



APPLICABLE TO **A300, A310, A300-600 Aircraft**

SUBJECT AVIONICS OR BATTERY SPURIOUS SMOKE WARNINGS SUBSEQUENT TO AIR CONDITIONING SYSTEM CONTAMINATION OR INCORRECT SYSTEM INSTALLATION.

REASON :

Several Airbus operators have experienced avionic or battery spurious smoke warnings on ground, during take-off or in cruise. **This can be caused by burnt oil, hydraulic fluid or dust contamination of the air conditioning system** or by incorrect installation of detectors and ventilation system.

DESCRIPTION :

I - CONTAMINATION

On all Airbus wide bodies, avionics or batteries are ventilated to various extent by fresh air from the aircraft air conditioning packs.

The aircraft packs are supplied with hot high pressure air from the engines or APU, these operate at high temperatures and are subject to the various contamination sources given below :

- APU - Internal and external oil leaks or presence of grease inducts after APU change.
- Engines - Internal oil leaks and presence of grease in ducts after engine replacement.
- Ground carts - Internal oil leaks.
- Hydraulic system - pressurization line non return valve leakage/failure and hydraulic reservoir overfilling.
- De-icing fluid ingestion by engines during winter season.
- External fumes ingested by engines or APU.

EFFECTIVITY
ALL

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Avionics smoke warnings can also be triggered by polluted air taken from the avionics bay by the avionics blower fan(s).

The sources of pollution are :

- External fumes ingested through avionics compartment access door 121BL or avionics compartment access door from the cargo hold.
- Hydraulic leak from the steering coupler.

AIRBUS has worked, to eliminate the contamination sources and to minimize the inconvenience, the reported spurious smoke warnings and contamination may cause to operators, by :

1. addressing each one of the internal contamination sources,
2. establishing detailed cleaning/decontamination procedures for all aircraft types and reviewing the TSM and AMM,
3. reviewing the FCOM to minimize the consequences of spurious 'avionics' and 'minimum equipment bay' smoke warnings,
4. and will be issuing an optional SB in early 89 which will delete the battery smoke detector and warning light :
 SB A310-26-2014 for A310 A/C
 SB A300-26-6015 for A300-600 A/C.

RECOMMENDED ACTION :

1. INTERNAL CONTAMINATION SOURCE ELIMINATION :

A) APU oil leaks :

A310, A300-600

Vendor SB GTCP 331-49-5599 issued 08/07/85 for A310 and A300-600 introduces an improved APU load compressor seal.

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Vendor SB GTCP 331-49-5565 issued 07/06/85 improves the gearbox pressurization system to prevent "thru-flow" within the gearbox.

Vendor SB GTCP 331-49-5706 issued 04/09/87 replaces the existing APU low pressure switch prone to leakage by an improved feature.

Airbus SB A310-49-2009 and SB A300-49-6006 issued 10/08/88 improve APU door sealing.

A300

Airbus SB A300-49-040 dated 10/03/83 improves APU access door drain system on A300 A/C to prevent oil seepage into APU air intake.

B) HYDRAULIC PRESSURIZED RESERVOIR LEAKAGE THROUGH NON RETURN VALVES (NRV)

Airbus SIL 29-020 issued 03/08/87 informs operators of the possibility of hydraulic fluid ingress in the air conditioning system if two or more NRV are leaking. This SIL provides control instructions, procedures to avoid reservoir overflowing, and recommends replacement of the existing NRV's.

Note : If the aircraft is grounded more than 36 hrs, the chances of hydraulic fluid ingress are increased. Please refer to SIL 29-020 for more information.

C) HYDRAULIC FLUID FROM THE STEERING COUPLER

Airbus SIL 32-044 issued 26/01/87 informs operators of possible steering coupler leaks and suggests the incorporation of two vendor SB's : MHB SB 470-32-507 and MHB SB 470-32-563.

