76-10-00	76-2	1998-06-30	all
	76-3	1998-06-30	all
	76-4	1998-06-30	all
	76-5	1998-06-30	all
	76-6	1998-06-30	all
	76-7	1998-06-30	all
	76-8	1998-06-30	all
	76-9	1998-06-30	all
	76-10	1998-06-30	all
77 - CONTENT	1	2008-03-15	all
	2	1998-06-30	all
77-00-00	77-1	1998-06-30	all
77-10-00	77-2	1998-06-30	all
	77-3	2001-04-20	all
	77-4	1998-06-30	all
77-11-00	77-5	1998-06-30	all
77-12-00	77-6	1998-06-30	all
	77-7	2001-04-20	all
77-13-00	77-8	1998-06-30	all
77-14-00	77-9	2008-03-15	all (if installed)
	77-9A	2008-03-15	all (if installed)
	77-9B	2008-03-15	all
77-20-00	77-10	1998-06-30	all
	77-11	2001-04-20	all
77-21-00	77-12	1998-06-30	all
77-22-00	77-13	1998-06-30	all
77-23-00	77-14	1998-06-30	all
77-24-00	77-15	1998-06-30	all
	77-16	1998-06-30	all
78 - CONTENT	1	1998-06-30	all
	2	1998-06-30	all
78-00-00	78-1	1998-06-30	all
78-10-00	78-2	1998-06-30	all
	78-3	1998-06-30	all
	78-4	1998-06-30	all
	78-5	1998-06-30	all
	78-6	1998-06-30	all
79 - CONTENT	1	1998-06-30	all
	2	1998-06-30	all
79-00-00	79-1	1998-06-30	all
79-20-00	79-2	1998-06-30	all
	79-3	1998-06-30	all
	79-4	1998-06-30	all
	79-5	1998-06-30	all
	79-6	1998-06-30	all
	79-7	1998-06-30	all
79-30-00	79-8	1998-06-30	all

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91 - CONTENT	1	2008-03-15	all
	2	1998-06-30	all
91-00-00	91-1	2001-04-20	all
91-10-00	91-2	2001-04-20	up to S/N 0045 incl.
	91-3	2001-04-20	up to S/N 0045 incl.
	91-2A	2001-04-20	from S/N 0046 incl.
	91-3A	2008-03-15	from S/N 0046 incl.
	91-2B	2001-04-20	from S/N 0046 incl.
	91-3B	2001-04-20	all
91-11-00	91-4	2002-07-09	up to S/N 0052 incl.
	91-5	2002-07-09	up to S/N 0052 incl.
	91-4A	2002-07-09	from S/N 0053 incl.
	91-5A	2002-07-09	from S/N 0053 incl.
91-20-00	91-6	2001-04-20	up to S/N 0045 incl.
	91-7	2001-04-20	up to S/N 0045 incl.
	91-6A	2001-04-20	from S/N 0046 incl.
	91-7A	2001-04-20	from S/N 0046 incl.
91-30-00	91-8	2001-04-20	up to S/N 0045 incl.
	91-9	2001-04-20	up to S/N 0045 incl.
	91-8A	2001-04-20	from S/N 0046 incl.
	91-9A	2002-07-09	from S/N 0046 incl.
	91-10	2001-04-20	from S/N 0046 incl.
	91-11	2001-04-20	from S/N 0046 incl.
91-31-00	91-12	2001-04-20	up to S/N 0006 (except GFR) and for S/N 0009
	91-12A	2001-04-20	for GFR and from S/N 0007 (except S/N 0009) to S/N 0045 incl.
	91-12B	2001-04-20	from S/N 0046 incl.
	91-13	2001-04-20	all
91-40-00	91-14	2001-04-20	up to S/N 0006 (except GFR) and for S/N 0009
	91-15	2001-04-20	up to S/N 0006 (except GFR) and for S/N 0009
	91-14A	2001-04-20	for GFR and from S/N 0007 (except S/N 0009) to S/N 0045 incl.
	91-15A	2001-04-20	for GFR and from S/N 0007 (except S/N 0009) to S/N 0045 incl.
	91-14B	2001-04-20	from S/N 0046 incl.
	91-15B	2002-07-09	from S/N 0046 incl.
91-41-00	91-16	2001-04-20	all
91-42-00	91-17	2001-04-20	up to S/N 0006 (except GFR) and for S/N 0009
91-50-00	91-18	2001-04-20	up to S/N 0045 incl.
91-42-00	91-17A	2001-04-20	for GFR and from S/N 0007 (except S/N 0009)
91-50-00	91-18A	2001-04-20	from S/N 0046 incl.
91-51-00	91-19	2001-04-20	all
91-60-00	91-20	2001-04-20	from S/N 0046 incl.
	91-21	2001-04-20	from S/N 0046 incl.
91-70-00	91-22	2001-04-20	up to S/N 0006 (except GFR) and for S/N 0009
	91-23	2001-04-20	up to S/N 0006 (except GFR) and for S/N 0009
	91-22A	2001-04-20	for GFR and from S/N 0007 (except S/N 0009) to S/N 0045 incl.
	91-23A	2001-04-20	for GFR and from S/N 0007 (except S/N 0009) to S/N 0045 incl.
	91-22B	2001-04-20	from S/N 0046 incl.
	91-23B	2001-04-20	from S/N 0046 incl.
	91-22C	2008-03-15	from S/N 0046 incl.
	91-23C	2008-03-15	from S/N 0046 incl.
91-80-00	91-24	2001-04-20	up to S/N 0006 (except S/N 0003 and GFR) and for S/N 0009
	91-25	2001-04-20	up to S/N 0006 (except S/N 0003 and GFR) and for S/N 0009
	91-24A	2001-04-20	from S/N 0007 to S/N 0022 (except S/N 0009 and GFR)
	91-25A	2001-04-20	from S/N 0007 to S/N 0022 (except S/N 0009 and GFR)
	91-24B	2001-04-20	up to S/N 0022 for GFR
	91-25B	2001-04-20	up to S/N 0022 for GFR
	91-24C	2001-04-20	S/N 0003 and from S/N 0023 (except GFR) to S/N 0045 incl.
	91-25C	2001-04-20	S/N 0003 and from S/N 0023 (except GFR) to S/N 0045 incl.

EFFECTIVITY:

All

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91-80-00	91-24D	2001-04-20	from S/N 0023 for GFR to S/N 0045 incl.
	91-25D	2001-04-20	from S/N 0023 for GFR to S/N 0045 incl.
	91-24E	2002-07-09	from S/N 0046 incl. to S/N 0052 incl.
	91-25E	2002-07-09	from S/N 0046 incl. to S/N 0052 incl.
	91-24F	2002-07-09	from S/N 0053 for GFR
	91-25F	2002-07-09	from S/N 0053 for GFR
	91-24G	2002-07-09	from S/N 0053 except GFR
	91-25G	2002-07-09	from S/N 0053 except GFR
91-81-00	91-26	2001-04-20	up to S/N 0045 incl.
91-82-00	91-27	2001-04-20	up to S/N 0045 incl.
91-81-00	91-26A	2001-04-20	from S/N 0046 incl.
91-82-00	91-27A	2001-04-20	from S/N 0046 incl.
91-83-00	91-28	2008-03-15	all (if installed)

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AIRPLANE MAINTENANCE MANUAL

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LIST OF ALTERATIONS

No. of alteration	Reason of ALTERATION	Altered pages		Date of issue	Date of introduction of alteration
		Chapter/ Section/ Subsection/ Item	Page		
6.	On condition operation for nose landing gear type 793-HPK-185-19, 793-HPK-185-19-7	01-00-00 01-50-00 01-62-00 04-10-00 05-22-00 12-10-00 32-20-00	01-1 01-11; 01-12; 01-14; 01-18 01-35; 01-36 04-2 05-17; 05-18; 05-22; 05-23 12-2; 12-3; 12-4 32-16; 32-17; 32-22; 32-23; 32-24	2003-11-20	
7.	Permission of six-turn spins performance in utility category (apply for all aircraft, except aircraft operated in GFR)	01-50-00 01-62-00 11-30-00	01-11; 01-13 01-35 11-13; 11-14	2004-05-18	
8.	Revision of operation on condition of the nose landing gear type 793-HPK-185-19, 793-HPK-185-19-7.	01-50-00 01-62-00 05-22-00	01-11; 01-12 01-35 05-17; 05-18	2005-01-14	
9.	Check of cleanness of carburettor heating system	01-50-00 01-62-00 05-22-00 75-10-00	01-11; 01-12; 01-24 01-35 05-28 75-7; 75-7A; 75-7B; 75-8	2007-06-08	
10.	Formal arrangements of accompanying documentation - implementation of requirements detected in aircraft operation	01-20-00 01-50-00 01-62-00 04-10-00 05-22-00 10-00-00 11-30-00 24-32-00 24-50-00 27-10-00 32-41-00 32-42-00 34-00-00 51-12-00 55-20-00 57-40-00	Title; 01-3 01-11; 01-12; 01-13; 01-15; 01-16; 01-19; 01-20; 01-21; 01-22; 01-23 01-35 04-2 05-20 10-1 11-13 24-10 24-19 27-15 32-36; 32-37; 32-39; 32-40; 32-41; 32-41a; 32-41b; 32-48; 32-51 34-1 51-4 55-20 57-16; 57-17; 57-18	2007-11-20	
11.	Design modifications; formal adaptations	01-20-00 01-50-00	01-3 01-11; 01-13; 01-14; 01-15; 01-18; 01-20; 01-24; 01-25; 01-26; 01-26A; 01-35; 01-36	2008-03-15	

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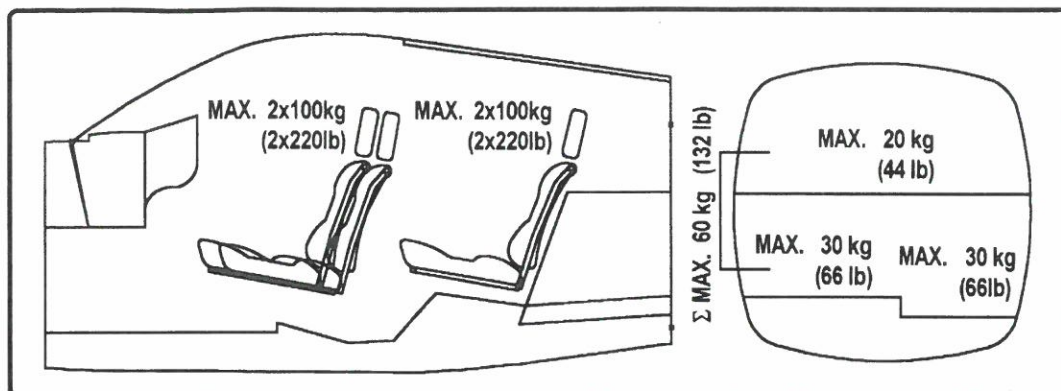
2008-03-15

01-62-00

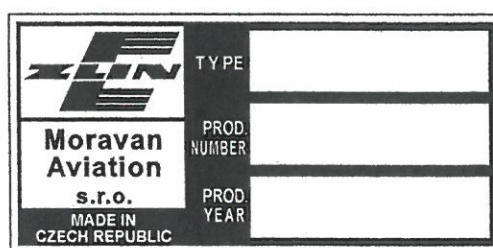
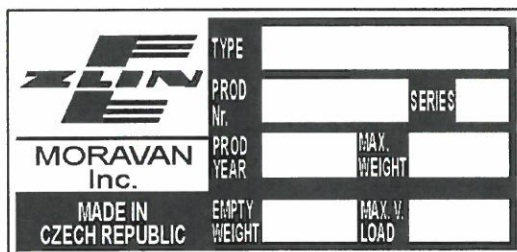
LIST OF ALTERATIONS

No. of alteration	Reason of ALTERATION	Altered pages		Date of issue	Date of introduction of alteration
		Chapter/ Section/ Subsection/ Item	Page		
11.	Design modifications; formal adaptations	11-30-00 20-22-00 24-50-00 31-50-00 37-CONTENTS 37-00-00 37-11-00 37-12-00 75-10-00 77-CONTENTS 77-14-00 91-CONTENTS 91-10-00 91-70-00 91-83-00	11-14 20-6 24-17 31-14 page 1 37-1 37-11; 37-14; 37-15; 37-16 37-18; 37-19; 37-20; 37-21; 37-22; 37-23; 37-24 75-7 page 1 77-9; 77-9A; 77-9B page 1 91-3A 91-22C; 91-23C 91-28	2008-03-15	

- c) Placard in cargo bay upon the access door:



- d) Manufacturer label (original or new) upon left floor of upper cargo bay:



- 7) Placards upon sliding cockpit canopy:

- a) Placard in pilot's sight of view:

THIS AIRPLANE MUST BE OPERATED IN COMPLIANCE WITH OPERATING LIMITATIONS STATED IN THE PLACARDS AND IN THE AIRPLANE FLIGHT MANUAL.

