

**DOCKET NO.: SA-515
EXHIBIT NO. 11E**

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.**

ATTACHMENT 4

MAINTENANCE GROUP CHAIRMAN'S FACTUAL REPORT

**ENGLISH TRANSLATION OF VOLVO'S
MANUFACTURING RECORDS ON HUB S/N 32971**

MATERIAL COVERED BY THE TRADE SECRETS ACT

(32 PAGES)

AUG 2 '96 1

FROM PROGRAM OFFICE(MFG)

TO 51568

PAGE.003

31 JUL '96 12:22 VHL STRUT FOR GROUP 00000010

ATTACHMENT 1

Attachment 1 contains Volvo Flygmotor's Manufacturing Records. The records identified with Volvo PN 303340 are for P&W's Hub Assembly PN 5000421 and records identified with Volvo PN 303201 are for P&W Hub Detail PN 5000501.

The English translation is included in this package.

VOLVO FLYGMOTOR AB TROLLHATTAN, SWEDEN 8/10

OPERATION SEQUENCE LIST

| | | | | |
|----------------------------------|----------------------------|-------------------------------------|-------------------------------------|-------------------------------|
| ENGINE MODEL JTS0 217. 219 | P/A PART NUMBER 5000421 | VOLVO PART NUMBER 303340 | PREPARED BY R. Sohlberg | DATE 15/5/87 |
| PART NAME HUB FRONT | | | REV 11 | PAGE NUMBER 1 OF 1 |
| VOLVO MANUFACT REP [REDACTED] | | VOLVO QUAL REP [REDACTED] 870815 | | SRV REF [REDACTED] 8/19/87 |
| ESA APPROVAL [REDACTED] | | | M.C. APPROVAL [REDACTED] 8/20/87 | |

| OP NO | OP SHEETS | MACH. NR | OPERATION DESCRIPTION |
|-------|-----------|----------|-----------------------|
| 10 | 167630 | 54040 | Inspection |
| 20 | 167066 | 25020 | Assemble |
| 30 | 167057 | 15203 | Drilling |
| 40 | 167542 | 25020 | Assemble |
| 50 | | 54040 | Inspection |
| 60 | 167364 | | Mask |

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 VOLVO AEROSPACE CORPORATION
 Trollhattan, Sweden

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| | | | | | | | |
|-------------|-------|-------------|--------|-----------|-----|-------|--|
| X-verified | | 962 2 | | 6X (S) 6X | | 89206 | |
| Member/Dept | Major | Rel/Program | TR-ans | Cost. val | Exp | | |

| Qty | Alt | Part no | Designator | QTY/UNIT | DESCRIPTION | TECHNICAL | STATUS | REMARKS |
|-----|-----|----------------------------------|------------|----------|-------------|-----------|---------|---------|
| 10 | | 473 54040 | | | SYN | 6, 6 | 766 | 5/6 002 |
| 20 | | 733 25020 | ST68575 | | M | 6, 6 | 2111 | 4/5 002 |
| | | ALT PART NR 15203 - 0-167067 ENC | | | | | | |
| 50 | | 473 54040 | | | KOM | 6, 6 | (S) 308 | 1/5 PC |
| 60 | | 473 54061 | 0167364 | | RA | 6, 6 | (S) 308 | 1/5 PC |
| | | 564 | | | | | | |

OP SEQUENCE LIST REV 11 FROM BARCH 220

OP SEQ LIST FROM LOT NO

| | | | | | | | | |
|----|--|-----|--------|--|--------------|----|----|--|
| 0 | | | 303201 | | HUB FRONT HP | 4 | ST | |
| 20 | | 733 | 303203 | | SEAL BEARING | 4 | ST | |
| 20 | | 733 | 303204 | | DUCT | 4 | ST | |
| 20 | | 733 | 303209 | | PIN | 68 | ST | |
| 20 | | 733 | 303210 | | COLLER | 68 | ST | |
| 20 | | 733 | 303211 | | REVET | 32 | ST | |
| 20 | | 733 | 303559 | | SEAL AIR | 4 | ST | |

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I DETTA FÄLT FÅR ANTECKNINGAR INTE GORAS - ÄR RESERVERAT FÖR OPTISK LÄSNING.

Analysad följande del sändes till... L50A för arkivering.

4

KONTROLLANTECKNINGAR

| Kontrollanter och nummer | | | | Kontrollanteckning och anteckningar Anteckning även de klasserade delarnas chargens, Mör eller kodnr | Förhands- kontroll | Op- mär- ket |
|--------------------------|-------|--------|------|--|-----------------------|--------------------|
| Opnr | QMSnr | Emasnr | ELAS | | | |
| Juni | AR | Kan | Stn | | | |
| | | | | 32968 32979 32970 = serial number for | | |
| | | | | 32971 32977 32953 hub | | |
| | | | | SEAL 56/8, 56/10, 96/11, 56/14, 56/2, 56/21 | | |
| | | | | DUCT 117/10 117/5 115/2 115/4 115/5 115/8 | | |
| | | | | This is the batch and serial number | | |
| | | | | on the six parts that are assembled to | | |
| | | | | the hub on this sequence list. | | |
| | | | | This is information for the traceability | | |
| | | | | records. | | |
| | | | | PRIVATE | | |
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| | | | | (BT) | | |

6

VOLVO FLYGMOTOR AB TROLLHATTAN, SWEDEN

OPERATION SEQUENCE LIST

| | | | | |
|--|----------------------------|---|---------------------------------|--|
| ENGINE MODEL JTSD 217, 219 | FAA PART NUMBER 5000501 | VOLVO PART NUMBER 303201 | PREPARED BY R. Sahlborg 706C | DATE 12/7/87 |
| PART NAME HUB FRONT | | | REV 3 | PAGE NUMBER : of 3 |
| VOLVO MANUFACT REP XXXXXXXXXX 12/11/87 | | VOLVO OUEL REP XXXXXXXXXX | | PER SOFR XXXXXXXXXX 12/14/87 |
| ESA APPROVAL | | | VCL APPROVAL | |

| OP NO | OP SHEETS | SACR. NR | OPERATION DESCRIPTION |
|-----------|------------------|---------------------|--------------------------------------|
| 10 | 168008 | 54040 | Inspection ----- |
| 20 | 168009 | 11252 | Turning Fwd. side |
| 40 | 168011 | 11215 | Turning Aft. side |
| 50 ALT | 168022 167044 | 11475 11215 | Turning Fwd. side |
| 70 | 163014 | 11215 | Turning |
| 80 ALT | 168015 167503 | 1520305 1520302- | Drilling |
| 90 | 168016 | 13078 | Broach Broach Inspect. |
| 100 | 168017 | 15204 | Milling Drilling |

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72

JUL 17 '96 12:01

FROM P/W E.H.