D) ELIMINATION OF THE POSSIBLE GREASE PRESENCE AFTER APU OR ENGINE CHANGE

AMM 49-10-00 and 72-00-00 recommend to perform the oil cleaning/decontamination procedure after APU or engine change, if any odours are detected inside the aircraft during test with packs operating

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2. CLEANING/DECONTAMINATION PROCEDURES

A) SIMPLIFIED DECONTAMINATION PROCEDURE IN CASE OF OIL CONTAMINATION

Cleaning procedure for A310/A300-600

- 1) Check that the source of the contamination is no longer present.
- 2) Blank off avionics bay cold air duct, refer to :
 - A310 IPC 21-21-01 Page 9a Item 60 or Page 9b Item 190.
 - A300-600 IPC 21-21-01 Page 10 Item 60.(Refer to pages 8 and 9 of this SIL).
- 3) Start APU.
- 4) On compartment temperature panel 487 VU put all the compartment temperature selector switches in the full AUTO COLD position for 10 mn approx.
- 5) Put all the compartment temperature selector switches in the full AUTO HOT position for 10 mn approx.
Note 1 : duct temperature should not exceed 70 deg. C.
Note 2 : repeat points 4 and 5 above as many times as needed and replace/clean coalescer bag as required (AMM 21-51-16 Page 301 refers).
- 6) Stop APU.
- 7) Remove the avionics bay cold air duct blanking.

This procedure has been incorporated in AMM 21-51-00 Page Block 300 Revision Sept/01/87 for A310.
Revision Dec/01/87 for A300-600.

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Cleaning Procedure for A300

- 1) Check that the source of the contamination is no longer present.
- 2) Blank off avionics bay cold air duct, refer to :
 - A300 IPC 21-24-01 Page 1a Item 530 for A/C with SB 21-030 embodied. Fig. 1 refers.
 - A300 IPC 21-24-01 Page 1b Item 470 for A/C with SB 21-047 embodied. Fig. 2 refers.
(refer to pages 10, 11 and 12 of this SIL).
- 3) Start APU.
- 4) On compartment temperature panel 60 VU put all the compartment temperature selector switches in the full auto cold position for 10 mn approx.
- 5) Put all the compartment temperature selector switches in the full auto hot position for 10 mn approx.
Note 1 : duct temperature should not exceed 70 deg. C.
Note 2 : repeat points 4 and 5 above as many times as needed and replace/clean coalescer bag as required (AMM 21-51-16 Page 301 refers).
- 6) Stop APU.
- 7) Remove the avionics bay cold air duct blanking.

This procedure has been incorporated in AMM 21-51-00 Page Block 300 Revision Oct/01/87 for A300.

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B) HYDRAULIC FLUID DECONTAMINATION PROCEDURE

- 1) Check that the source of contamination is no longer present (SIL 29-020 refers).

Note : Check whether contamination arrived directly into cross feed duct or arrived in it via engine(s).

- 2) Clean contaminated pneumatic system titanium duct (AMM 20-41-11 refers) and change all seals. Inspect pneumatic components for hyd. fluid traces, clean or overhaul as required.
- 3) Perform air conditioning system cleaning procedure as indicated in case of oil contamination.

C) SMOKE DETECTORS CLEANING FOLLOWING REPETITIVE CONTAMINATION

Avionics smoke detectors have to be cleaned and controlled as per CMM 26-15-11 every "2C" check. However, this frequency should be reduced for aircraft having experienced contamination of the air conditioning system several times or for airlines operating in a particularly dusty environment. Experience has shown that residual contamination on the detector cell could offset the warning threshold and could make the detector more sensitive.

Note : Detector must be disassembled and cleaned over an antistatic bench, i.e. a simple metal plate connected to earth. The operator must also be electrically earthed.

D) ELIMINATION OF DUST PRESENCE INSIDE THE SMOKE DETECTOR FOLLOWING SAND STORM EXPOSURE

AMM 05-51-25 will incorporate smoke detector cleaning after a sand storm exposure, (REV DEC 88). Detector cleaning is to be performed per CMM 26-15-11.