EXCEPT AS MAY BE OTHERWISE INDICATED ON A PLACARD THE MARKINGS AND PLACARDS INSTALLED IN THIS AIRPLANE CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THE UTILITY CATEGORY. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS AIRPLANE IN THIS CATEGORY OR IN THE NORMAL CATEGORY ARE CONTAINED IN THE AIRPLANE FLIGHT MANUAL.

DESIGN MANEUVERING SPEED V_A IAS	121 knots (224 km/h)
FOR TAKE-OFF WEIGHT	1080 kg (2380 lbs)

INTENTIONAL SPINS WITH WING FLAPS EXTENDED ARE PROHIBITED.

RECOVERY FROM SPINS:

- 1. APPLY FULL RUDDER OPPOSITE TO THE DIRECTION OF ROTATION.**
- 2. CONTROL STICK - PUSH.**

APPROVED ACROBATIC MANEUVERES AND RECOMMENDED ENTRY SPEEDS (IAS)

	knots	km/h
STEEP TURN (ANGLE OF BANK >60°, max. 90°)	min 108	(200)
LAZY EIGHT (ANGLE OF BANK >60°, max. 90°)	min 119	(220)
CHANDELLE (ANGLE OF BANK >60°, max. 90°)	min 119	(220)
SPIN	67	(125)

THE AIRPLANE MAY BE OPERATED IN FOLLOWING KINDS OF OPERATION, WHEN THE APPROPRIATE EQUIPMENT IS INSTALLED AND OPERABLE.

- 1. VFR DAY**
- 2. VFR NIGHT**
- 3. IFR**

FLIGHT INTO KNOWN ICING CONDITIONS IS PROHIBITED.

EFFECTIVITY:

All

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or (airplane registered in GFR)

DIESES FLUGZEUG MUß UNTER EINHALTUNG DER AUF DEN SCHILDERN UND IM FLUGHANDBUCH ANGEgebenEN BETRIEBSGRENZEN BETRIEBEN WERDEN.		
FALLS AUF DEN SCHILDERN NICHT ANDERS ANGEgebenEN, BEINHALTEN DIE IN DIESEM FLUGZEUG ANGEBRACHTEN MARKIERUNGEN UND SCHILDER BETRIEBSGRENZEN, DIE BEI BETRIEB DIESES FLUGZEUGS IN DER KATEGORIE NUTZFLUG (U) EINZUHALTEN SIND. ANDERE GRENZEN, DIE IN DIESER KATEGORIE ODER IN DER KATEGORIE NORMAL (N) EINGEHALTEN WERDEN MÜSSEN, SIND DEM FLUGHANDBUCH ZU ENTNEHMEN.		
MANÖVERGESCHWINDIGKEIT v_A IAS FÜR STARTGEWICHT	121 kt (224 km/h) 1080 kg	
ABSICHTLICHES TRUDELN MIT AUSGEFAHRENEN LANDEKLAPPEN IST VERBOTEN.		
TRUDELN AUSLEITEN: 1. SEITENRUDERPEDAL-VOLL ENTGEGEN DER DREHRICHTUNG 2. STEUERKNÜPPEL-DRÜCKEN		
GENEHMIGTE MANÖVER IN DER KATEGORIE NUTZFLUG (U) UND EMPFOHLENE EINTRITTSGESCHWINDIGKEITEN (IAS)		
	kt	km/h
STEILKURVE (NEIGUNGSWINKEL $>60^\circ$, max. 90°)	min. 108	200
LAZY EIGHT (NEIGUNGSWINKEL $>60^\circ$, max. 90°)	min. 119	220
CHANDELLE (NEIGUNGSWINKEL $>60^\circ$, max. 90°)	min. 119	220
TRUDELN	67	125
DIESES FLUGZEUG KANN IN DEN FOLGENDEN BETRIEBSARTEN BETRIEBEN WERDEN, WENN ES ENTSPRECHEND AUSGERÜSTET UND BETRIEBBEREIT IST.		
1. VFR TAG 2. VFR NACHT 3. IFR		
FLIEGEN UNTER BEKANNTEN VEREISUNGSBEDINGUNGEN IST VERBOTEN.		



REPLACEMENT OF ARTICULATED BEARINGS WITH BORDERING BUSHINGS

The articulated bearings with bordering bushings are used in aft wing mount (Fig. 57–8, items 9, 11), and in nose landing gear mounts (Fig. 32–10, items 7, 11, 13, 17).

In order that the radial allowance of bordering bushings may be maintained it is necessary to replace bordering bushing together with articulated bearing.

Hints for replacement of articulated bearings with bordering bushings:

- a) Remove faulty articulated bearing:
 - Grind off the locking border of bushing (Fig. 20–1, item A);
 - Press the articulated bearing with bordering bushing from the hole (item B);
- b) Installation of new articulated bearing:
 - Ream, if needed, the holes with excessive diameter for bordering bushing in nose landing gear leg;
 - Press articulated bearing (1) with bordering bushing (2) into the hole (item C).

NOTE

The aft wing mount is provided with Z 42.21 13–01.03 bordering bushing and nose landing gear leg uses bushings listed in section 32–20–00 (APPROVED REPAIRS).

- Border the bordering bushing (item D).

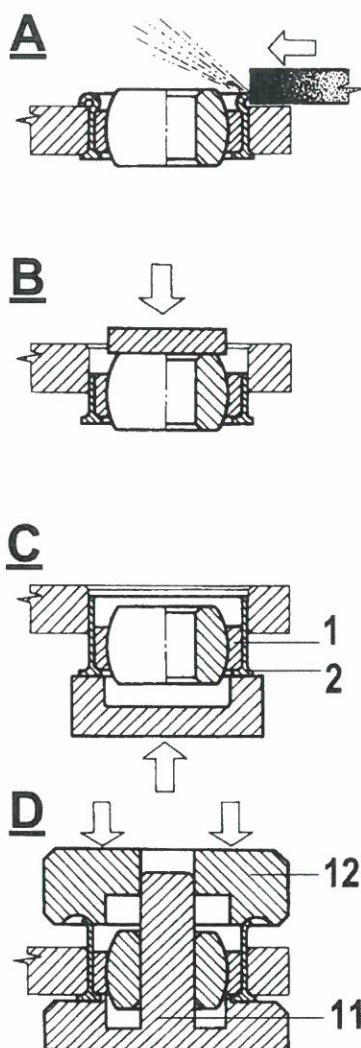
Recommendation

The bordering of bordered bushing may be made by 31–Z42–3052 pressing fixture. Insert pin (11) into the hole. Border the bordering bushing gradually with three stepped nuts (12).

- c) Check shape and dimensions of locking border of bushing (Fig. 20–2).
- d) Check state and serviceability of bushing:
 - No scratches or cracks may be detected in the spot of bordering;
 - The articulated bearing should revolve lightly and continuously. Make the articulated bearing freely movable in internal bearing ring by means of mandrel while lubricating the bearing with mixture of oil with 10 % MOLYCOTE additive. Clean bearing with degreasing agent and grease it properly after repair.
- e) Check resistance to motion when deflecting the articulated bearing (Fig. 30–3).
 - Act upon arm $l = 50 \text{ mm}$ (2 in) by $P = 3 \text{ N}$ (0.6 lbf) force;
 - Check if the deflection of arm axis is at least 5° from the mean position. In case it is necessary to release the articulated bearing it is possible to use lapping paste to release internal ring. Clean lapping paste thoroughly if used.

EFFECTIVITY:

All



A ... Grinding the border of bearing off

B ... Pressing the articulated bearing with bordering bushing out

C ... Pressing the articulated bearing with bordering bushing in

D ... Bordering

1 ... Articulated bearing

2 ... Bordering bushing

Recommended fixture:

11 ... Pin } 33-Z42-1895 pressing fixture
12 ... Matrix }

Fig. 20-1 Replacement of Articulated Bearing with Bordering Bushing

BOARD ELECTRIC NETWORK

DESCRIPTION AND OPERATION

The board electric network consists of individual electric circuit connected to main bus bar via pertinent switches - circuit breakers.

Marking of individual circuits:

- A - Alternator, GPU receptacle, board battery, and VA meter
- B - Engine starting
- C - Illumination
- D - Annunciation
- E - Anti-collision beacon
- F - Radio communication and radio navigation equipment
- L - Turn-and-bank indicator, artificial horizon (attitude indicator), directional gyro
- M - Engine instruments, fuel quantity gauges

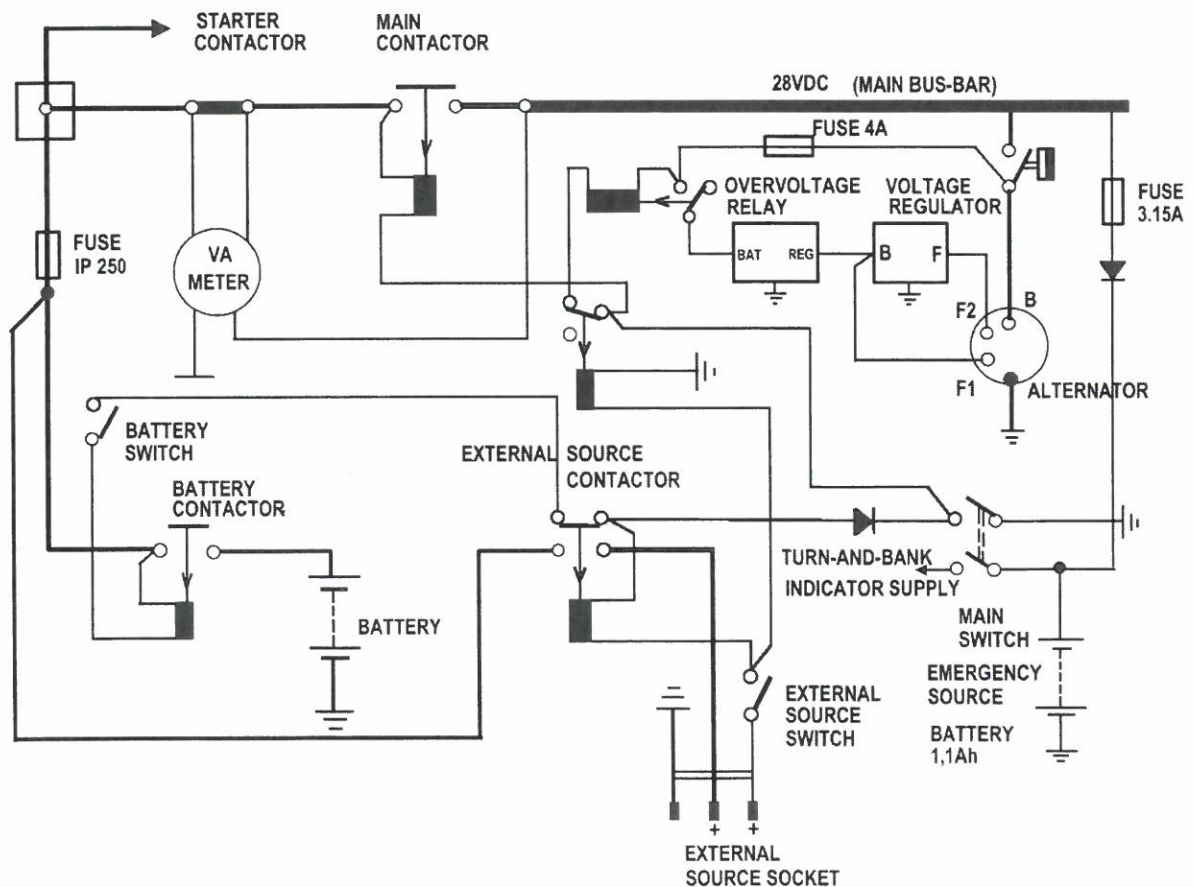


Fig. 24-5 Simplified Diagram of Airplane Power Sources

EFFECTIVITY:
up to S/N 0045 including

24-50-00

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BOARD ELECTRIC NETWORK

DESCRIPTION AND OPERATION

The board electric network consists of individual electric circuit connected to main bus bar via pertinent switches - circuit breakers.

