

Space above reserved for project comments

|                                                                                                                                                    |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------|------------|
| 4                                                                                                                                                  | 21/5-86                                                                                                                                          | Revised.                                                                                         | Vuc                                      |                                       |            |
| 3                                                                                                                                                  | 10/4-86                                                                                                                                          | AS BUILT                                                                                         | Vuc                                      |                                       |            |
| 2                                                                                                                                                  | 24/7-85                                                                                                                                          |                                                                                                  | H.E.                                     |                                       |            |
| 1                                                                                                                                                  | 22/4-85                                                                                                                                          |                                                                                                  | H.E.                                     |                                       |            |
| Issue                                                                                                                                              | Issue Date                                                                                                                                       | Description                                                                                      | Exec. By                                 | Checked By                            | Appr. By   |
| Suppliers Document No.                                                                                                                             |                                                                                                                                                  | Revision                                                                                         | Space reserved for document status label |                                       |            |
| 1007-33-4                                                                                                                                          |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
| Date                                                                                                                                               | Space reserved for suppliers certified stamp                                                                                                     |                                                                                                  |                                          |                                       |            |
| Certified By                                                                                                                                       |  <b>FINAL CERTIFIED DRAWING</b><br>Date: 24/7-85 Sign.: H. Eide |                                                                                                  |                                          |                                       |            |
| Equipment description                                                                                                                              |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
| WATER INJECTION PUMPS                                                                                                                              |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
| Tag No.                                                                                                                                            | PA 51003 A/B/C/D                                                                                                                                 |                                                                                                  |                                          |                                       | Item No.   |
| Package No.                                                                                                                                        | Ref. No.                                                                                                                                         | Rev.                                                                                             | PO No.                                   | SDRL Code                             |            |
| EM 057                                                                                                                                             |                                                                                                                                                  |                                                                                                  | 114-A-KE-EM2P-057                        | 202/204                               |            |
| Suppliers logo                                                                                                                                     |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
| <br><b>FRANK MOHN A/S</b><br>5050 NESTTUN - NORWAY             |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
|                                                                 |                                                                                                                                                  | <b>Kvaerner Engineering A.S</b><br>Subcontractors: Aker Engineering A/S - Brown & Root (UK) Ltd. |                                          | Project No. 1400<br>Contract No. ADA1 |            |
|  <b>Norsk Hydro</b><br><b>Oseberg Field Development Project</b> |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
| Doc. Title                                                                                                                                         |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
| Item's list to drg. 1007-32-1                                                                                                                      |                                                                                                                                                  |                                                                                                  |                                          |                                       |            |
| DOC. NO.                                                                                                                                           |                                                                                                                                                  |                                                                                                  | A-KE-057-00-EM-70098                     |                                       | Issue<br>4 |
|                                                                                                                                                    |                                                                                                                                                  |                                                                                                  |                                          |                                       | Page Tot.  |

Ref RMD/SJS/DH

16th, July 1985

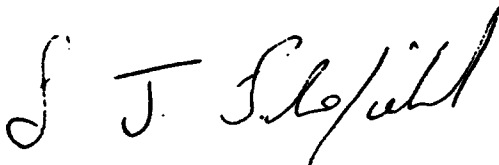
OSEBERG S.W.T. PROJECT

OUR PD840139 YOUR 1094694/1620041/18

RE: PARTS LIST FOR 70021.

We confirm Z20A to be equivalent to Zeron 25.

Regards,  
MATHER + PLATT LIMITED

A handwritten signature in cursive script, appearing to read 'S J Schofield'.