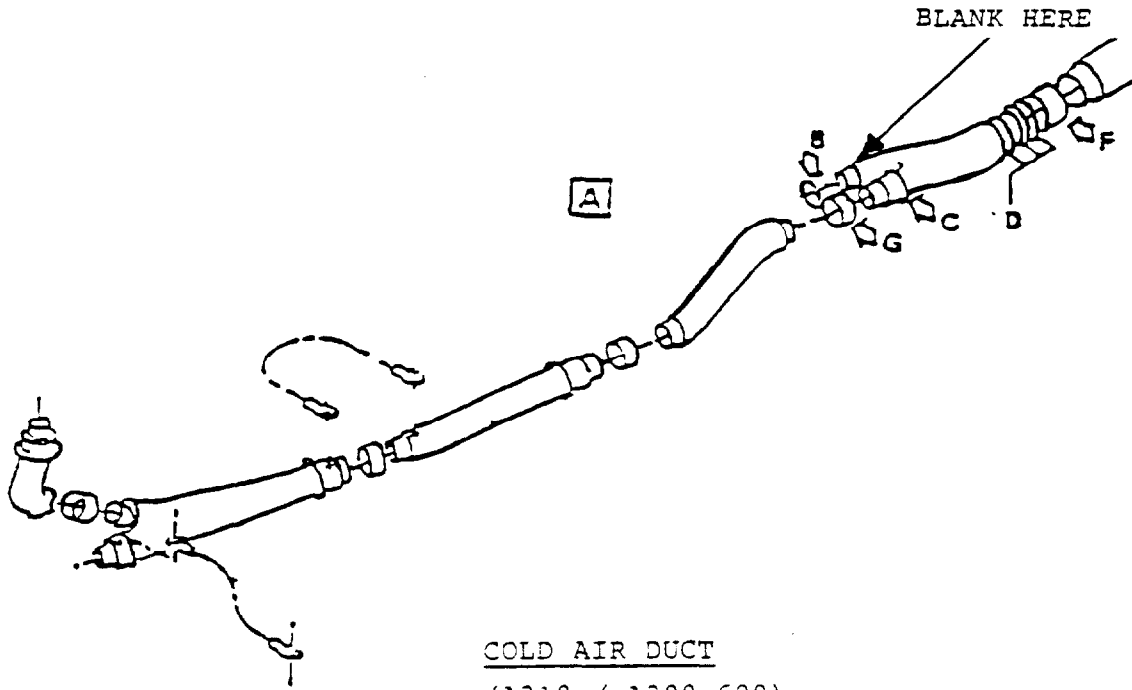
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II - INCORRECT SYSTEM INSTALLATION (A310, A300-600)RECOMMENDED ACTION :

- a) Check for correct condition of the battery vent line. Particular attention should be given to the correct installation of the non return valve (NRV) P/N PRT-75 (IPC 21-24-01).
- b) Check for proper condition of battery smoke detector 'O' rings (P/N NSA8205-114) at the junction of duct fitting and the inlet and outlet of the smoke detector.
- c) Check that battery outlet pipes, elbows, and venturi are all clean and in good condition.