Marking of individual circuits:

- A - Alternator, GPU receptacle, board battery, and VA meter
- B - Engine starting
- C - Illumination
- D - Annunciation
- E - Anti-collision beacon
- F - Radio communication and radio navigation equipment
- L - Turn-and-bank indicator, artificial horizon (attitude indicator), directional gyro
- M - Engine instruments, fuel quantity gauges

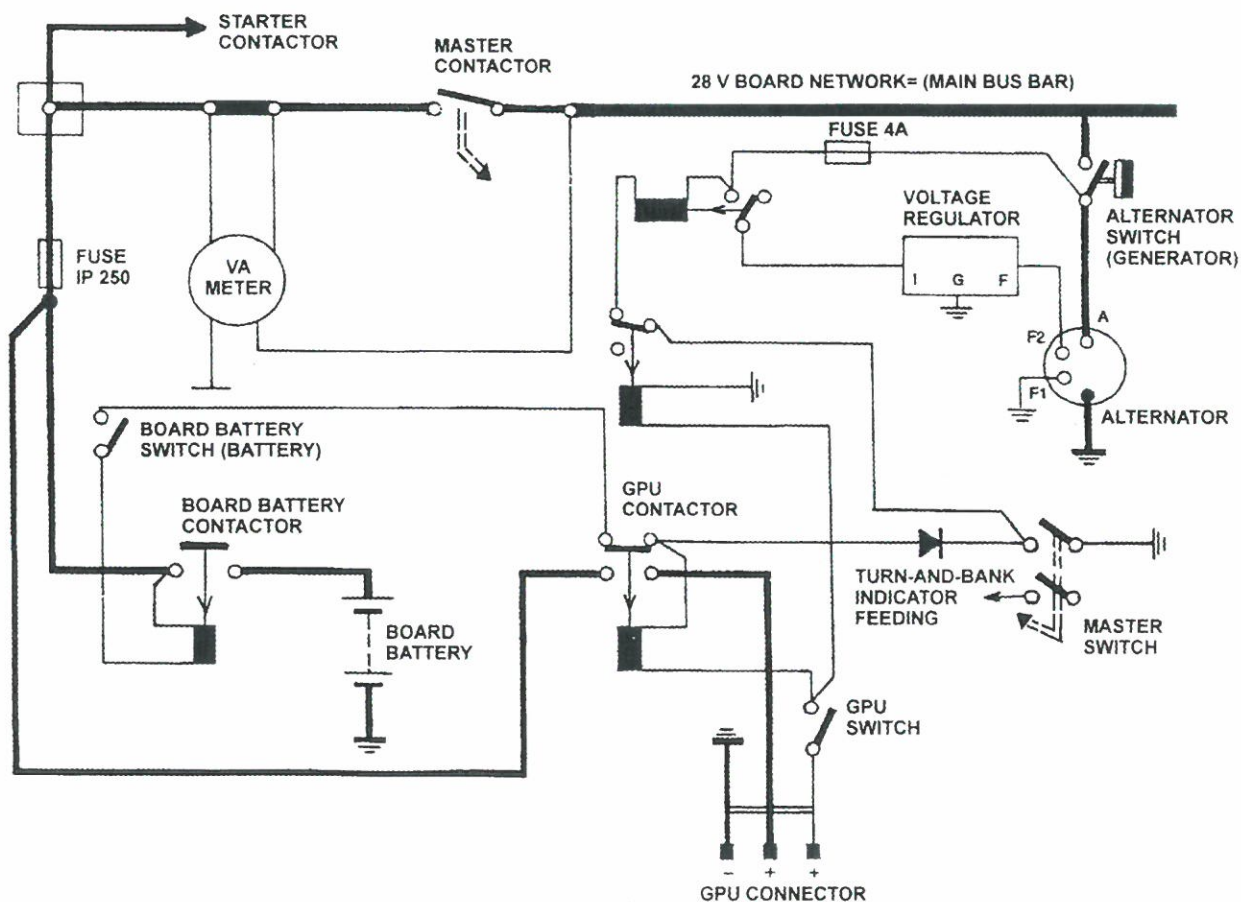


Fig. 24-5 Simplified Diagram of Airplane Power Sources

LIGHT ANNUNCIATION PANEL

DESCRIPTION AND OPERATION

The light annunciation panel is in middle instrument panel. Above the light annunciation panel there is tiltable glare shield that permits, if needed, to dim the intensity of annunciation lights. The light annunciation test push button is at the light annunciation panel.

The wiring diagram of light annunciation panel is issued in subsection 91-42-00.

Outer appearance of The Light Annunciation Panel:

L FUEL LOW LEVEL	R FUEL LOW LEVEL	GENERATOR	EXT. POW. SOURCE
OIL PRESSURE LOSS	STALL. WARN. INACTIVE	PITOT HEATING	STATIC HEATING

The aircraft registered in FRG use instead of **STALL. WARN. INACTIVE** the annunciator:

P/Ü/S - HEIZ. STÖRUNG

Meaning of light annunciators:

L FUEL LOW LEVEL (amber)	- Remainder of usable fuel in port tank;
R FUEL LOW LEVEL (amber)	- Remainder of usable fuel in starboard tank;
GENERATOR (amber)	- Drop of alternator voltage below 26.2 V;
EXT. POW. SOURCE (amber)	- Ground power unit connected and switched on;
OIL PRESSURE LOSS (red)	- Oil pressure less than 170 kPa (25 p.s.i.);
STALL. WARN. INACTIVE (white)	- Weight-on-wheel micro-switch disconnected stall warning system;
P/Ü/S - HEIZ. STÖRUNG (amber)	- Pitot head, and/or stall warning sensor, and/or static vent heating unserviceable;
PITOT HEATING (green)	- Pitot head, and/or stall warning sensor heating unserviceable;
STATIC HEATING (green)	- Static vent heating unserviceable.

EFFECTIVITY:

All

31-50-00

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MAINTENANCE

INSPECTION AND CHECK

CHECK OF SERVICEABILITY OF LIGHT ANNUNCIATION

- a) Turn Master, **BATTERY**, **ENGINE INSTR.**, and **FLIGHT INSTR.** switches on. The **STALL WARN. INACTIVE**, **GENERATOR**, and **OIL PRESS. LOSS** annunciators should be lit in the Light Annunciation Panel.

NOTE

The airplane registered in GFR are without independent **STALL WARN. INACTIVE** annunciator.

- b) Turn **PITOT HEATING** switch on and the **PITOT HEATING** annunciator in the Light Annunciation Panel should be lit.

NOTE

In case the **PITOT HEATING** (GFR airplane **P/Ü/S - HEIZ. STÖRUNG** is lit) annunciator is not lit either the pitot or stall warning heating circuits are faulty. The actual state of these sensors should be checked by finger touch.

The **PITOT HEATING** switch should be turned off immediately after heating check (max. 1 minute).

- c) Turn **STATIC HEATING** switch on and the **STATIC HEATING** annunciator in the Light Annunciation Panel should be lit.

NOTE

In case the **STATIC HEATING** (GFR airplane **P/Ü/S - HEIZ. STÖRUNG** is lit) annunciator is not lit any of two static vent heating circuits is faulty. The actual state of these sensors should be checked by finger touch.

The **STATIC HEATING** switch should be turned off immediately after heating check (max. 1 minute).

- d) Press **SIGNALLING CHECK** push button and audio warning signal should be heard and all the annunciation lights in the Annunciation Light Panel should be lit.



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EFFECTIVITY: All



GENERAL

The airplane may be optionally equipped with vacuum-drive gyro instruments as artificial horizon and directional gyro (section 37-10-00) or vacuum-driven artificial horizon only (section 37-11-00) or vacuum-drive directional gyro only (section 37-12-00). The source of vacuum for instrument driving is the engine driven vacuum pump.

EFFECTIVITY: All

37-00-00

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VACUUM – DRIVEN GYRO INSTRUMENTS

(optional)

DESCRIPTION AND OPERATION

The power source of vacuum driven gyro instruments (Fig. 37–1; item 1;2) is the engine driven vacuum pump (3) that is screwed to aft engine side upon vacuum pump drive pad (11).

The air sucked through vacuum filter (4), being fixed to console (5) in left instrument panel, passes through vacuum – driven artificial horizon (1), directional gyro (2), vacuum governor (6), and vacuum pump (3).

The vacuum pressure gauge (7) indicates difference of pressure in front of and behind the vacuum – driven gyro instruments. This difference, as the vacuum filter (4) clogs, gradually drops and vacuum indicator (7) indicates smaller value. The adjustment of vacuum to operational value is made by vacuum governor (6) that is located upon firewall (12) under the cover of instrument panel.



VACUUM-DRIVEN ARTIFICIAL HORIZON

(optional)

DESCRIPTION AND OPERATION

The source of underpressure for vacuum driven artificial horizon (Fig. 37-3, item 1) is the engine driven vacuum pump (2) that is fixed to vacuum pump drive pad (10) upon the upper aft engine side.

The air is sucked through vacuum filter (4) fixed to console (7) upon the left instrument panel, and passes through vacuum driven artificial horizon (1), vacuum filter (3), and vacuum pump (2).

The vacuum indicator (5) indicates pressure difference upstream and downstream of artificial horizon (1). This pressure difference indicated by vacuum indicator (5) gradually decreases as the filter element (4) clogs. The underpressure adjustment to operating value is carried out by vacuum governor (3) that is located upon the firewall (11) under the cover of instrument panel.

EFFECTIVITY: All

37-11-00

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Installation Diagram

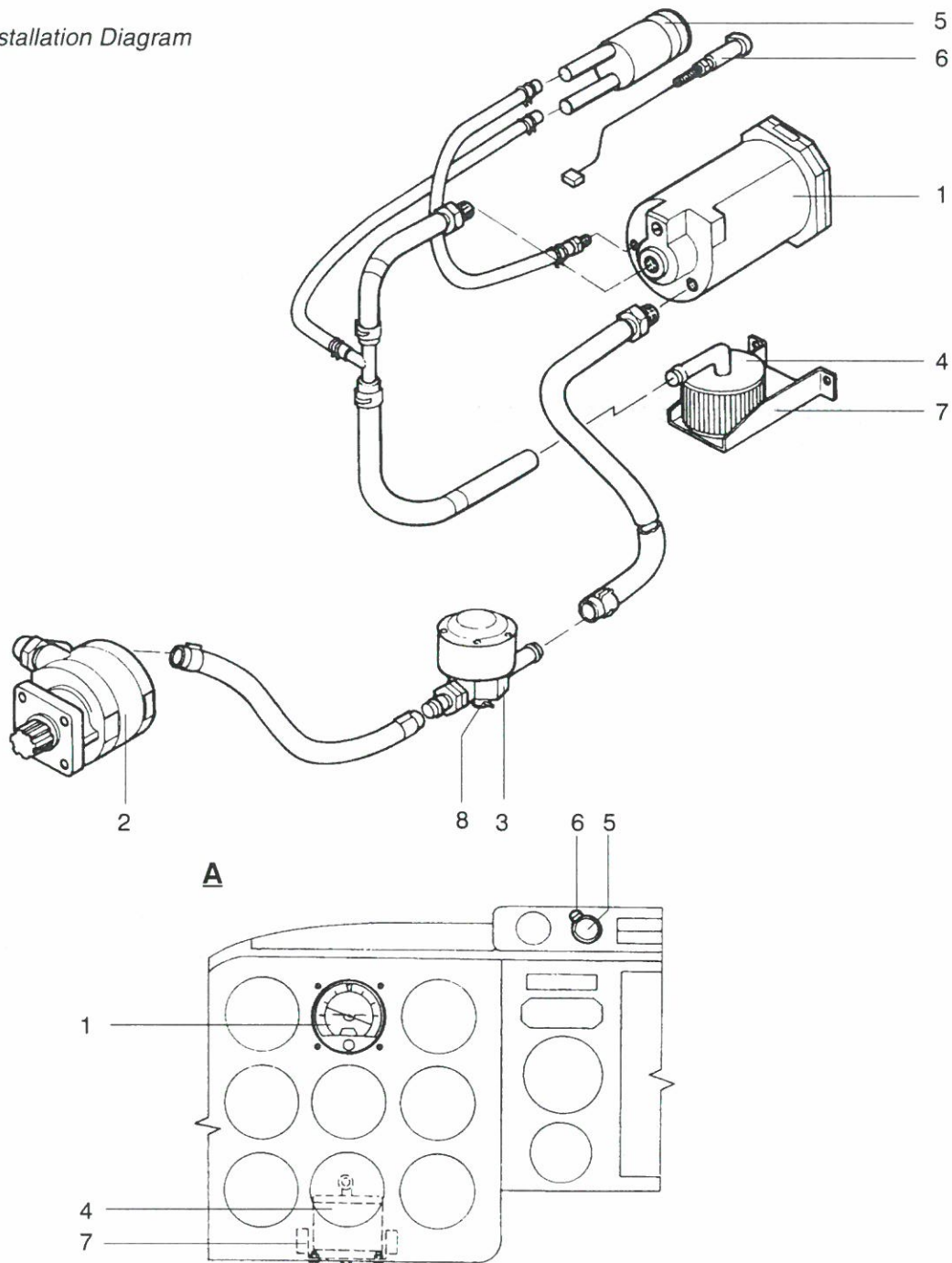
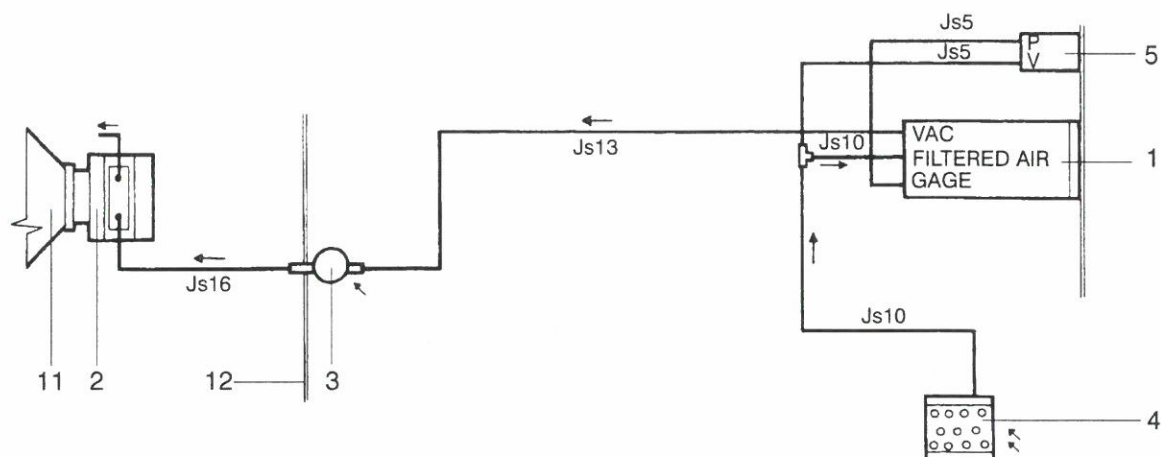