TO 50073

PAGE.003

17 JUL 1996 14:55

COMBUSTOR DIVISION 2520 98513

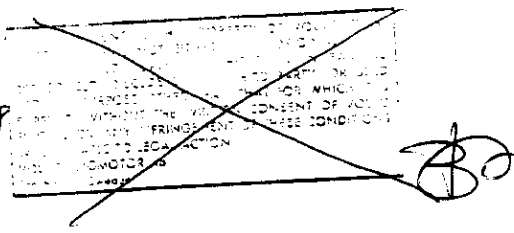
NR.614 P.3

VOLVO FLYGMOTOR AB TROLLHATTAN, SWEDEN

OPERATION SEQUENCE LIST

| | | | | |
|--------------------------------|----------------------------|-----------------------------|---------------------------------|-----------------------|
| ENGINE MODEL JT30 ZL7, ZL9 | PWA PART NUMBER 5000501 | VOLVO PART NUMBER 303201 | PREPARED BY R. SOHLBERG 706C | DATE 12/7/87 |
| PART NAME HUB FRONT | | | REV 3 | PAGE NUMBER 2 of 3 |
| VOLVO MANUFACT REP 12/11/87 | | VOLVO QUL REP | | PSW SQPR |
| ESD APPROVAL | | | MCL APPROVAL | |

| OP NO | OP SHEETS | MACH. NR | OPERATION DESCRIPTION |
|------------|------------------|------------------------|-------------------------|
| 110 ALT | 168018 167504 | 15203025 1520302-03 | Drilling Bore |
| 120 | 168019 | 18023 | SPLINES |
| 130 | 168020 | 16039 | Grind |
| 140 | 168021 | 25020 | Deburring |
| 150 | 168022 | 21071 | Buff edges. |
| 150 | 168023 | 53011 | Balance |
| 170 | 168024 | 14073 | Milling (Adjust balance |
| 180 | | 54040 | Inspection |
| 190 | 168026 | 27112 | BEA |
| 200 | 168027 | 54040 | Inspection |



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VOLVO FLYGMOTOR AB TROLLHATTAN, SWEDEN

OPERATION SEQUENCE LIST

| | | | | |
|---------------------------------|----------------------------|-----------------------------|----------------------------|-----------------------|
| ENGINE MODEL JTSD 217. 219 | PWA PART NUMBER 5000501 | VOLVO PART NUMBER 303201 | PREPARED BY R. SOHLBERG | DATE 12/7/87 |
| PART NAME HUB FRONT | | | REV 3 | PAGE NUMBER 3 of 3 |
| VOLVO MANUFACT REP. 12/11/87 | | VOLVO CUST REP. KALIF | | PGH |
| ESA APPROVAL | | M.C. APPROVAL | | |

| OP NO | OP SHEETS | MACH. NR | OPERATION DESCRIPTION |
|-------|-----------|----------|-----------------------|
| 210 | 168028 | 53103 | FPI |
| 220 | 168029 | 21080 | Sutton barrel |
| 230 | | 54040 | Inspection |
| 235 | | 53241 | MHC Inspection |
| 240 | 168031 | 27051 | Shoot peening |
| ALT | 167064 | 27051-22 | |
| 250 | 168032 | 27032 | Cleaning |
| ALT | 167350 | 27043 | |
| 260 | | 54040 | Inspection |
| 270 | 168034 | 54064 | Mark |

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9

AUG 2 '96

FROM PROGRAM OFFICE(MFG)

TO 51568

PAGE.011

31 JUL '96 11-27 VAC STRUCT PWA GROUP 10422510

VERKSTADSORDER Följesedel

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| | | | | | | |
|--------|-----------|-----|---|---|---|-------|
| 303201 | MUB FRONT | 962 | 2 | 2 | 1 | 88485 |
|--------|-----------|-----|---|---|---|-------|

| Order no. | Part no. | Part name | QTY | Unit | Material | Remarks | Stock | Change |
|-----------|-------------|-----------|-----|------|----------|---------|---------|--------|
| 733 | 54040 | S168008 | 2 | 2 | SYN | | 1/2 KE | |
| 732 | 11262 | S168009 | 2 | 2 | SNCHX | | 2527 | |
| 40 | 732 11215 | S168011 | 2 | 2 | SNC | | 2532 | |
| 50 | 732 11475 | S168012 | 2 | 2 | SNC | | 2537 | |
| 70 | 732 11215 | S168014 | 2 | 2 | SNC | | 2542 | |
| 80 | 731 15203 5 | S168015 | 2 | 2 | BNC GR | | 6477049 | |
| 90 | 731 18078 | S168016 | 2 | 2 | DRDR | | 919 | |
| 100 | 731 15204 | S168017 | 2 | 2 | FNCER | | 1549 | |
| 110 | 731 15203 5 | S168018 | 2 | 2 | BNCGR | | 1063 | |
| 120 | 731 18023 | S168019 | 2 | 2 | STISPL | | 987 | |
| 130 | 731 16039 | S168020 | 2 | 2 | SLR | | 9188 | |
| 150 | 733 21071 | S168022 | 2 | 2 | BRST | | 1924 | |
| 160 | 731 53011 | S168023 | 2 | 2 | BAL | | 2405 | |
| 170 | 731 14073 | S168024 | 2 | 2 | F | | | |
| 180 | 473 54040 | S168025 | 2 | 2 | SYN | | 2165 | |
| 190 | 493 27112 | S168026 | 2 | 2 | ETS | | 2204 | |
| 200 | 462 54040 | S168027 | 2 | 2 | SYNETS | | | |
| 210 | 473 53103 | S168028 | 2 | 2 | PROPFL | | | |
| 220 | 733 21081 | S168029 | 2 | 2 | TRU | | | |
| 230 | 473 54040 | S168030 | 2 | 2 | KON | | | |
| 240 | 733 27051 | S168031 | 2 | 2 | BOKUL | | 259 | |
| 250 | 733 27035 | S168032 | 2 | 2 | SNBT | | 1665 | |
| 260 | 473 54040 | S168033 | 2 | 2 | KON | | | |
| 270 | 473 54061 | S168034 | 2 | 2 | HA | | | |