S J Schofield.  
ROTATING MACHINERY DIVISION  
PROJECT MANAGER - CONTRACTS

10"/10" 36 EFIK BARREL CASING PUMP

REF. DRG.NO. A516P-475

CLIENTS REF: NORSKE HYDRO  
 OSEBERG FIELD DEVELOPMENT PROJECT  
 MAIN WATER INJECTION PUMPS

| TAG NO. | DESCRIPTION                             | MATERIAL |
|---------|-----------------------------------------|----------|
| 22      | BEARING HOUSING N.D.E.                  | Z25A     |
| 23      | BEARING BUSH D.E.                       | STL W/M  |
| 23A     | BEARING BUSH N.D.E.                     | STL W/M  |
| 31A     | SERIES IMPELLER 1ST STAGE               | Z25A     |
| 31B     | SERIES IMPELLER 2ND STAGE               | Z25A     |
| 31C     | SERIES IMPELLER 3RD STAGE               | Z25A     |
| 31D     | SERIES IMPELLER 4TH STAGE               | Z25A     |
| 31E     | SERIES IMPELLER 5TH STAGE               | Z25A     |
| 31F     | SERIES IMPELLER 6TH STAGE               | Z25A     |
| 31G     | SERIES IMPELLER 7TH STAGE               | Z25A     |
| 31H     | SERIES IMPELLER 8TH STAGE               | Z25A     |
| 31J     | DELIVERY IMPELLER                       | Z25A     |
| 32      | CASING WEAR RING                        | Z25A     |
| 49      | IMPELLER KEY                            | Z25B     |
| 55      | PUMP HALF COUPLING                      | 3ASTL    |
| 63      | JOURNAL BEARING SLEEVE D.E.             | EN8      |
| 65      | JOURNAL BEARING SLEEVE N.D.E.           | EN8      |
| 69      | DIFFUSER WEARING RING                   | Z25A     |
| 70      | BALANCE PISTON                          | 17/4SS   |
| 75      | SHEAR RING END COVER                    | Z25A     |
| 77      | DELIVERY MIDDLE BODY                    | Z25A     |
| 77A     | STANDARD MIDDLE BODY                    | Z25A     |
| 77B     | FIRST MIDDLE BODY                       | Z25A     |
| 78      | THRUST BEARING PADS                     | STL/WM   |
| 84      | SPINDLE                                 | Z25B     |
| 251     | THRUST COLLAR LOCKNUT                   | F8ST     |
| 265     | BALANCE PISTON BUSH                     | Z25A     |
| 267     | BALANCE PISTON KEY                      | Z25B     |
| 267A    | BALANCE PISTON DUMMY-HALF KEY           | Z25B     |
| 275     | COUPLING RETAINING PLATE                | F85T     |
| 363     | BEARING END COVER N.D.E. OUTER          | Z25A     |
| 363A    | BEARING END COVER N.D.E. INNER          | Z25A     |
| 363B    | BEARING END COVER D.E. INNER            | Z25A     |
| 363C    | BEARING END COVER D.E. OUTER            | Z25A     |
| 462     | IMPELLER WEARING RING (HUB)             | 17/4SS   |
| 463     | OIL & WATER THROWER                     | B.B.     |
| 463A    | OIL & WATER THROWER/KEYPHASER RING      | B.B.     |
| 466     | IMPELLER WEARING RING (NECK)            | 17/4SS   |
| 536     | SHEAR RING                              | Z25A     |
| 592     | ANTI-ROTATION PEG (DELIVERY DIFFUSER)   | Z25B     |
| 592A    | ANTI-ROTATION PEG (BALANCE PISTON BUSH) | Z25B     |
| 600     | SHEAR RING SEGMENTS                     | Z25A     |
| 600A    | SHEAR RING RETAINERS                    | Z25A     |
| 645     | THRUST COLLAR ABUTMENT RING             | F8ST     |
| 675     | THRUST COLLAR KEY                       | Z25B     |