Fig. 37-3. Vacuum Driven Artificial Horizon
(page 1 of 2)

Diagram of Operation



A . . . Location of vacuum driven artificial horizon in instrument panel

- 1 . . . Vacuum drive artificial horizon
- 2 . . . Vacuum pump
- 3 . . . Vacuum governor with filter element
- 4 . . . Vacuum filter
- 5 . . . Vacuum indicator
- 6 . . . Vacuum indicator illumination
- 7 . . . Console
- 8 . . . Adjusting screw

For information only:

- 11 . . . Lycoming vacuum drive pad
- 12 . . . Firewall

Fig. 37-3. Vacuum Driven Artificial Horizon
(page 2 of 2)

EFFECTIVITY:

All



MAINTENANCE

REMOVAL AND INSTALLATION

REMOVAL OF VACUUM SYSTEM

Preparatory Works

- a) Tilt out the left instrument panel (section 31-10-00).
- b) Release fixing straps of conductor harness behind left instrument panel to enable access to vacuum filter (Fig. 37-3, item 4).

Removal of Vacuum Filter

- a) Unscrew vacuum filter fixing nut (4) upon the bottom of filter fixing the filter to console (7).
- b) Remove vacuum filter (4) from the console (7). Remove hose fixing clips and pull the hose from the filter port.

INSTALLATION OF VACUUM SYSTEM

Installation Demands

CAUTION

PREVENT ACCESS OF OIL AND GREASE (FAT) INTO THE VACUUM SYSTEM AS IT MAY DAMAGE THE VACUUM PUMP (FIG. 37-3, ITEM 2).

- a) Blow the vacuum system hoses with compressed air before their installation. The hoses should not be flattened in bends.
- b) Make threaded pipe couplings tight by Teflon stripe. Make sure no remnants of Teflon stripe enter the vacuum system hoses or instruments.

NOTE

Remove all the remnants of Teflon sealing stripe before assembly or installation and use new Teflon sealing stripe.

- c) Tighten all the pipe couplings with maximum 2 Nm (1.5 lbf.ft) torque.
- d) Make vacuum system serviceability check after any installation.

Installation of Vacuum Filter

- a) Remove plug from the vacuum filter port.
- b) Insert hose upon the vacuum filter port (4) and fix it with clip.
- c) Fit vacuum filter (4) to the console (7) and fix it with nut and washer upon the filter bottom.

Final Works

- a) Fix the conductor harness with fixing stripes behind the left instrument panel.
- b) Tilt back the left instrument panel (section 31-10-00).
- c) Adjust vacuum governor (3) as follows:
 - Adjust pressure, when the engine runs in 1500 RPM, indicated by vacuum indicator (5) to the 2/3 of instrument green scale sector;
 - Make sure at engine take-off run the indicated pressure has not exceeded the green upper limit;
 - Lock adjusting screw of vacuum governor.



INSPECTION AND CHECK

SERVICEABILITY CHECK OF VACUUM SYSTEM

1. Serviceability Check of Vacuum System without Use of Tester

- a) Check reading of vacuum pressure gauge (Fig. 37-3, item 5) at engine 1500 RPM-the pointer of instrument should point to 2/3 of green scale segment. Adjust vacuum if necessary by adjusting screw (8) of vacuum governor (3).
- b) Make sure the vacuum magnitude does not exceed at the engine take-off fun the upper limits of gauge green scale.
- c) Lock adjusting screw by bending the tab washers.

2. Serviceability Check of Vacuum System with VACUUM TEST KIT

NOTE

The detailed data on tester are issued in 343 Test Kit Instruction Manual for Pneumatic/Vacuum systems and in Maintenance Instruction Manual.

Procedure of Test:

- a) Remove upper and side engine cowlings (section 71-10-00, REMOVAL AND INSTALLATION).
- b) Place tester upon engine mount structure.
- c) Uncouple the hose (Fig. 37-2, item 12) of airplane vacuum system from the vacuum pump (11) and join it to the ejector (1).
- d) Shut the shut-off valve (6) by moving the slider controller (7) to the very end in the direction to governor.
- e) Shut the governor (5) by turning the adjusting screw (4) anti-clockwise.
- f) Join source of pressure air to the inlet port of governor (5).
- g) Open the supply of pressure air to the tester.
- h) Move slider controller (7) of shut-off valve to OPEN position to the very end in the direction to governor.
- i) Turn the adjusting screw (4) of governor (5) clockwise until the pointer of vacuum pressure gauge (2) of ejector stops moving. At this moment turn the adjusting screw twice more time round.
- j) Adjust pressure in vacuum system of airplane by adjusting screw (Fig. 37-3, item 8) of vacuum governor (3) so that the pointer of vacuum pressure gauge (5) may shows 2/3 of green scale segment.
- k) Check if the warning flag of vacuum driven artificial horizon disappears.



- l) Check reading of vacuum pressure gauge (Fig. 37-2, item 2) that is coupled to ejector. The magnitude of indicated vacuum read at this gauge may be greater for 1.5 in. hg than that indicated by vacuum pressure gauge of airplane vacuum system (Fig. 37-3, item 5).

Example:

If the pointer of airplane vacuum pressure gauge indicates 5 inches Hg than the vacuum indicated by vacuum pressure gauge coupled to ejector should not show more than 6.5 inches Hg. In case the indicated data are out of permitted allowance it is necessary to check free passage of airplane vacuum system. Some hose of system may be clogged or bent. remove detected fault.

- m) Shut supply of air pressure to tester.
- n) Check if the warning flag of vacuum driven artificial horizon (attitude indicator) is extended after gyroscope coast down, i.e. after 2 minutes since the moment of pressure supply shutting.
- o) Lock vacuum adjusting screw (Fig. 37-3, item 8) of vacuum governor (3) by tab washer.
- p) Install engine cowlings (section 71-10-00, REMOVAL AND INSTALLATION).

APPROVED REPAIRS

REPAIR OF VACUUM SYSTEM

Fault	Remedy
1) Hoses a) Damage; b) Expired rubber hoses (section 05-10-00).	Replace damaged or expired hoses.
2) The pressure indicated by vacuum indicator is below green lower limit, i.e. below 4,5 in Hg.	Adjust vacuum governor (Fig. 37-3, item 3) – see REMOVAL AND INSTALLATION. In case the adjustment of vacuum governor is impossible it is necessary to replace filter elements of vacuum governor and vacuum filter (4). Adjust vacuum governor.

Replacement of Filter Element of Vacuum Governor:

Pull the original filter element off from vacuum governor and insert new B 3-5-1 filter element instead.

Recommendation

Release fixing nut upon the vacuum governor port on the front side of firewall and slide the vacuum governor into the cockpit to make the filter element replacement simpler. Tighten the fixing nut after filter element replacement.

EFFECTIVITY:

All



VACUUM-DRIVEN DIRECTIONAL GYRO

(optional)

DESCRIPTION AND OPERATION

The source of underpressure for vacuum driven directional gyro (Fig. 37-4, item 1) is the engine driven vacuum pump (2) that is fixed to vacuum pump drive pad (10) upon the upper aft engine side.

The air is sucked through vacuum filter (4) fixed to console (7) upon the left instrument panel, and passes through vacuum driven directional gyro (1), vacuum filter (3), and vacuum pump (2).

The vacuum indicator (5) indicates pressure difference upstream and downstream of directional gyro (1). This pressure difference indicated by vacuum indicator (5) gradually decreases as the filter element (4) clogs. The underpressure adjustment to operating value is carried out by vacuum governor (3) that is located upon the firewall (11) under the cover of instrument panel.