DETTA FALT FÖR ANTECKNINGAR INNE GÖRAS -
ÄR RESERVERAT FÖR OPTISK LÄSNING

Avslutad följesedel skickas till 450A för arkivering

10

Backside of 303201-71 page 1

3/24

KONTROLLANTECKNINGAR

| Tjänstens namn och nummer | | | | Klassifikationsförhållande och anmärkningar Anmärkningar om de klasserade delarna har chargen, var- eller kodnr | Förordnad kontroll | Övrig not |
|---------------------------|--------|--------|-------|---|-----------------------|---------------|
| Op nr | Slutnr | Samman | St nr | | | |
| Ant | St | Klass | Sam | | | |
| | | | | Samkörd med Sats 78 | 20 | |
| | | | | senkörd med sats | 40 | |
| | | | | Senkörd med sats 78 | 50 | |
| | | | | | 70 | 30890 |
| 90 | | | | Närre bullplan ppg. för utvärdering x 32977 | 80 | 11 |
| | | | | | 80 | 3R 30877 |
| | | | | Prohibit ok | 90 | |
| | | | | | 100 | 32897 G. 3290 |
| | | | | 2 st till tillfälligt + 0,63 och 1 st till tillfälligt vid utvärdering 120 till (Dnr 32971) | 110 | 2977 |
| | | | | | 110 | 3R 30871 |
| | | | | KMS 80 | 120 | |
| | | | | Samkörd med sats 80 | 130 | |
| | | | | x Justersvarvad till mell 2,42 + 0,24 kr + 0,76 | 140 | 32897 |
| | | | | Samkörd med sats 78 | 150 | |
| | | | | | 220 | 32897 |

reflex page 12

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I DETTA FALT FÅR ANTECKNINGAR INTE GOPAS - ÖMSTÄNDE SIDOR ÄR RESERVERAD FÖR OPTISK LÄSNING

11

12

Two holes of 12.117 are +0.035 and 110
 one hole of 13.095 is +0.008
 some choker marks in furrows
 apply to serial number 32971

120
 Batch 80 manufactured at 130
 the same time.
 Dimensions & 42 1024 have been 140
 adjusted by turning to 1076
 Batch 80 manufactured 150
 at the same time.
 220

100
 96
 80
 80
 Test piece except

110
 Tool marks on both face due to 70
 wrong tooling applies to
 Serial number 32972

120
 Batch 78 manufactured at 40
 the same time.
 Batch 78 manufactured at 50
 the same time.
 Batch 78 manufactured
 at the same time.
 20

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KONTROLLANTTEKNIKA
 KÄSELMARKER OCH ÅRSBERÄKNING
 AVSEERANDE PÅ DE MÄNKAD OCH
 BEKÄNDA DELARNA

FROM PROGRAM OFFICE(MFG) TO S1568

31 JUL '96 12:28 VPC STRUCT PUA GROUP 852898518

PAGE.013

AUG 2 '96 13:41 FROM PM PROD INTEG

AUG 2 '96 1

FROM PROGRAM OFFICE(MFG)

TO 884785559910

PAGE.012/032

P.12

3/24

Page

FLYGDATOR **VERKSTADORDER** **Føljesedel** 2

| | | | | | | | | | |
|------------|-------------|----------|---------|-----------|---------|---------|---------|---------|---------------------|
| Order | Ordernummer | Ans. nr. | Skisser | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid |
| 7 | 303201 | | 79 | | | | | | HUB FRONT 4/24 |
| Anbefaling | | Uprøytid | | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid |
| | | | | 762 | 2 | 2 | 1 | 85485 | |
| X-verkstad | | Material | | Referanse | | Drøytid | | Drøytid | |

| Order | Ans. nr. | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid | Drøytid |
|---|----------|---------|---------|---------|---------|---------|---------|---------|-----------|
| OP - SEQUENCE LIST REV. 3 FROM BATCH 23 | | | | | | | | | |
| 0 | | | 303000 | ANRE | | 2 | 5T | 7166 | |
| 4236 | 732 | 11215 | 5165014 | | 5 | 1 | 1 | 1634 | 1/3 R/L |
| 4236 | 473 | 53103 | 5168028 | | PROFIL | | | | 20/JUL/96 |
| 4236 | 473 | 54010 | | | KBN | 1 | 1 | | 20/5/96 |
| | | | | | | | | | |
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13

127 524

KONTROLLANTECKNINGAR

| Klassifikation och kontrollfunkt | | | | Klassifikationsor sak och anmärkningar: Anmärking om de klassificerade delarnas utgåvor. Kro- eller kodnr. | Revisioner | Och andra |
|--|----------|----------|-------|---|------------|-----------|
| Objekt | Skiljete | Dokument | Bläck | | | |
| Var | Ar | Kod | Sign | | | |
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| | | | | 890315 | | |
| | | | | Batch includes part reported on sron to PW. | | |
| | | | | <i>adjusts after processes</i> | | |
| | | | | Item 1. 4/N R32971 @ dia 425.729 / 425.679 is 0.025 ø max | | |
| | | | | Item 2 3/N R 32971 @ dia 321.539 / 321.529 is 0.006 ø max. | | |
| | | | | Item 4 4/N R32977 dia. 2.42 / 2.66 is 0.52 ø max. | | |
| 2 2 2 | | | | Item 5 3/N R32977 blending @ dia 338.46 / 338.70 | | |
| 2 | | | | These two parts are sent to crib waiting | | |
| 2 | | | | disp of sron at PW. | | |

15

AUG 2 '96 13:44 FROM PW PROD INTEG

TO 88478559910

PAGE.016/032

AUG 2 '96 ; FROM PROGRAM OFFICE(MFG)

TO 51568

PAGE.017

31 JUL '96 12:31 VAC STRUT P&W GROUP 000070010

P.10

ATTACHMENT 2

Attachment 2 contains Volvo Flygmotor's Inspection Records for SN R32971. The records identified with Volvo PN 303340 are the Inspection Records for P&W Hub Assembly PN 5000421. Records identified with Volvo PN 303201 are for P&W Hub Detail PN 5000501.