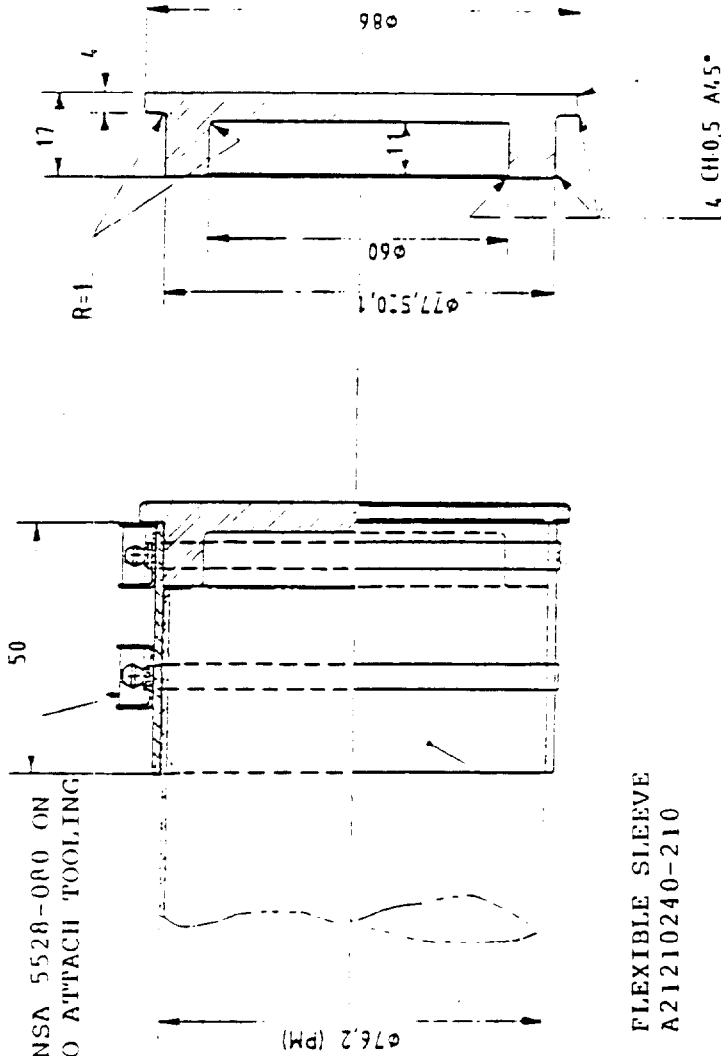
Note : please refer to page 13 of this SIL for illustration.

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COLD AIR DUCT
(A310 / A300-600)

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A310 / A300-600

USE CLAMP NSA 5528-0R0 ON AIRCRAFT TO ATTACH TOOLING SLEEVE.

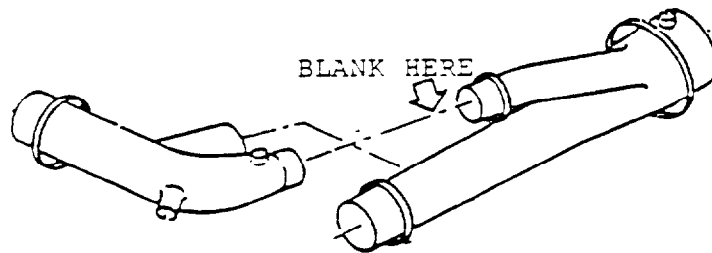
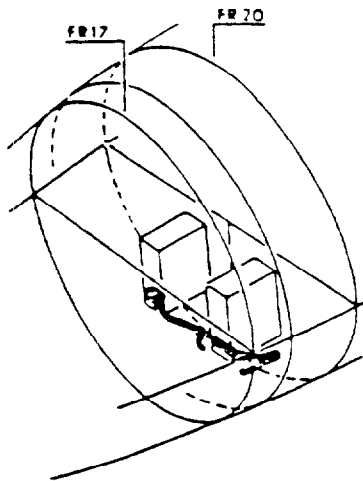
FLEXIBLE SLEEVE
A21210240-210

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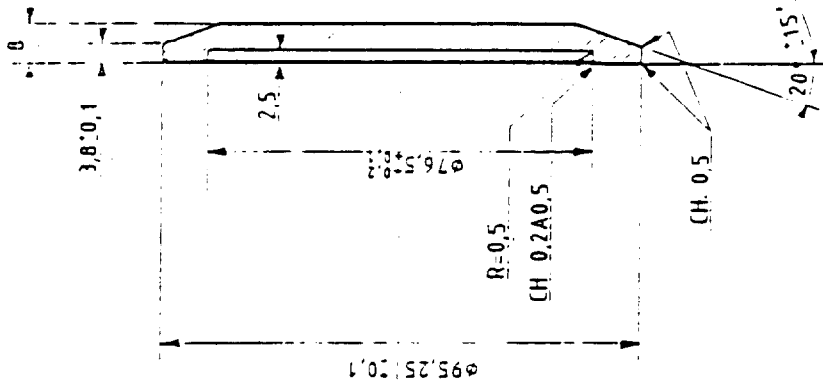
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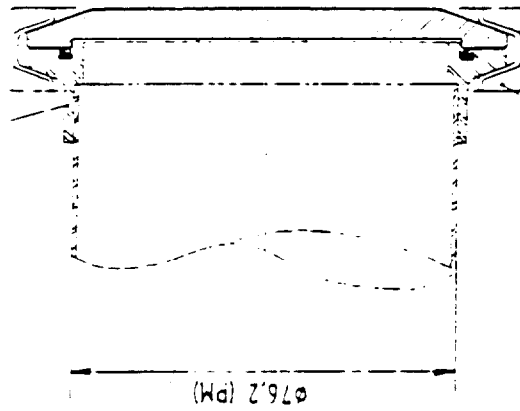