Installation Diagram

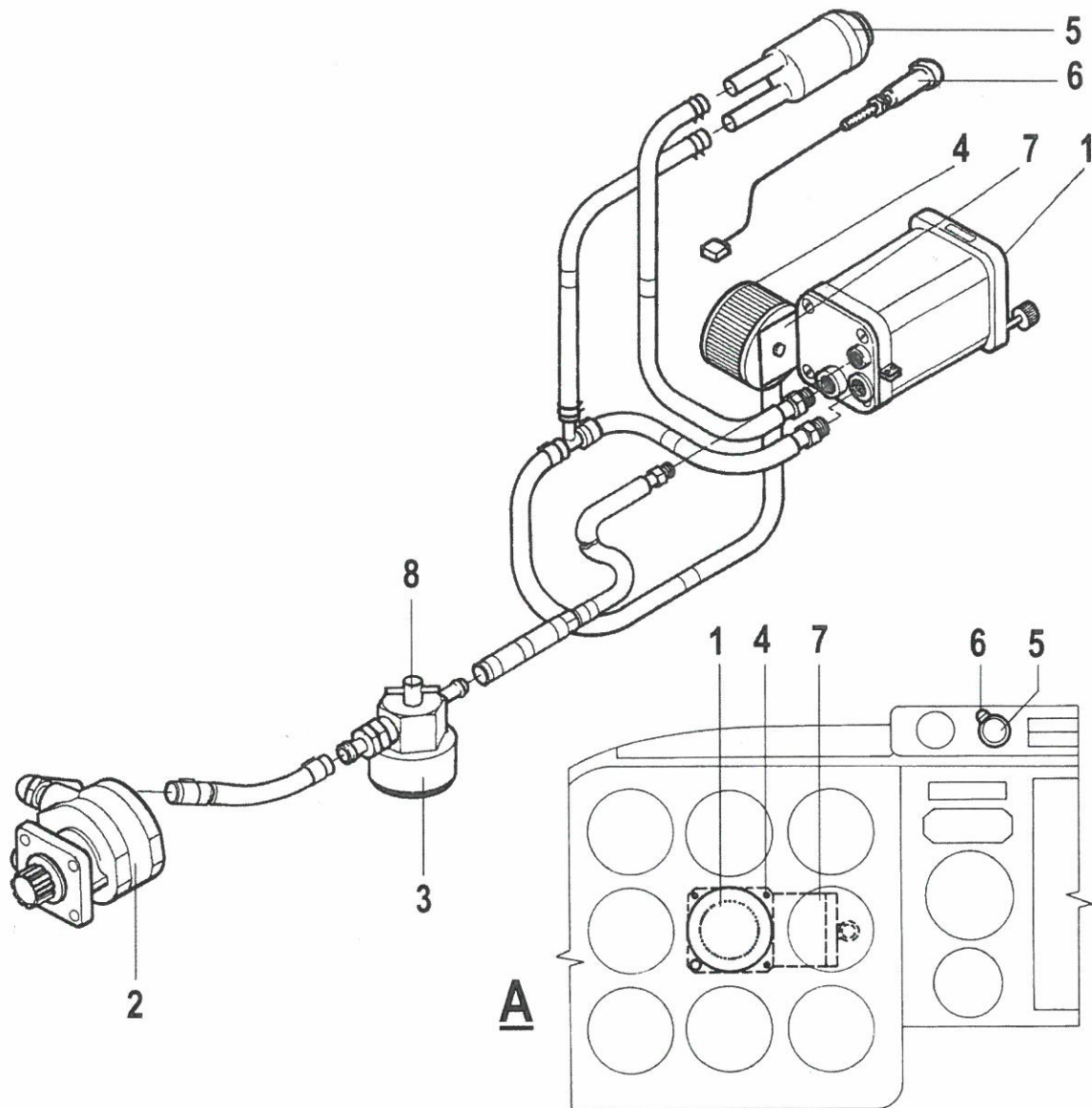


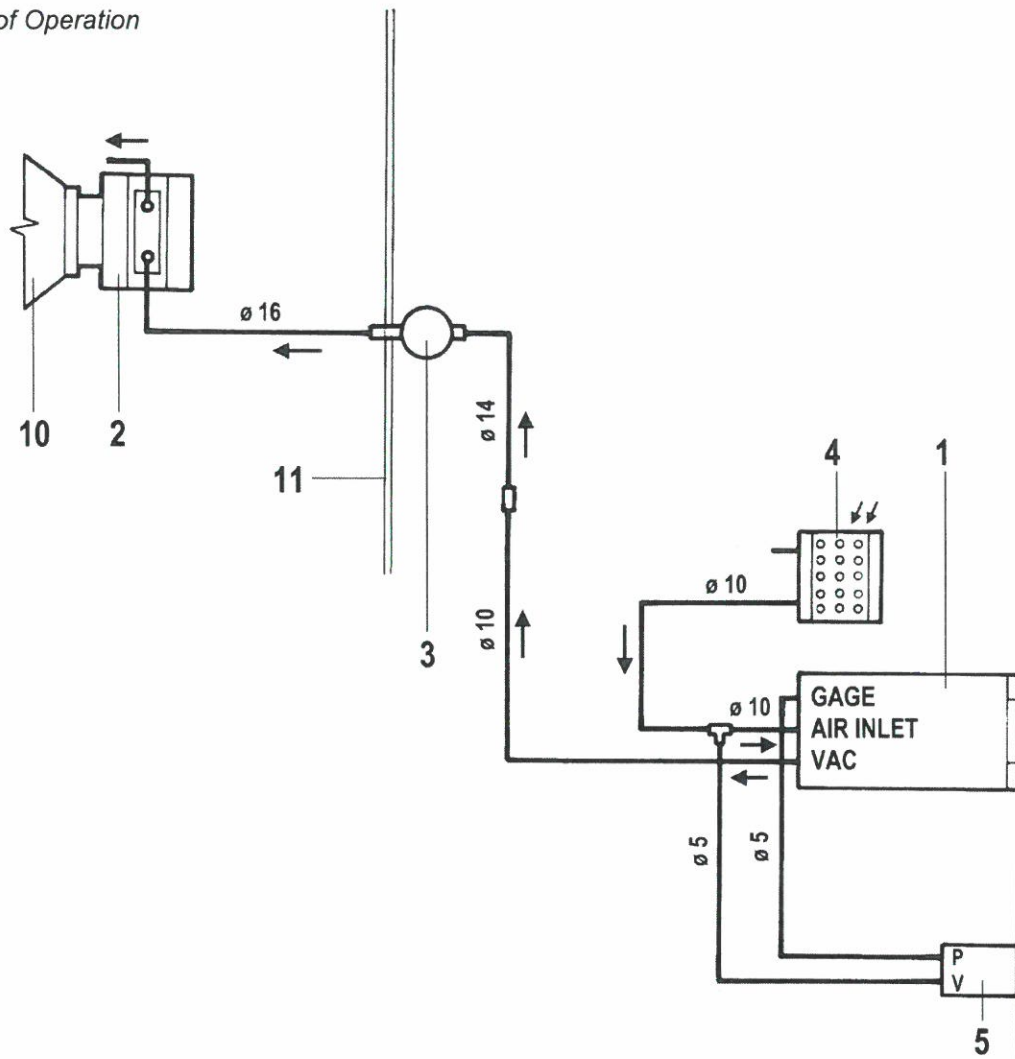
Fig. 37-4 Vacuum Driven Directional Gyro
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EFFECTIVITY: All

37-12-00

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Diagram of Operation



A ... Location of vacuum driven directional gyro in instrument panel

- 1 ... Vacuum drive directional gyro
- 2 ... Vacuum pump
- 3 ... Vacuum governor with filter element
- 4 ... Vacuum filter
- 5 ... Vacuum indicator
- 6 ... Vacuum indicator illumination
- 7 ... Console
- 8 ... Adjusting screw

For information only:

- 10 ... Lycoming vacuum drive pad
11 ... Firewall

Fig. 37-4 Vacuum Driven Directional Gyro
(page 2 of 2)



MAINTENANCE

REMOVAL AND INSTALLATION

REMOVAL OF VACUUM SYSTEM

Preparatory Works

- a) Tilt out the left instrument panel (section 31-10-00).
- b) Release fixing straps of conductor harness behind left instrument panel to enable access to vacuum filter (Fig. 37-4, item 4).

Removal of Vacuum Filter

- c) Unscrew vacuum filter fixing nut (4) upon the side of filter fixing the filter to console (7).
- d) Remove vacuum filter (4) from the console (7). Remove hose fixing clips and pull the hose from the filter port.

INSTALLATION OF VACUUM SYSTEM

Installation Demands

CAUTION

PREVENT ACCESS OF OIL AND GREASE (FAT) INTO THE VACUUM SYSTEM AS IT MAY DAMAGE THE VACUUM PUMP (FIG. 37-4, ITEM 2).

- c) Blow the vacuum system hoses with compressed air before their installation. The hoses should not be flattened in bends.
- d) Make threaded pipe couplings tight by Teflon stripe. Make sure no remnants of Teflon stripe enter the vacuum system hoses or instruments.

NOTE

Remove all the remnants of Teflon sealing stripe before assembly or installation and use new Teflon sealing stripe.

- e) Tighten all the pipe couplings with maximum 2 Nm (1.5 lbf.ft) torque.
- f) Make vacuum system serviceability check after any installation.

Installation of Vacuum Filter

- d) Remove plug from the vacuum filter port.
- e) Insert hose upon the vacuum filter port (4) and fix it with clip.
- f) Fit vacuum filter (4) to the console (7) and fix it with nut and washer upon the filter side.

Final Works

- a) Fix the conductor harness with fixing stripes behind the left instrument panel.
- b) Tilt back the left instrument panel (section 31-10-00).
- c) Adjust vacuum governor (3) as follows:
 - Adjust pressure, when the engine runs in 1500 RPM, indicated by vacuum indicator (5) to the 2/3 of instrument green scale sector;
 - Make sure at engine take-off run the indicated pressure has not exceeded the green upper limit;
 - Lock adjusting screw of vacuum governor.

INSPECTION AND CHECK

SERVICEABILITY CHECK OF VACUUM SYSTEM

1. Serviceability Check of Vacuum System without Use of Tester

- a) Check reading of vacuum pressure gauge (Fig. 37-4, item 5) at engine 1500 RPM-the pointer of instrument should point to 2/3 of green scale segment. Adjust vacuum if necessary by adjusting screw (8) of vacuum governor (3).
- b) Make sure the vacuum magnitude does not exceed at the engine take-off fun the upper limits of gauge green scale.
- c) Lock adjusting screw by bending the tab washers.

2. Serviceability Check of Vacuum System with VACUUM TEST KIT

NOTE

The detailed data on tester are issued in 343 Test Kit Instruction Manual for Pneumatic/Vacuum systems and in Maintenance Instruction Manual.

Procedure of Test:

- a) Remove upper and side engine cowlings (section 71-10-00, REMOVAL AND INSTALLATION).
- b) Place tester upon engine mount structure.
- c) Uncouple the hose (Fig. 37-2, item 12) of airplane vacuum system from the vacuum pump (11) and join it to the ejector (1).
- d) Shut the shut-off valve (6) by moving the slider controller (7) to the very end in the direction to governor.
- e) Shut the governor (5) by turning the adjusting screw (4) anti-clockwise.
- f) Join source of pressure air to the inlet port of governor (5).
- g) Open the supply of pressure air to the tester.
- h) Move slider controller (7) of shut-off valve to OPEN position to the very end in the direction to governor.
- i) Turn the adjusting screw (4) of governor (5) clockwise until the pointer of vacuum pressure gauge (2) of ejector stops moving. At this moment turn the adjusting screw twice more time round.
- j) Adjust pressure in vacuum system of airplane by adjusting screw (Fig. 37-4, item 8) of vacuum governor (3) so that the pointer of vacuum pressure gauge (5) may shows 2/3 of green scale segment.



- k) Check reading of vacuum pressure gauge (Fig. 37-2, item 2) that is coupled to ejector. The magnitude of indicated vacuum read at this gauge may be greater for 1.5 in. hg than that indicated by vacuum pressure gauge of airplane vacuum system (Fig. 37-4, item 5).

Example:

If the pointer of airplane vacuum pressure gauge indicates 5 inches Hg than the vacuum indicated by vacuum pressure gauge coupled to ejector should not show more than 6.5 inches Hg. In case the indicated data are out of permitted allowance it is necessary to check free passage of airplane vacuum system. Some hose of system may be clogged or bent. remove detected fault.

- l) Shut supply of air pressure to tester.
- m) Lock vacuum adjusting screw (Fig. 37-4, item 8) of vacuum governor (3) by tab washer.
- n) Install engine cowlings (section 71-10-00, REMOVAL AND INSTALLATION).



APPROVED REPAIRS

REPAIR OF VACUUM SYSTEM

Fault	Remedy
1) Hoses a) Damage; b) Expired rubber hoses (section 05-10-00).	Replace damaged or expired hoses.
2) The pressure indicated by vacuum indicator is below green lower limit, i.e. below 4,5 in Hg.	Adjust vacuum governor (Fig. 37-4, item 3) - see REMOVAL AND INSTALLATION. In case the adjustment of vacuum governor is impossible it is necessary to replace filter elements of vacuum governor and vacuum filter (4). Adjust vacuum governor.

Replacement of Filter Element of Vacuum Governor:

Pull the original filter element off from vacuum governor and insert new B 3-5-1 filter element instead.

Recommendation

Release fixing nut upon the vacuum governor port on the front side of firewall and slide the vacuum governor into the cockpit to make the filter element replacement simpler. Tighten the fixing nut after filter element replacement.