16

31 JUL 20 16 31 VPL 31 KULLI MAN LKULF 270000040013

VOLVO FLYGMOTOR

KONTROLLRAPPORT INSPECTION REPORT

| | | | | |
|-------------------------------------|------------------------------|------------------------------|----------------------|--------------------------------------|
| DETAILBENÄMNING HUB-FRONT | | OPPARORDET 260 | SATS NR 79 | DETAILNUMMER P30320/F |
| ANTAL DEF. TKL OF Total number 2 | ANTAL COOK. DEF ADDRESS 2 | KONTROLLANT PROPERTY 2660 | DATUM Date 890901 | RAPPORTEN GODKÄND Report approved |

| KOD Code | R329 | | LÖPNUMMERA SRN | | | | ANTAL / NUMBER | | | | |
|-------------|------|----|-----------------|--|--|--|----------------|------------|-----------|--------------|---------------|
| | 71 | 77 | | | | | COOK AK | JUST AK | AR MRA | KASS GANG | SCHEM SÄTT |
| 10 | - | - | | | | | | | | | |
| 20 | - | - | (AR EJ GODKÄND) | | | | | | | | |
| 30 | - | - | | | | | | | | | |
| 40 | - | - | | | | | | | | | |
| 50 | - | - | | | | | | | | | |
| 60 | - | - | | | | | | | | | |
| 70 | - | - | | | | | | | | | |
| 80 | - | - | | | | | | | | | |
| 90 | - | - | | | | | | | | | |
| 100 | - | - | | | | | | | | | |
| 110 | - | - | | | | | | | | | |
| 120 | - | - | | | | | | | | | |

This code tells the inspector to check if there is any iron affected and if so answer has been received from Jan. on serial number R32977 jaws still open.

↑
IRON

Codes from the inspection method sheets.

PRIVATE

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17

AUG 2 '96 1

FROM PROGRAM OFFICE(MFG)

TO 51568

PAGE.019

31 JUL '96 12:32 VHL STRUKTUR MÅN GRUPP 100056010

27/24

**VOLVO
FLYGMOTOR**

KONTROLLRAPPORT / INSPECTION RECORD

KULBOMSNING (STÅL) / SHOT PEENING

KULBOMBNING (GLAS) / GLASS BEAD PEENING

| | | | | | |
|--------------------------|---------------|----------------------|--|----------------|--|
| Delbeskrivning / Part No | | Serier / Part No | | Seri / Part No | |
| Hub front | | 303201 | | 79 | |
| Cap nr / Part No | OP nr / OP No | Mått nr / Drawing No | | Seri. No | |
| | 240 | 27051-31 | | 189292 | |

PROCESSKONTROLL INTENSITETS VERIFIKATION / PROCESS CONTROL INTENSITY VERIFICATION

TESTFIXTUR NR / TEST FIXTURE NO:

PROGRAM NR / PROGRAM NO:

Shot Peen?
YES.

| Profilnr / Profile | Takstör / Abrasion No | Takstör / Abrasion No | Takstör / Abrasion No | Takstör / Abrasion No | Takstör / Abrasion No | Takstör / Abrasion No |
|------------------------|--------------------------|--------------------------|----------------------------------|--------------------------|--------------------------|--------------------------|
| 0.15-0.23 | 1 | 2 | 3 | 4 | 5 | 6 |
| | 0.17 A | 0.175 A | A | A | A | A |
| Met / Requirement | N | N | N | N | N | N |
| Översikt / Overview | 28/3-89 | | Godkännande sign / Approval sign | | | |
| | | | DR | | | |

KONTROLL AV TÄCKNING PÅ KULBOMBAD DETALJ / COVERAGE INSPECTION ON PEENED PART

| Kontrollpunkt / Inspection Item | Kontrollmetod / Inspection method | Utlåtelse / Statement |
|---|---|--|
| Allmän utseende / General appearance | Och / Visual | <p>PRIVATE</p> <p>THIS DOCUMENT IS THE PROPERTY OF UNITED TECHNOLOGIES CORPORATION AND CONTAINS CONFIDENTIAL TECHNICAL, COMMERCIAL OR FINANCIAL INFORMATION. IT IS DELIVERED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE DISCLOSED OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF UNITED TECHNOLOGIES CORPORATION, AND THAT NO PARTY IS WARRANTED TO DISCLOSE OR REPRODUCE ANY INFORMATION CONTAINED IN THIS DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE.</p> |
| Yta / Surface: | Förstoring 10 X / Magnification 10 X | |
| Yta / Surface: | Förstoring 10 X / Magnification 10 X | |
| Yta / Surface: | Förstoring 10 X / Magnification 10 X | |
| Datum / Date | Godkännande sign / Approval sign | |

JUL '96 12:33 VFC STRUCT PWA GROUP 052098519 **KONTROLLRAPPORT**
FLYGMOTOR **INSPECTION REPORT**

| | | | | | | | | | |
|----------------------------|-----------------|-------------|--|-----------------------|-------------------|------|----|---------------|--------|
| DETAILS CHANGING Part name | | HUB FRONT | | OP. NO. / DRAWING NO. | 230 | DATE | 79 | DETAIL NUMBER | 303201 |
| ARTAL DET. TAL OP | ARTAL GOOD. DET | KONTROLLANT | | Date | RAPPORTEN GOEDKAM | | 74 | | |

| KOD Code | LOP NUMBERS | | ARTAL NUMBER | | | | Status |
|----------|-------------|------|--------------|----------|--------|-----------|--------|
| | 3297 | 8272 | GOOD Acc | JUST acc | AA W/A | KASS 5033 | |
| 11 | - | | | | | | |
| 21 | - | | | | | | |
| 31 | - | | | | | | |
| 32 | - | | | | | | |
| 33 | - | | | | | | |
| 41 | - | | | | | | |
| 71 | - | | | | | | |
| 81 | - | | | | | | |
| 91 | - | | | | | | |
| 101 | - | | | | | | |
| 111 | - | | | | | | |
| 151 | - | | | | | | |
| 161 | - | | | | | | |
| 171 | - | | | | | | |
| 181 | - | | | | | | |
| 191 | - | | | | | | |
| 201 | - | | | | | | |
| 221 | - | | | | | | |
| 281 | - | | | | | | |
| 321 | - | | | | | | |
| 331 | - | | | | | | |
| 341 | - | | | | | | |
| 361 | - | | | | | | |
| 371 | - | | | | | | |
| 411 | - | | | | | | |

This code tells the inspector to check all reports from the measuring performed by the machining operator. In this case he misses the report from operation no: 80.