COLD AIR DUCT
(A300)

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FLANGE 12 A 2,12 11509 (PM)



USE CLAMP NSA 48603-387 EXISTING ON AIRCRAFT TO ATTACH PLUG

FOR A300 AIRCRAFT WITH SB 21-030

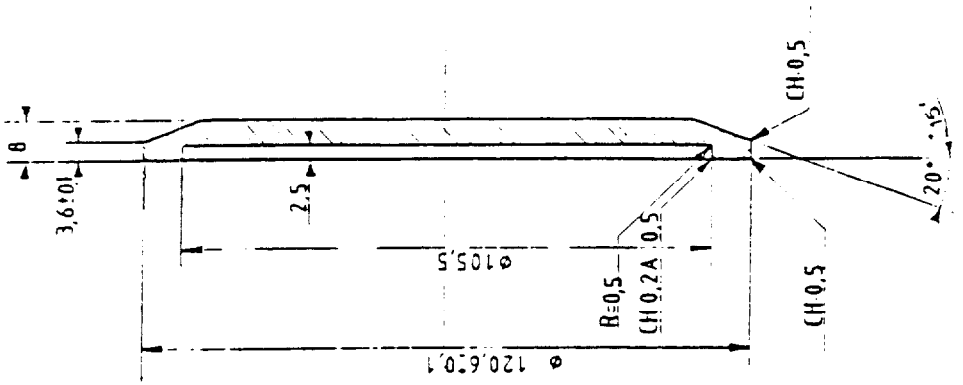
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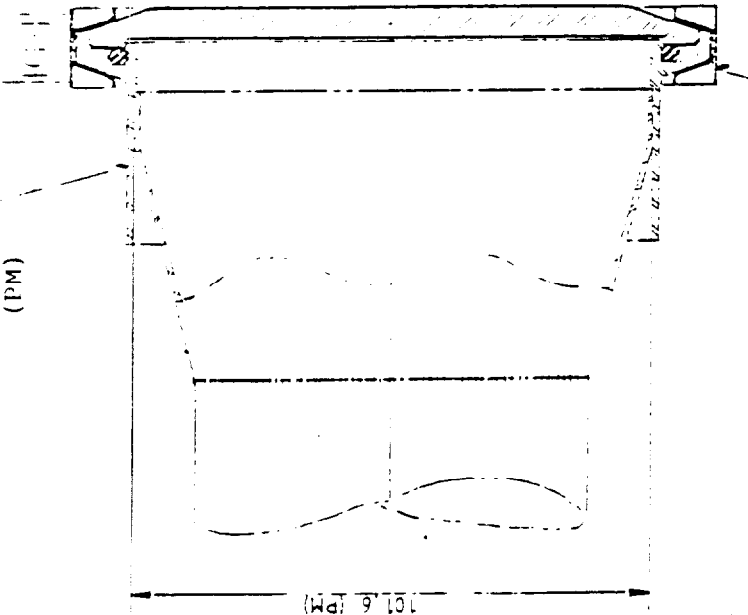
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FLANGE 12 A 212.111526
(PM)