INSPECTION AND CHECK

CHECK OF CLEANNES OF CARBURETOR HEATING SYSTEM

At the inspection after 100 operation hours or after 1 year and in case of detection of bulky dirt objects as straw and hay, etc. upon the air filter (section 71-60-00), check the heat exchanger of the noise silencer R.H., the interior and vortex inserts inclusive (Fig. 75-3):

- a) Open right engine cowling (Fig. 71-1, item 4).
- b) Dismount „C“ shape springs which fix the noise silencer R.H. and the heating outlet (Fig. 21-1, item 11; Fig. 75-3, item 3) and remove the noise silencer and heating outlet.
- c) Check the heat exchanger of the noise silencer R.H. (1) and the heating outlet (3), the interior and vortex inserts inclusive. In case a crack or loosen or missing rivet is found, replace original duralumin vortex inserts with new ones made of stainless steel

Necessary material :

- vortex inserts of stainless steel; P/N L 143.6629-00.04; 4 pcs
- rivets of stainless steel; AVDEL BE110408; Ø 3,2x6; 16 pcs

NOTE:

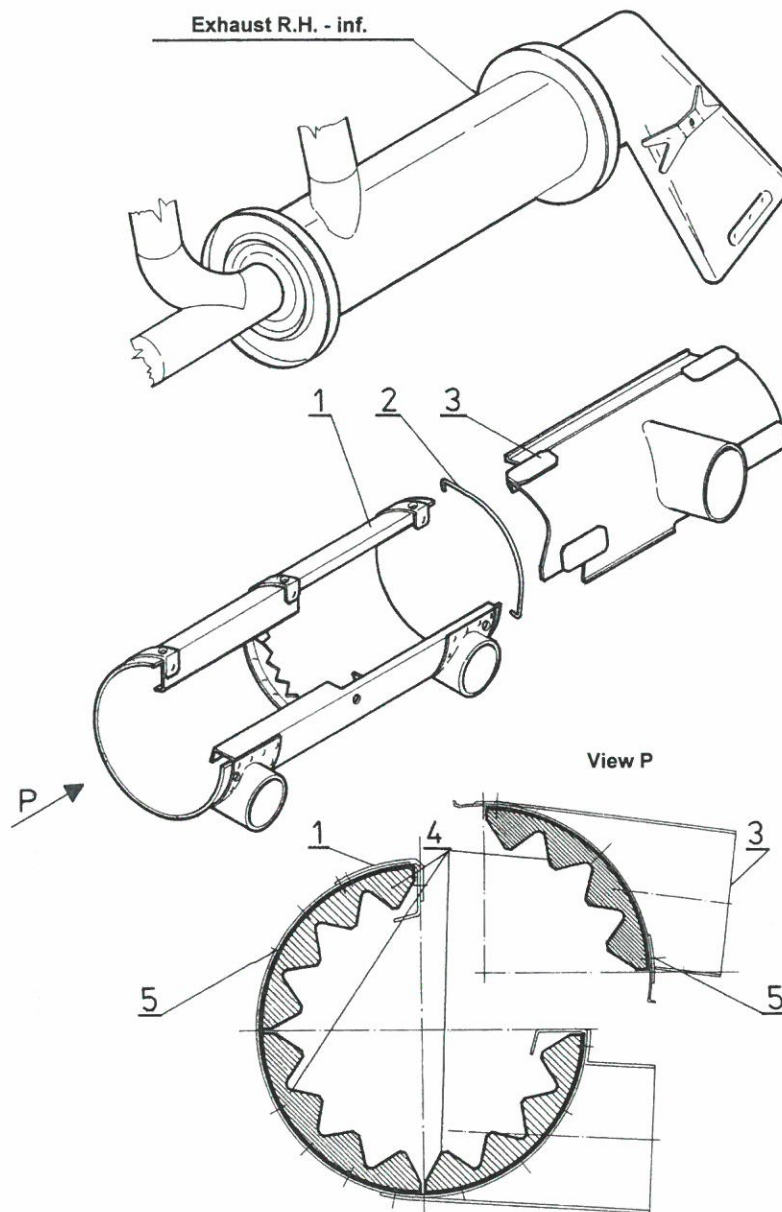
Drill the holes of Ø 3,3 mm for the rivets of Ø 3,2x6.

Proceed in case of dirt detection in heat exchanger and hose space as follows:

- d) Remove bottom engine cowling (section 71-10-00).
- e) Remove chamber (Fig. 75-1, item 12) from the carburetor:
 - Disjoin by removing cotter pin (6) and washer, the fork (Fig. 75-2, item 5) from shaft of flap valve
 - Remove hose from the chamber
 - Unscrew four screws fixing the chamber to carburetor.
- f) Check cleanness of carburetor diffuser, chamber (Fig. 75-1, item 12), and hoses of chamber. Remove entire dirt if any.
- g) Fix the chamber to the carburetor by screws inserting sealing pad between carburetor and chamber beforehand. Provide chamber with hoses.
- h) Insert fork (Fig. 75-2, item 5) upon shaft of flap valve and lock joint with stainless steel cotter pin (6).
- i) Put on the heat exchanger and the heating outlet on the noise silencer R.H. (Fig. 21-1, item 11; Fig. 75-3, item 3) and lock them with „C“ shape springs.
- j) Install bottom engine cowling (section 71-10-00) and shut side cowlings.

EFFECTIVITY:

All



- 1 - Heat exchanger R.H.
- 2 - Spring
- 3 - Heating outlet
- 4 - Vortex insert
- 5 - Rivet

Fig. 75 - 3 Carburetor heating system



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EFFECTIVITY: All

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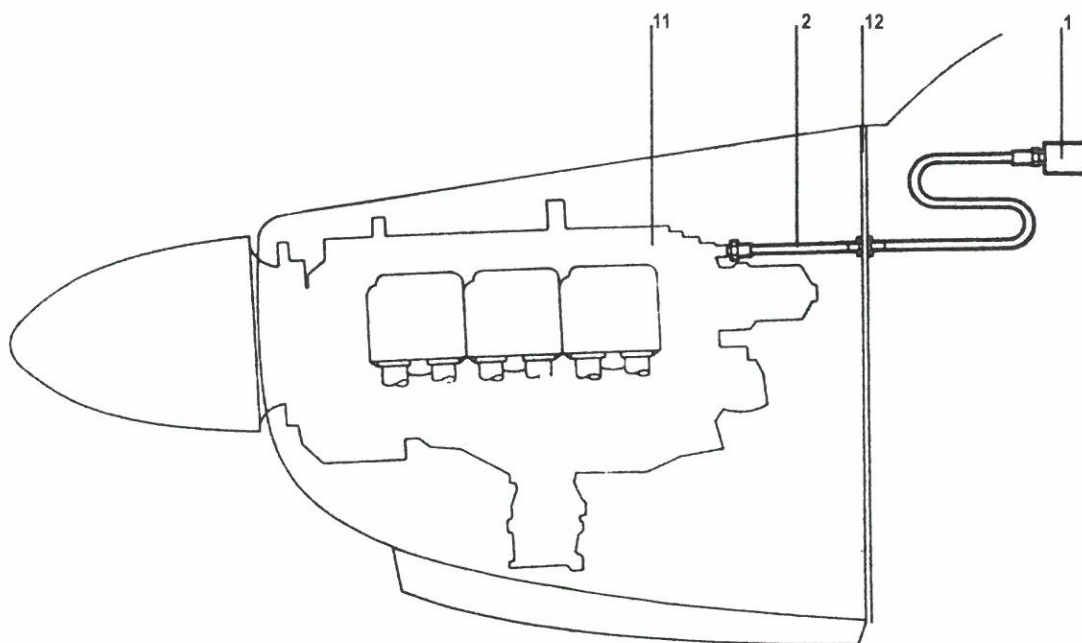
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1998-06-30

EFFECTIVITY: All

ENGINE SPEED MEASUREMENT

DESCRIPTION AND OPERATION

R.P.M. Indicator (Fig. 77 - 4, item 1) is the mechanical instrument driven by flexible shaft (2) coupled to the engine drive pad upon aft engine wall (11).



- 1 ... R.P.M. indicator
- 2 ... Flexible shaft

For information only:

- 11 ... Engine
- 12 ... Firewall

Fig. 77-4 Mechanical Drive of R.P.M. Indicator

EFFECTIVITY: All (if installed)

77-14-00

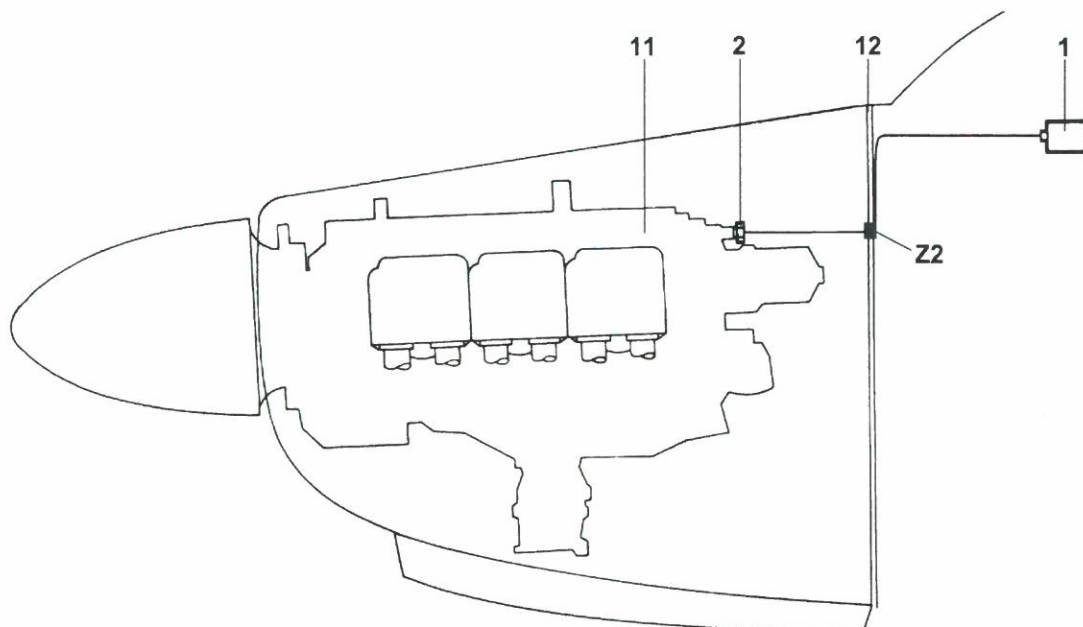
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R.P.M. INDICATOR

DESCRIPTION AND OPERATION

The R.P.M indicator (Fig. 77-4A, item 1) displays engine speed with help of speed transmitter (Fig. 77-4A, item 2) by analogue pointer on the scale and digitally on the display. It registers and displays number of operation hours.

The speed transmitter (aft engine wall) is electrically connected to R.P.M indicator.



- 1 ... R.P.M. indicator
- 2 ... Speed transmitter

For information only:

- 11 ... Engine
- 12 ... Firewall
- Z2 ... Connector

Fig. 77-4A Engine Speed Measurement



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EFFECTIVITY: All

77-14-00

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TEMPERATURE MEASUREMENT

DESCRIPTION AND OPERATION

The quadruple engine indicator containing lube oil and carburetor temperature indicators, CHT indicator, and EGT indicator are in the instrument panel. The wiring diagram of quadruple engine indicator is issued in section 91-80-00; wiring diagrams of CHT and EGT indicators is issued in subsection 91-82-00.



CONTENT

Name of item	Chapter Section/Subsection Item	Page
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CIRCUIT A	91-10-00	91-2; 91-2A
CIRCUIT A WIRING DIAGRAM OF LIGHT ANNUNCIATION PANEL	91-10-00	91-2B
CONTROL UNIT	91-11-00	91-4; 91-4A
CIRCUIT B	91-20-00	91-6; 91-6A
CIRCUIT C	91-30-00	91-8; 91-8A
CIRCUIT C STROBE LIGHTS	91-30-00	91-10
CIRCUIT C LANDING AND TAXI LIGHTS IN RIGHT WING (OPTIONAL)	91-30-00	91-11
COCKPIT ILLUMINATION	91-31-00	91-12; 91-12A; 91-12B
CIRCUIT D	91-40-00	91-14; 91-14A; 91-14B
SHUNT	91-41-00	91-16
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FS 4400 ANTI-COLLISION BEACON-SUPPRESSED	91-51-00	91-19
CIRCUIT F	91-60-00	91-20
CIRCUIT L	91-70-00	91-22; 91-22A; 91-22B; 91-22C
CIRCUIT M	91-80-00	91-24; 91-24A; 91-24B; 91-24C; 91-24D; 91-24E; 91-24F; 91-24G
FUEL QUANTITY GAUGES OF OUTBOARD FUEL TANKS	91-81-00	91-26; 91-26A
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EFFECTIVITY: All

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Z 143 L

AIRPLANE MAINTENANCE MANUAL

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1998-06-30

EFFECTIVITY: All



Item	Name	Type	Note	Location
A1	Alternator	Prestolite 24V		Upon the engine
A2	Voltage regulator	Lamar B-00368-17		Upon firewall
A3	(BATTERY) switch	AZS 5		Panel between fwd seats
A4	Contactor	MS-24166-D2		Upon firewall
A5	Contactor	MS-24187-D1		
A6	GPU receptacle	Z 142.8526-00.00		Left side of fuselage
A7	GENERATOR switch	AZS 30		Panel between fwd seats
A9	Shunt	ŠA 240		Behind right instrument panel
A10	MASTER SWITCH	2 V 45 and V 45		Console under instrument panel
A11	Terminal board	990-226		Behind right instrument panel
A12	Battery	TELEDYNE GILL G-246 or CONCORDE RG24-20		Upon firewall
A13	EXCIT circuit breaker	ETA 1110-4 A		Console under instrument panel
A14	VA meter	LUN 2744.01-8		Instrument panel
A15, A16	Relay	TKE 52 PDT		Upon firewall
A17	ANN. PAN. circuit breaker	ETA 1110-2 A		Console under instrument panel
A18	CHECK circuit breaker	ETA 1110-1 A		
A19, A20	VA-METER circuit breaker	ETA 1110-1 A		
A21	control unit	L 143.8521-00.00 up to S/N 0052 incl. L 143.8521-00.00B from S/N 0053 incl.	(Fig. 91- 2) (Fig. 91- 2A)	Beam of fwd floors
A22	EXT. POWER SOURCE switch	AZS 5		Panel between fwd seats
A23	Fuse	IP 250 up to S/N 0050 incl. and S/N 0052 IP 100 from S/N 0051 incl. (except S/N 0052)		Upon firewall
A27	Terminal board	74K		
A28	Alternator suppressor	RFI KING 100 A		Upon engine
D5	Sleeve of Light Annunciation Panel	08 LUN 2697.04-8	(Fig. 91- 8A)	In middle instrument panel
Z1	ŠR 9S connector: male female	ŠR 48 BPN 9 Š1U2 ŠR 48 KPN 9 G1U2		Upon firewall

Fig. 91-1A Alternator, Receptacle for GPU Connection, Battery, VA-meter, and Contactors
(page 2 of 2)

EFFECTIVITY: From S/N 0046 incl.