PLAN ~~AI~~ NER

PRIVATE

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[Handwritten signature]

Subgroup: 10000000000

19

FLYGMOTOR INSPECTION REPORT

| | | | |
|--|---------------------------------------|--------------------|--------------------------------------|
| DETAIL NUMBER Part No. HUB FRONT | OF PARTIAL Case/Opening 230 | SATS NO. Serial | DETAIL NUMBER " / " 303201 |
|--|---------------------------------------|--------------------|--------------------------------------|

| | | | | | |
|-----------------------------------|--------------------------|-----------------------|---------------|--------------------------------------|-----------------------|
| ANTAL DET. TLL OP Total number | ANTAL OOKK DET Number | KONTROLLANT Subvdr | DATUM Date | RAPPORTEN GODKAND Report approved | BLAD No. 94 |
|-----------------------------------|--------------------------|-----------------------|---------------|--------------------------------------|-----------------------|

| KOD Code | LOP/NUMBER S/M | | | | ANTAL/NUMBER | | | | SOMEN Skrive | |
|-------------|----------------|------|-------------------------------------|--|--------------|-----------|-----------|----------------|-----------------|--|
| | 2297 | 2357 | | | OOKK AGE | AJT AM | AR MKA | KASS Skrive | | |
| 1071 | - | - | | | | | | | | |
| 1081 | - | - | | | | | | | | |
| 1091 | - | - | | | | | | | | |
| 1101 | - | - | | | | | | | | |
| 1111 | - | - | * Note: Normal step in the sequence | | | | | | | |
| 1121 | - | - | | | | | | | | |
| 1131 | - | - | | | | | | | | |
| 1141 | - | - | | | | | | | | |
| 1151 | - | - | | | | | | | | |
| 1161 | - | - | | | | | | | | |
| 1171 | - | - | | | | | | | | |
| 1181 | - | - | | | | | | | | |

OPERATION 50 0-168012

261 K-RAPP PROD ?

PRIVATE

251 ~~_____~~ *

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121 - -

381 - -

301 - -

311 - -

241 - -

271 K-RAPP PROD* Definition of K-RAPP PROD

131 ~~_____~~ All these codes tells the inspector to pick up the inspection report issued in the specific machining op and record his results and compare this with the operator.

351 - -

391 - -

291 - -

231 - -

25

AUG 2 '96

FROM PROGRAM OFFICE(MFG)

TO 51568

PAGE.022

31 JUL 96 12:33 VMC STRICT PWA GROUP 052098510

| Case No. | 3277 | 3477 | | | | | | | | | | | | |
|----------|------|------|--|--|--|--|--|--|--|--|--|--|--|--|
| 431 | - | - | | | | | | | | | | | | |
| 461 | - | - | | | | | | | | | | | | |
| 481 | - | - | | | | | | | | | | | | |
| 511 | - | - | | | | | | | | | | | | |
| 541 | - | - | | | | | | | | | | | | |
| 621 | - | - | | | | | | | | | | | | |
| 631 | - | - | | | | | | | | | | | | |
| 651 | - | - | | | | | | | | | | | | |
| 661 | - | - | | | | | | | | | | | | |
| 671 | - | - | | | | | | | | | | | | |
| 761 | - | - | | | | | | | | | | | | |
| 771 | - | - | | | | | | | | | | | | |
| 791 | - | - | | | | | | | | | | | | |
| 831 | - | - | | | | | | | | | | | | |
| 921 | - | - | | | | | | | | | | | | |
| 931 | - | - | | | | | | | | | | | | |
| 941 | - | - | | | | | | | | | | | | |
| 951 | - | - | | | | | | | | | | | | |
| 961 | - | - | | | | | | | | | | | | |
| 971 | - | - | | | | | | | | | | | | |
| 981 | - | - | | | | | | | | | | | | |
| 991 | - | - | | | | | | | | | | | | |
| 1001 | - | - | | | | | | | | | | | | |
| 1011 | - | - | | | | | | | | | | | | |
| 1021 | - | - | | | | | | | | | | | | |
| 1031 | - | - | | | | | | | | | | | | |
| 1041 | - | - | | | | | | | | | | | | |
| 1051 | - | - | | | | | | | | | | | | |
| 1061 | - | - | | | | | | | | | | | | |

** Note: Normal step in the sequence.*

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7

21

31 JUL '96 12:35 VAC STRUCT PWA GROUP 052098510

SEP 22 1996

| NO | DESCRIPTION | DATE | BY | STATUS | REMARKS |
|------|--------------|------|----|--------|-------------|
| 3277 | 3277 | | | | |
| 61 | K-RAPP PROD* | | | | |
| 51 | K-RAPP PROD* | | | | SEE PAGE 16 |
| 871 | K-RAPP PROD* | | | | |
| 881 | - | | | | |
| 811 | - | | | | |
| 751 | - | | | | |
| 731 | - | | | | |
| 741 | - | | | | |
| 891 | - | | | | |
| 601 | - | | | | |
| 141 | - | | | | |
| 441 | - | | | | |
| 561 | - | | | | |
| 551 | - | | | | |
| 591 | - | | | | |
| 501 | - | | | | |
| 571 | - | | | | |
| 451 | K-RAPP PROD* | | | | |
| 491 | K-RAPP PROD* | | | | |
| 601 | - | | | | |
| 211 | K-RAPP PROD* | | | | SEE PAGE 16 |
| 841 | K-RAPP PROD* | | | | |
| 911 | - | | | | |
| 691 | K-RAPP PROD* | | | | |
| 711 | - | | | | |
| 701 | - | | | | |
| 681 | - | | | | |
| 1191 | - | | | | |
| 141 | - | | | | |

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BD

22

JUL '96 12:35 VAC STRUCT PWA GROUP 052098510 CONTROLLRAPHOHI
FLYGMOTOR INSPECTION REPORT

P.23/124

| | |
|-----------------------------|------------------------|
| DETAILS OF PARTS | CONTROL NUMBER |
| Part Name: HOB-FRONT | Part No: 303201 |
| QTY: 230 | |

| | | | | | |
|--------------------|-----------------|------------|-------|-------------------|------|
| ANTAL DEC. TILL OP | ANTAL COOK. DET | CONTROLANT | DATUM | RAPPORTEN COOKAND | BRAD |
| Total number | Assessed | Program | Date | Pages approved | 5/4 |