USE CLAMP NSA 8603-487
EXISTING ON AIRCRAFT TO ATTACH
PLUG

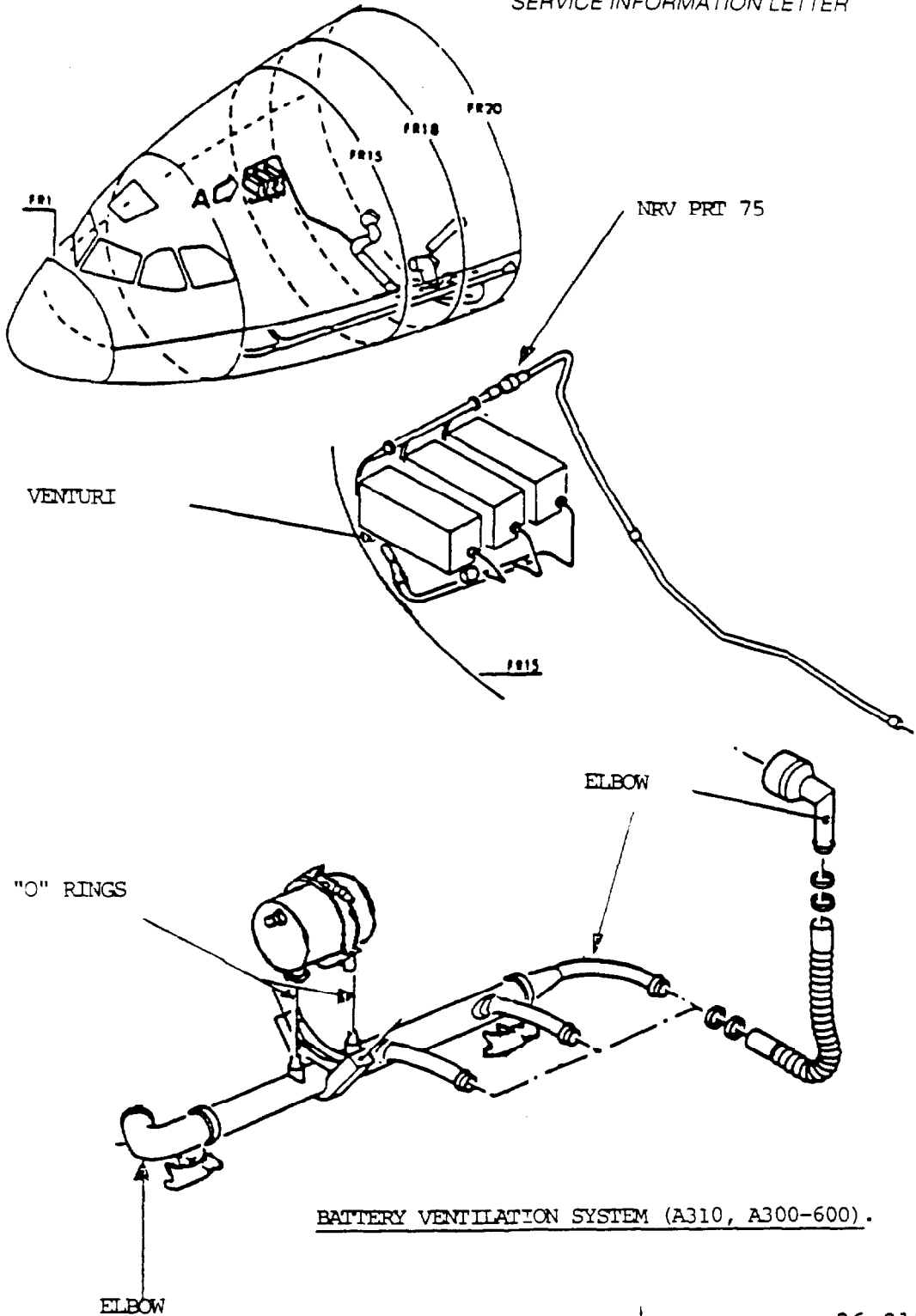
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FOR A300 AIRCRAFT WITH SB 21-047

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BATTERY VENTILATION SYSTEM (A310, A300-600).

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