91-10-00

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CIRCUIT A

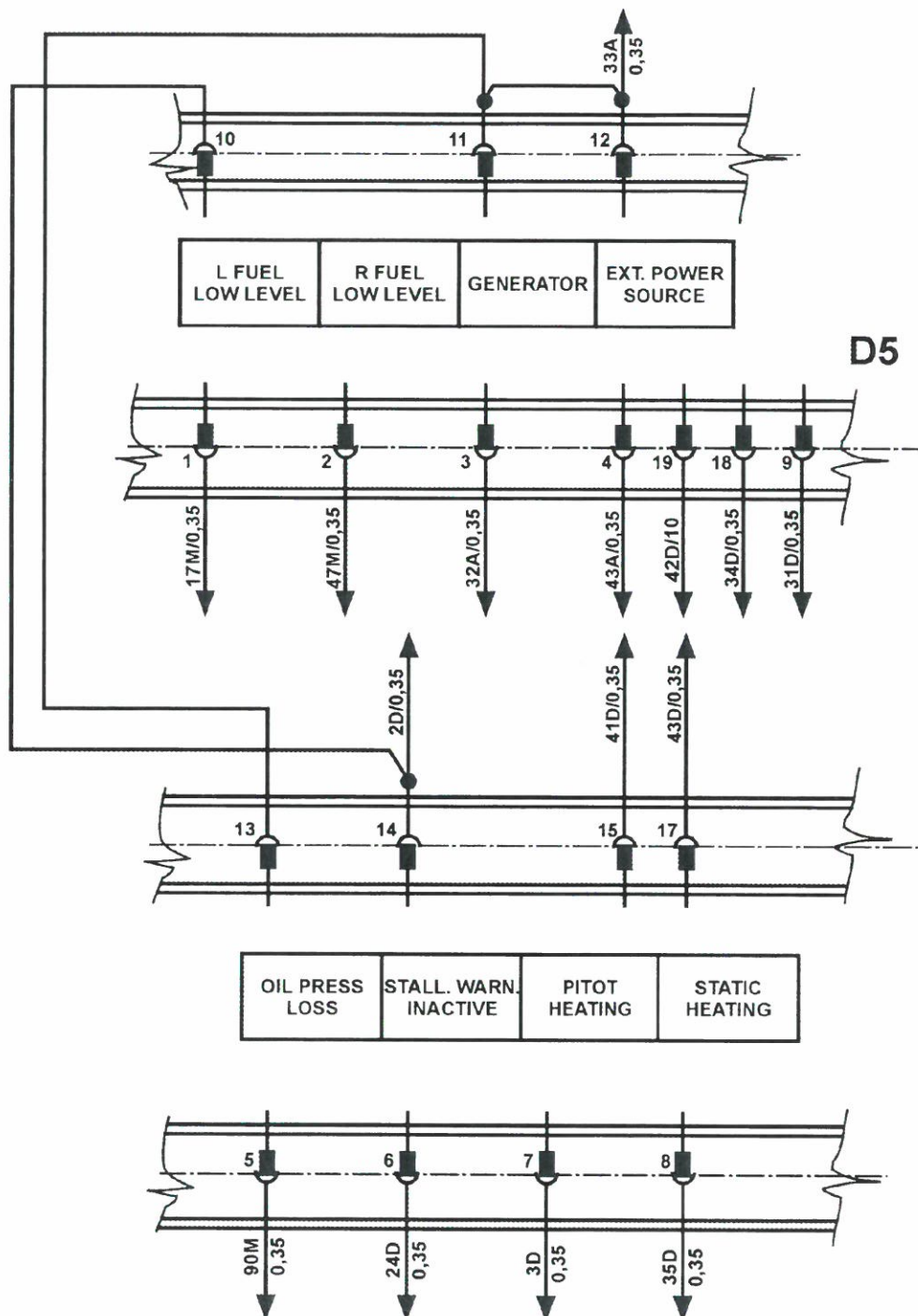


Fig. 91-1B 08 LUN 2697.04-8 Light Annunciation Panel wiring diagram

Item	Name	Type	Note	Location
A4	Contactor	MS-24166-D2		Upon firewall
A10	Master Switch	2 V 45		Console under instrument panel
C58	INT. LIGHT circuit breaker	ETA 1110-1 A		
C73, C74	Diode	1N 4007		Diode box (DB)
C80	Varistor	VE 17M 006 00K		
DB	Diode box	L 143.8520-04.00		Below switches
L1	FLIGHT INSTR. switch	AZS 5		Panel between fwd seats
L2	Turn-and-Bank Indicator	S-TEC 6407-28L		Instrument panel
L2	Turn-and-Bank Indicator	LUN 1213.03-8		
L3	Artificial horizon	AIM 510-8D or AIM 1200-1R(OD) or LUN 1241.A8G8W		
L4	Directional gyro	AIM 205-1BL		
L6	Clock	MD 91-LET	optional	
L7	ATT. GYR. circuit breaker	ETA 1110-1 A		Console under instrument panel
L8	DIR. GYR. circuit breaker	ETA 1110-1 A		
L9	TURN C. circuit breaker	ETA 1110-1 A		
L10	Diode	1N 4007		Diode box (DB)
L11	BATTERY circuit breaker	ETA 1110-3 A		Console under instrument panel
L12	Diode	P 600 K		Diode box (DB)
L13	Diode	1N 4007		
L14	SONNENSCHEN battery (2 pcs)	07190 18500 6Cx2S 1,1 Ah/12V		Under the cargo compartment floor
L15	EMERG. SOURCE green LED	LQ 1732		Instrument panel
L16	Resistor	1K5/1W		Upon firewall
L17	Relay	TKE 52 PDT		
L21-L23	Varistor	VE 17M 006 00K		Diode box (DB)

A ... Printed board contains diode of L 143.8520-04.00 diode box

Fig. 91-12B Turn-and-Bank Indicator, Artificial Horizon (Attitude Indicator) Directional Gyro, Diode Box
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EFFECTIVITY: From S/N 0046 incl.

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CIRCUIT L

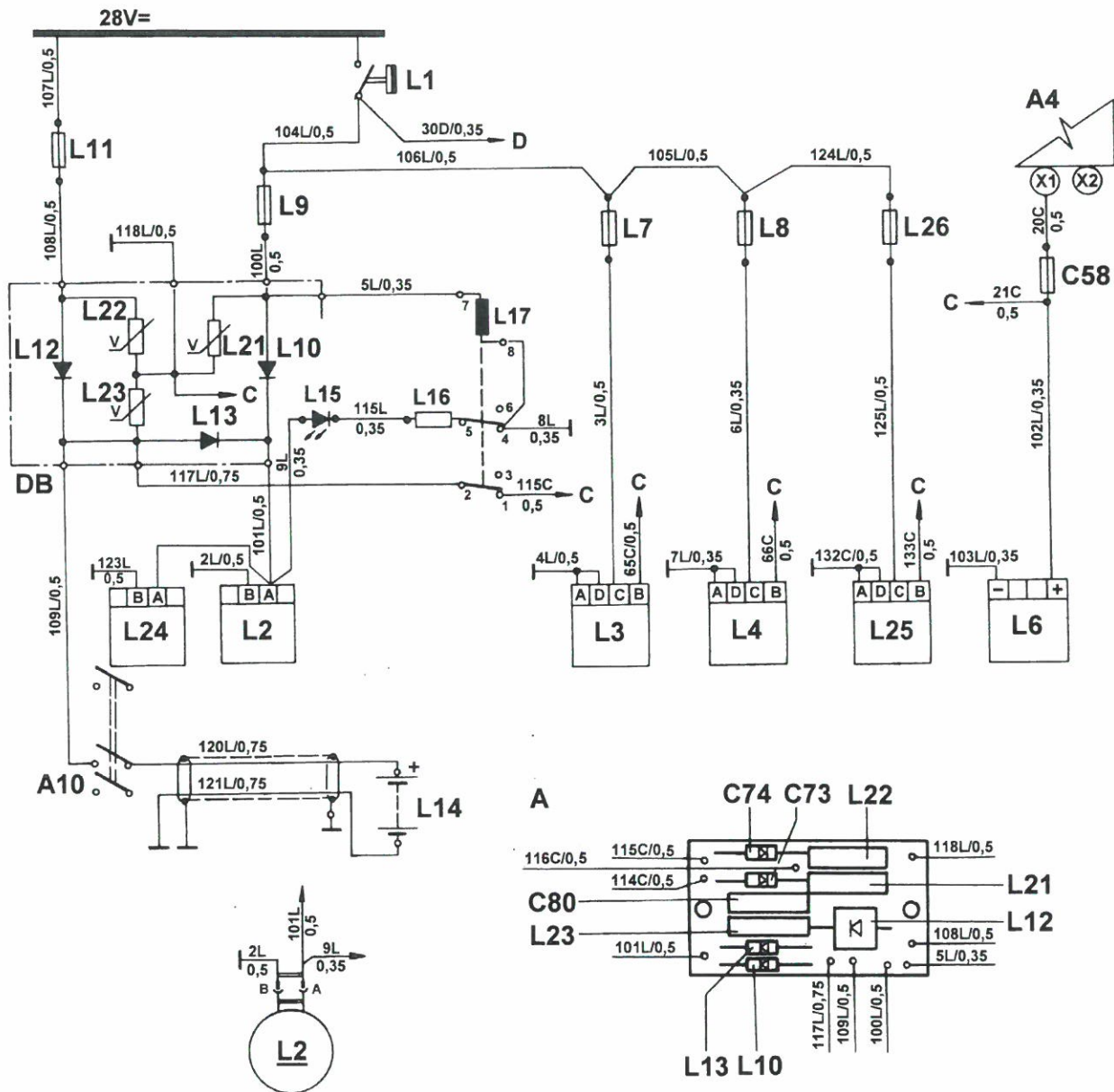


Fig. 91-12C Turn-and-Bank Indicator 1, 2, Artificial Horizon (Attitude Indicator) 1, 2, Directional Gyro, Diode Box
(page 1 of 2)



Item	Name	Type	Note	Location
A4	Contactor	MS-24166-D2		Upon firewall
A10	Master Switch	2 V 45		Console under instrument panel
C58	INT. LIGHT circuit breaker	ETA 1110-1 A		
C73, C74	Diode	1N 4007		Diode box (DB)
C80	Varistor	VE 17M 006 00K		
DB	Diode box	L 143.8520-04.00		Below switches
L1	FLIGHT INSTR. switch	AZS 5		Panel between fwd seats
L2	Turn-and-Bank Indicator 1	S-TEC 6407-28L		Instrument panel
<u>L2</u>	Turn-and-Bank Indicator	LUN 1213.03-8		
L3	Artificial horizon 1	AIM 510-8D (AIM 1200-1R(OD)) (LUN 1241.A8G8W)		
L4	Directional gyro	AIM 205-1BL		
L6	Clock	MD 91-LET (LC-2)	optional	
L7	ATT. GYR.1 circuit breaker	ETA 1110-1 A		Console under instrument panel
L8	DIR. GYR. circuit breaker	ETA 1110-1 A		
L9	TURN C. circuit breaker	ETA 1110-1 A		
L10	Diode	1N 4007		Diode box (DB)
L11	BATTERY circuit breaker	ETA 1110-3 A		Console under instrument panel
L12	Diode	P 600 K		Diode box (DB)
L13	Diode	1N 4007		
L14	SONNENSCHN battery (2 pcs)	07190 18500 6Cx2S 1,1 Ah/12V		Under the cargo compartment floor
L15	EMERG. SOURCE green LED	LQ 1732		Instrument panel
L16	Resistor	1K5/1W		Upon firewall
L17	Relay	TKE 52 PDT		
L21- L23	Varistor	VE 17M 006 00K		Diode box (DB)
L24	Turn-and-Bank Indicator 2	S-TEC 6407-28L		Instrument panel
L25	Artificial horizon 2	AIM 510-8D (AIM 1200-1R(OD)) (LUN 1241.A8G8W)		
L26	ATT. GYR.1 circuit breaker	ETA 1110-1 A		Console under instrument panel