| KCO | Date | LPHNUMERS/X | | | | ANTAL/Number | | | | Stamp |
|------|------|-------------|------|----|-----|--------------|------|----|-----|-------|
| | | COOK | JUST | AR | MAA | MAA | JUST | AR | MAA | |
| 581 | - | - | - | - | - | - | - | - | - | - |
| 721 | - | - | - | - | - | - | - | - | - | - |
| 531 | - | - | - | - | - | - | - | - | - | - |
| 521 | - | - | - | - | - | - | - | - | - | - |
| 601 | - | - | - | - | - | - | - | - | - | - |
| 471 | - | - | - | - | - | - | - | - | - | - |
| 851 | - | - | - | - | - | - | - | - | - | - |
| 801 | - | - | - | - | - | - | - | - | - | - |
| 821 | - | - | - | - | - | - | - | - | - | - |
| 901 | - | - | - | - | - | - | - | - | - | - |
| 781 | - | - | - | - | - | - | - | - | - | - |
| 1201 | - | - | - | - | - | - | - | - | - | - |
| 1211 | - | - | - | - | - | - | - | - | - | - |
| 1221 | - | - | - | - | - | - | - | - | - | - |
| 1231 | - | - | - | - | - | - | - | - | - | - |
| 1241 | - | - | - | - | - | - | - | - | - | - |
| 1251 | - | - | - | - | - | - | - | - | - | - |
| 1261 | - | - | - | - | - | - | - | - | - | - |
| 1271 | - | - | - | - | - | - | - | - | - | - |
| 1281 | - | - | - | - | - | - | - | - | - | - |
| 1291 | - | - | - | - | - | - | - | - | - | - |
| 1301 | - | - | - | - | - | - | - | - | - | - |
| 1311 | - | - | - | - | - | - | - | - | - | - |
| 1321 | - | - | - | - | - | - | - | - | - | - |
| 1331 | - | - | - | - | - | - | - | - | - | - |

PLAN [A] UPP
SURFACE [B] UP

~~PRIVATE~~

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(Handwritten signature)

(23)

31 JUL '96 12:36 VAC STRUCT PWA GROUP 052096510

24/7/74

| Item No. | Part No. | QTY | DESCRIPTION | REMARKS | STATUS | DATE |
|----------|-----------|-----------|----------------------|---|--------|------|
| 1351 | 321.579 | 321.579 | diff part adjustment | 9234504 | PR | 24 |
| 1361 | 425.170 | 425.729 | diff part adjustment | AR details i seten. ATGASAL 4706 PWA 0200362 | PR | 24 |
| 1371 | 321.539 | 321.589 | | Part reported 1 | | |
| 1381 | 425.179 | 425.729 | | on ston to 1 | | |
| 1391 | | | | PBW | | |
| 1401 | | | | | | |
| 1411 | | | | DIM 2.42-2.66 0.52 o/moz | | |
| 1421 | | | | The format for the inspection department require serial number 32977 to be reported on ston. | | |
| 1431 | | | | for above dim 2.42-2.66 | | |
| 1441 | | | | | | |
| 1451 | | | | | | |
| 1461 | 9.42-2.66 | 2.42-2.66 | | | PR | 24 |
| 1471 | | | | | | |
| 1481 | | | | | | |
| 1491 | | | | | | |
| 1501 | | | | | | |
| 1511 | | | | | | |
| 1521 | | | | | | |
| 1531 | | | | | | |
| 1541 | | | | | | |
| 1551 | | | | | | |
| 1561 | | | | | | |
| 1571 | | | | | | |
| 1581 | | | | | | |
| 1591 | | | | | | |
| 1601 | | | | | | |
| 1611 | | | | | | |
| 1621 | | | | | | |
| 1631 | | | | | | |

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24

31 JUL '96 12:37 VAC STRUCT PWA GROUP 052096510

VOLVO
FLYGMOTOR

KONTROLLRAPPORT
INSPECTION REPORT

P. 25 74

| | | | |
|---------------------|-----------------------|-------------|---------------|
| DETAILS OF THE PART | OP. NO. OF THE DETAIL | SATS NO. | DETAIL NUMBER |
| HUB - FRONT | 230 | | 303201 |
| ART. DET. TILL OF | ANAL. CODE DET. | KONTROLLANT | DATE |
| | | | |

| KOD | LÖSNUMMERN | | ART. / Number | | | | STOR | |
|------|------------|---|---|------|----|------|------|--|
| | 1 | 2 | CODE | JUST | AR | CAES | | |
| 1441 | - | - | | | | | | |
| 1451 | - | - | | | | | | |
| 1461 | - | - | | | | | | |
| 1471 | - | - | | | | | | |
| 1481 | - | - | | | | | | |
| 1491 | - | - | | | | | | |
| 1701 | - | - | | | | | | |
| 1711 | - | - | | | | | | |
| 1721 | - | - | | | | | | |
| 1731 | - | - | | | | | | |
| 1741 | - | - | | | | | | |
| 1751 | - | - | Not inspected (dia olmoa accept after adjustment) | | | | | |
| 1761 | x | x | * fittat (fittat) ok efter just | | | | | |
| 1771 | x | x | | | | | | |
| 1781 | - | - | PRIVATE | | | | | |
| 1791 | - | - | THIS DOCUMENT IS THE PROPERTY OF UNITED TECHNOLOGIES CORPORATION AND CONTAINS CONFIDENTIAL TECHNICAL INFORMATION. IT IS TO BE USED ONLY FOR THE PURPOSES FOR WHICH IT IS LOANED AND IS NOT TO BE DISCLOSED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF UNITED TECHNOLOGIES CORPORATION. AND THAT NO RIGHT TO DISCLOSE OR REPRODUCE OR INFORMATION CONTAINED IN SAID DOCUMENT. THIS RESTRICTION DOES NOT LIMIT THE RIGHT TO USE INFORMATION OBTAINED FROM ANOTHER SOURCE. | | | | | |
| 1801 | - | - | | | | | | |
| 1811 | - | - | | | | | | |
| 1821 | - | - | | | | | | |
| 1831 | - | - | KASTMÄTNING RUN OUT MÄSURIN G | | | | | |
| 1841 | - | - | | | | | | |
| 1851 | - | - | | | | | | |
| 1861 | - | - | | | | | | |
| 1871 | - | - | | | | | | |
| 1881 | - | - | | | | | | |

25

31 JUL 1996 15:02 COMBUSTOR DIVISION 0520 98513

26

| DATE | TIME | DESCRIPTION | INITIALS | CLASS | STATUS |
|------|------|--|----------|-------|--------|
| 1901 | | | | | |
| 1911 | | | | | |
| 1921 | | | | | |
| 1931 | | | | | |
| 1941 | | | | | |
| 1951 | | | | | |
| 1961 | | | | | |
| 1971 | | | | | |
| 1981 | | Visual Inspection | | | |
| 1991 | | OKULARKONTROLL ? | | | |
| 2001 | | | | | |
| 2011 | | | | | |
| 2021 | | Blending of a foolmark in Ø 338,48/338,70. Part reported on spec. Serial no R.32977 | | | |
| 2031 | | Verification of the mark of Ø 338,48/338,70 R.32977 | | | |
| 2041 | | AR (Arbeits) setzen ATARD 473 R.14 0520382 | | | |
| 2051 | | | | | |

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21

**VOLVO
FLYGMOTOR**

**OFF KONTROLLRAPPORT
NDT INSPECTION RECORD**

| | | | | |
|-----------------|-----------------------|-----------------------|----------------------|--------------|
| Part No 4773 | Part Name 53103 | Location HUB FRONT | Part No 303201- | Part No 3 |
| Part No 210 | Part Name 0-768028 | Part Name PT | Part No 177315-7 | |
| | | | Part No 176070-11 | |

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| Log No S/N Vol No | Serial Batch | Anal Quantity | Good Accept | Just Adjust | Notations/ (St 2-sec detailed) Notes (Continued next page) | Faked (vins) Cada (Turn) | Aligned Action | Quantity Operator | Quantity Inspector | Calibr Date |
|-------------------------|-----------------|------------------|----------------|----------------|---|-----------------------------------|-------------------|----------------------|-----------------------|----------------|
| | 71 | 4 | 4 | | | 50 | | | | 890214 |
| | 72 | 4 | 4 | | | 50 | | | | 890215 |
| | 73 | 4 | 4 | | | 50 | | | | 890217 |
| | 74 | 4 | 4 | | | 50 | | | | 890218 |
| | 75 | 2 | 2 | | not in section per dist. L Vol: R 22960 | 50 | | | | 890219 |
| | 76 | 2 | 2 | | | 50 | | | | 890220 |
| | 77 | 2 | 2 | | | 50 | | | | 890221 |
| | 78 | 2 | 2 | | | 50 | | | | 890222 |
| | 79 | 2 | 2 | | not in section per dist. L Vol: R 22971 | 50 | | | | 890223 |
| | 80 | 2 | 2 | | | 50 | | | | 890224 |
| | 82 | 2 | 2 | | | 50 | | | | 890225 |
| | 81 | 2 | 2 | | | 50 | | | | 890226 |
| | 83 | 2 | 2 | | | 50 | | | | 890227 |
| | 84 | 2 | 2 | | | 50 | | | | 890228 |
| | 85 | 2 | 2 | | | 50 | | | | 890229 |
| | 86 | 2 | 2 | | | 50 | | | | 890230 |
| | 87 | 2 | 2 | | | 50 | | | | 890231 |
| | 89 | 2 | 2 | | | 50 | | | | 890232 |
| | 90 | 2 | 2 | | | 50 | | | | 890233 |
| | 88 | 1 | 1 | | | 50 | | | | 890234 |
| | 91 | 2 | 2 | | | 50 | | | | 890235 |
| | 92 | 2 | 2 | | | 50 | | | | 890236 |
| | 93 | 2 | 2 | | | 50 | | | | 890237 |
| | 95 | 2 | 2 | | | 50 | | | | 890238 |
| | 94 | 2 | 2 | | | 50 | | | | 890239 |

FBI INSPECTOR
 SAW SOMETHING ON
 BREAKAGE OF JOINT
 HOLE.

THIS NOTE APPLIED BY
 THE INSPECTOR FOR
 START CONTROL ON 7/11/96
 M. PATRICK

7

27

AUG 2 '96 1.

FROM PROGRAM OFFICE (MFG)

TO 51568

PAGE 029

31 JUL 1996 15:03

COMBUSTOR DIVISION 0520 98513

INSPECTION REPORT

FLYGMOTOR

| | | |
|------------------------------------|-----------------------------------|----------------------------|
| DATE OF INSPECTION 30/07/96 | BY [Signature] | DETAILS OF PART 1033540 |
| ANTAL DET. TILL OF Total number | ANTAL COOK DET Assessed | CONTROLLANT ADDRESS |
| DATE OF DELIVERY 1993-03-00 | REPORT ON COOKING TEST RESULTS | READ [Signature] |

| ID | Code | LOPHNUMBER 57X | ANTAL/NUMBER | | | | Storage Status |
|----|------|----------------|--------------|----------|--------|-------------|----------------|
| | | | COOK AGE | JUST AGE | AR MFA | PASS Status | |
| 10 | / | Under 1033540 | | | | | |
| 20 | / | | | | | | |
| 30 | / | | | | | | |
| 40 | / | | | | | | |

Olusärkontroll

R 32971 h. bearb. märken i hål B145

180° i förhåll till löpnr. märkning

R 32971 R 32972

Årskontroll 25 år i förhållanden

PRIVATE

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Visual inspection *This remark was*

R 32971 machining marks in hole noted on the transfer

Ø13.145 loc. 180° from serial number *with address to the*

marking *insp. dept 473*

28

AUG 2 '96 11
31 JUL 1996 15:03

FROM PROGRAM OFFICE(MFG)
COMBUSTOR DIVISION 6520 98513

TO 51568

PAGE.030

VOLVO FLYGMOTOR

KONTROLLRAPPORT INSPECTION REPORT

11/29 29

| | | | |
|---|-------------------------------------|--------------------------|---|
| DETAILREVISNING Part no: HUBFRONT | OP. NO. WITH COUNTRY: 180 | SATSNR Ser: 79 | DETAILREVISNING PIN: P303201F |
|---|-------------------------------------|--------------------------|---|

| | | | | | |
|--|-------------------------------------|---------------------------------------|------------------------------|--------------------------------------|-------------------------|
| ANTAL DET. TILL OP Total number: 2 | ANTAL GODK. DET accept: 2 | KONTROLLANT Inspector: 2660 | DATUM Date: 890224 | RAPPORTEN GODKÄND Report approved | BLAD Sheet: 1 |
|--|-------------------------------------|---------------------------------------|------------------------------|--------------------------------------|-------------------------|

| KOD Code | LOPNUMMER S/N | | | | LÖPVALDNING | | | | GODK. Date |
|-------------|---------------|----|--|--|-------------|-------------|-----------|--------------|---------------|
| | 71 | 77 | | | CODE AGE | LAST AGE | AR MÅN | KASS SÄSB | |
| 10 | - | | | | | | | | |
| 20 | - | | | | | | | | |
| 30 | - | - | | | | | | | |
| 35 | - | - | | | | | | | |
| 40 | - | - | | | | | | | |
| 50 | - | - | | | | | | | |
| 60 | - | - | | | | | | | |
| 70 | - | - | | | | | | | |
| 80 | - | | | | | | | | |
| 90 | - | | | | | | | | |