A ... Printed board contains diode of L 143.8520-04.00 diode box

*Fig. 91-12C Turn-and-Bank Indicator1, 2, Artificial Horizon (Attitude Indicator) 1, 2, Directional Gyro,
Diode Box
(page 2 of 2)*

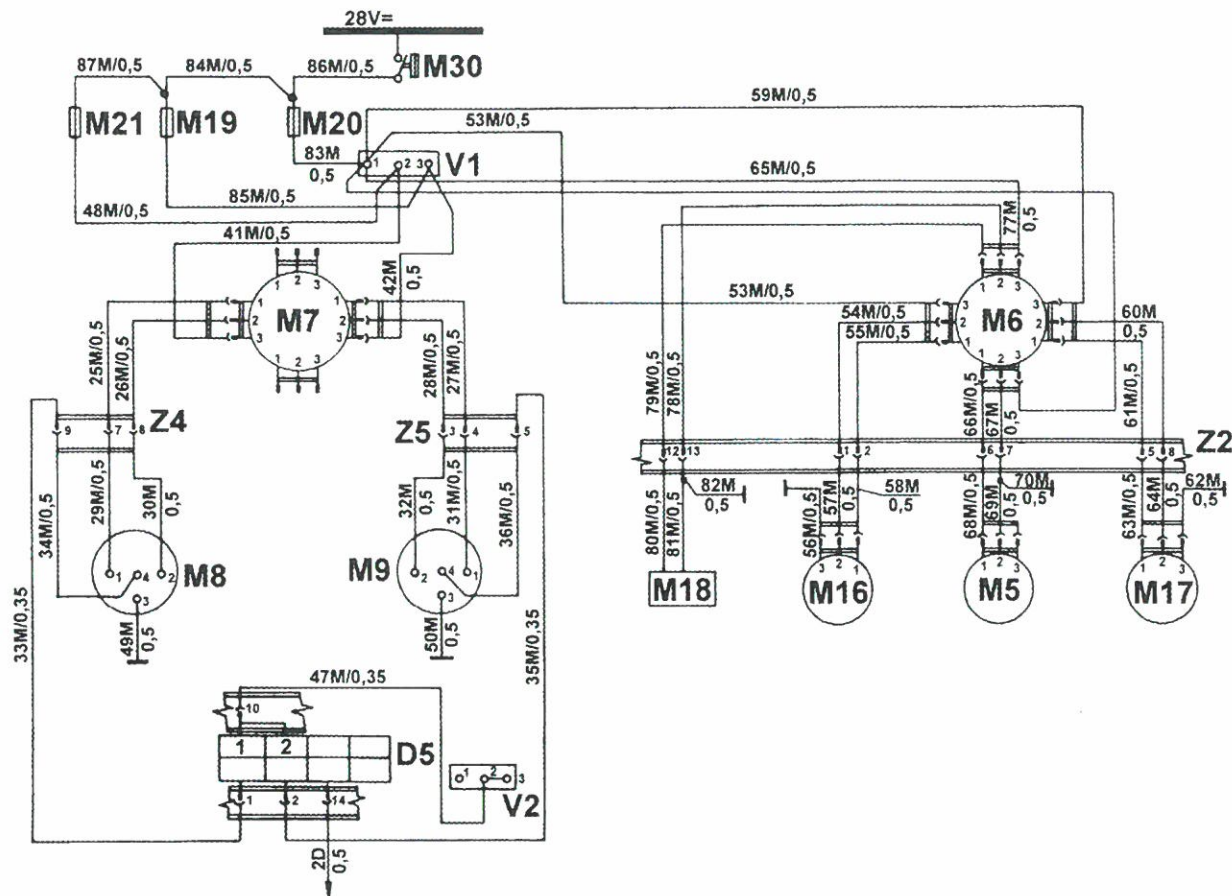
EFFECTIVITY: From S/N 0046 incl.

91-70-00

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CIRCUIT M



Inscriptions used in D5 Light Annunciation Panel:

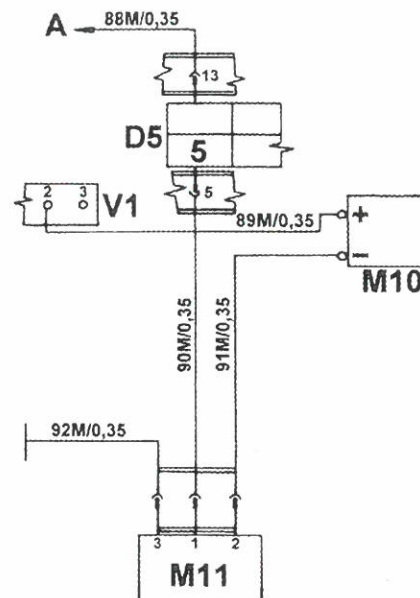
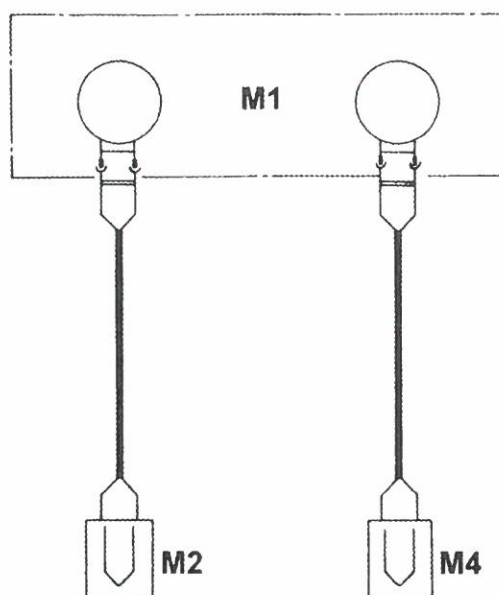
- 1 ... L FUEL LOW LEVEL
- 2 ... R FUEL LOW LEVEL

NOTE

The M8, M9 float tank unit terminals No. 1 are blue, No. 2 are yellow, No. 4 black, and No.3 are fixing screws.

Fig. 91-13 Engine Instruments, Fuel Quantity Gauges of Main (Inboard) Tanks
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ENGINE INSTRUMENTS



Inscription used in D5 Light Annunciation Panel:

5 ... OIL PRESS. LOSS

Item	Name	Type	Note	Location
D5	Light annunciation panel	08 LUN 2697.04-8	(Fig. 91-8A)	Above middle instrument panel
M1	CHT/EGT indicator	ALCOR 46 167		Instrument panel
M2	CHT probe (ALCOR 42 535 compensation leads)	ALCOR 86 251		Upon engine
M4	EGT probe (ALCOR 42 525 compensation leads)	ALCOR 86 255		
M10	Engine run counter	Hobbs model 15 000	optional	Instrument panel
M11	Pressure switch	0,18 K LUN 1492-8		Upon firewall
V1	Terminal board	74K		Console under the instrument panel cover

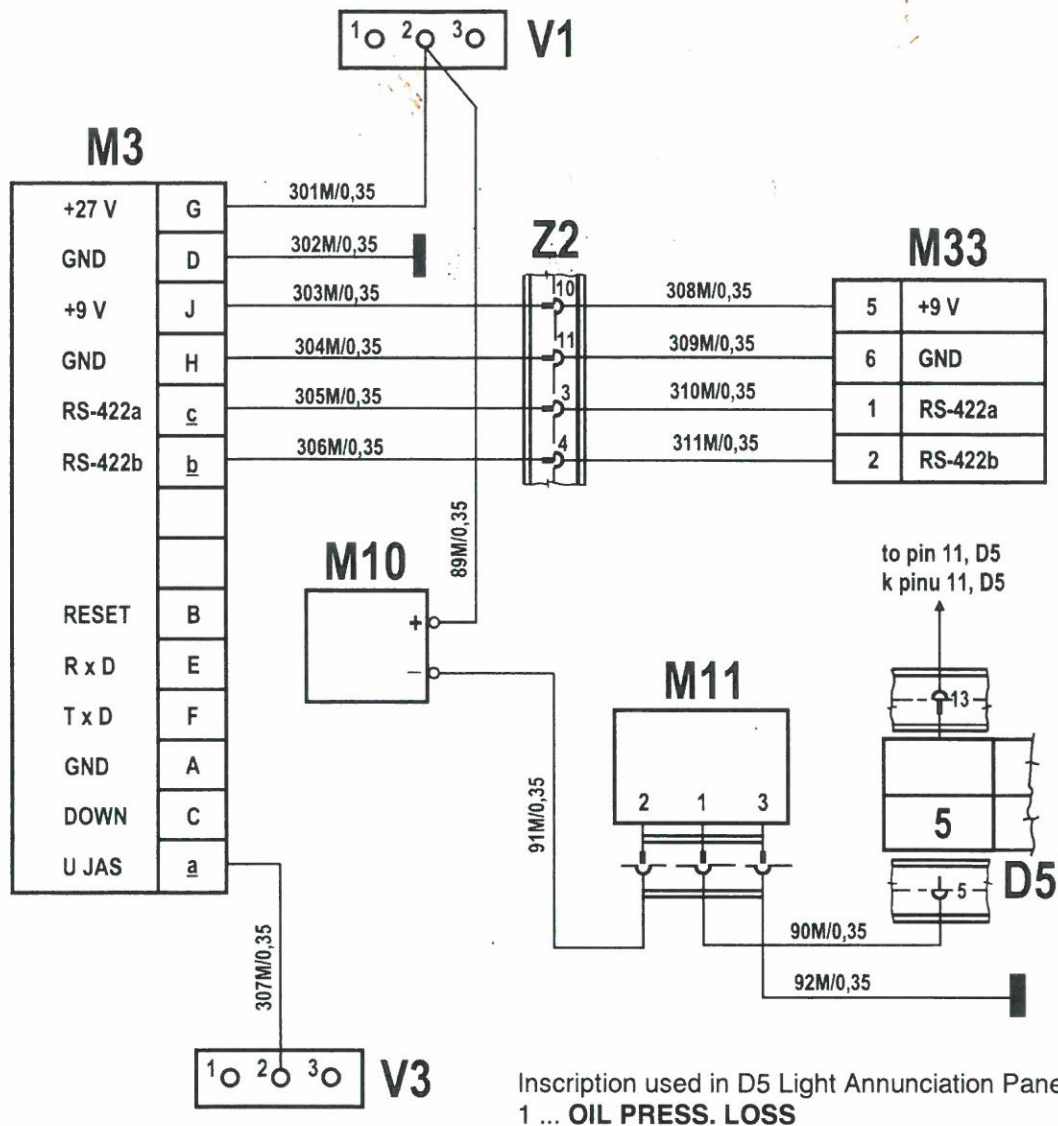
Fig. 91-15A Engine Instruments

EFFECTIVITY: From S/N 0046 incl.

91-82-00

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2001-04-20

R.P.M INDICATOR LUN 1301.02



Item	Name	Type	Note	Location
D5	Light Annunciation Panel	08 LUN 2697.04-8	(Fig. 91-8A)	Above middle instrument panel
M3	R.P.M. Indicator	LUN 1358-8		Instrument panel
M10	Engine run counter	Hobbs model 15 000		
M11	Pressure switch	LUN 1492.03-8 0,18K		Upon firewall
M33	Speed transmitter	LUN 1320.01		Aft engine wall
V1, V3	Terminal board	74K		Console under the instrument panel cover
Z2	ŠR 32-14 connector: male female	ŠR32 BPN14 Š5 U2 ŠR32 KPN14 G5 U2		Upon firewall

Fig. 91-16 R.P.M. Indicator