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(Handwritten initials)

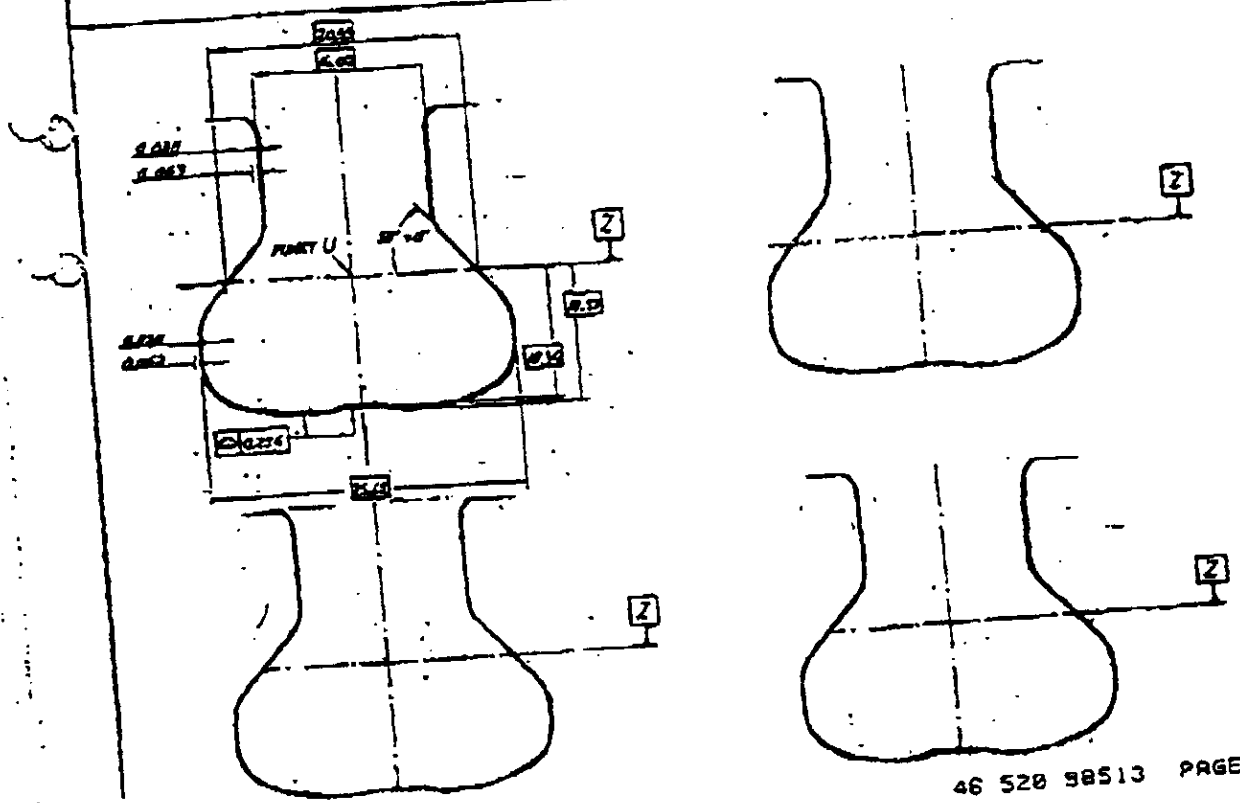
31 JUL 1996 15:00 COMBUSTOR DIVISION 0520 98513

| Partenyt PWA | Benämning | Material | Gränser | Order | Ant | Order nr | 31 |
|------------------------------------|-----------|---|---------|---------|-----|----------|----|
| | HUB-FRONT | 79 | 6 | 8901-25 | 473 | 303201 | |
| Löpnr. | | | R52971 | R52977 | | | |
| Tolk | | | OK | OK | | | |
| Lagesritlighet spär | | <input checked="" type="checkbox"/> 025 <input checked="" type="checkbox"/> A | 0.03 | 0.06 | | | |
| Ytjämbhet | | $\frac{16}{33}$ | OK | OK | | | |
| Max avvikelse från namn spärprofil | | | OK | OK | | | |
| Radia övergångar | | | OK | OK | | | |
| Mått från ϵ | | 227.96 Spär 1 | 227.95 | 227.95 | | | |
| till "U" | | 227.87 Spär 34 | 227.91 | 227.91 | | | |
| Skärning längs K-AD | | $41 \epsilon 1/2$ inner 0.28 | OK | OK | | | |
| Spärwinkel | | $74^\circ \pm 5'$ | $30'$ | $-0.4'$ | | | |
| Vinkelrätthet | | <input checked="" type="checkbox"/> 0.51 A | 0.05 | 0.07 | | | |

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R52971: Mått över knoppar $\phi 500$ OK or 69997



(31)

AUG 2 '96

FROM PROGRAM OFFICE (MFG)

TO 51568

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31 JUL 1996 13:55

COMBUSTOR DIVISION 46520 98513

SECTION REPORT

FLIGHT MOTOR

| | | | | | | | |
|----------------------------|-----------|----------------------|----|----------------|----|----------------------|--------|
| DETAIL NUMBER Part Name | Hub Front | OF PRO-PTH Column | 70 | SATEM Batch | 79 | DETAIL NUMBER P/N | 303201 |
|----------------------------|-----------|----------------------|----|----------------|----|----------------------|--------|

| | | | | | | | |
|-----------------------------------|---|----------------------------|---|----------------|--------|---------------------------------------|---------------|
| ANTAL DET. TEL OF Total number | 2 | ANTAL COOK DET Antichol | 2 | CONTROL NUMBER | 881219 | REPORTING CODE AND Report approved | BLAD Sheet |
|-----------------------------------|---|----------------------------|---|----------------|--------|---------------------------------------|---------------|

| REQ Code | LOP NUMBER S/N | | | | Serial Part |
|-------------|-----------------------------|-------------|------------|---------------|----------------|
| | COOK AGE | JUST AGE | IN MKS | WARS STAGE | |
| 10 | - | | | | |
| 20A | - | | | | |
| 20B | Lopnr (Serial) Heat code | | Suffix dr. | | |
| | R32971 | LCCU | 4019 | | |
| | R32977 | LWWD | 4005 | | OK. 881219 |

This is for the traceability records
Serial number and heat code / suffix

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COMBUSTOR

20C -
30 -
40 -

32