REV.1. MECHANICAL SEAL DRAWING NUMBER ADDED TO PAGE 2

REV.2. 23A WAS 23, 600A ADDED, 70 WAS Z25A, 265 WAS Z20A  
 462 WAS Z20A, 466 WAS Z20A

10"/10" 36 EFIK BARREL CASING PUMP

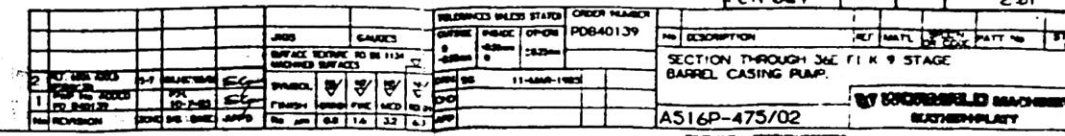
REF. DRG.NO. A516P-475

CLIENTS REF: NORSKE HYDRO  
OSEBERG FIELD DEVELOPMENT PROJECT  
MAIN WATER INJECTION PUMPS

| TAG NO. | DESCRIPTION                          | MATERIAL            |
|---------|--------------------------------------|---------------------|
| 756     | 'O' SEAL END COVER/BARREL            | E.P.                |
| 756A    | 'O' SEAL BALANCE PISTON BUSH         | E.P.                |
| 756B    | 'O' SEAL SUCTION STOPPER/BARREL BORE | E.P.                |
| 756C    | 'O' SEAL MIDDLE BODY                 | E.P.                |
| 756D    | 'O' SEAL SUCTION STOPPER/BARREL FACE | E.P.                |
| 756E    | 'O' SEAL N.D.E. BEARING HOUSING      | E.P.                |
| 765     | THRUST COLLAR                        | F8ST                |
| 791     | BARREL CASING                        | Z25A                |
| 793     | SUCTION STOPPER                      | Z25A                |
| 835     | AXIAL MOVEMENT PROBE TARGET          | 19ST                |
| 839     | DELIVERY DIFFUSER                    | Z25A                |
| 848     | BACK-UP RING END COVER/BARRLE        | P.T.F.E.            |
| 848A    | BACK-UP RING BALANCE PISTON BUSH     | P.T.F.E.            |
| 849     | DISC SPRING                          | 223 FAL             |
| 870     | THRUST RING (BALANCE PISTON)         | TIT 'A'             |
| 870A    | THRUST RING (IMPELLER 1ST STAGE)     | TIT 'A'             |
| 870B    | THRUST RING (IMPELLER 2ND STAGE)     | TIT 'A'             |
| 870C    | THRUST RING (IMPELLER 3RD STAGE)     | TIT 'A'             |
| 870D    | THRUST RING (IMPELLER 4TH STAGE)     | TIT 'A'             |
| 870E    | THRUST RING (IMPELLER 5TH STAGE)     | TIT 'A'             |
| 870F    | THRUST RING (IMPELLER 6TH STAGE)     | TIT 'A'             |
| 870G    | THRUST RING (IMPELLER 7TH STAGE)     | TIT 'A'             |
| 870H    | THRUST RING (IMPELLER 8TH STAGE)     | TIT 'A'             |
| 870J    | THRUST RING (DELIVERY IMPELLER)      | TIT 'A'             |
| 896     | BEARING HOUSING D.E.                 | Z25A                |
| 901     | MECH. SEAL N.D.E. (BURGMANN)         | SEE BURGMANN        |
| 901A    | MECH. SEAL D.E. (BURGMANN)           | DRG.NO.<br>HSHV/130 |
| 908     | COMBINED DIFFUSER AND RETURN VANES   | Z25A                |
| 988     | OIL FILLER CAP/BREATHER              | STL                 |

## CONNECTIONS

A) CASING DRAIN  
B) CASING VENT  
C) CYCLONE SUPPLY CONNECTION  
D) CYCLONE RETURN CONNECTION  
E) FIBROSCOPE CONNECTION  
F) AXIAL MOVEMENT PROBE CONNECTION (SHAFT TARGET)  
G) AXIAL MOVEMENT PROBE CONNECTION (THRUST COLLAR)  
H) THRUST BEARING OIL INLET (INACTIVE SIDE)  
J) THRUST BEARING LOAD CELL CONNECTION (OUTER PADS)  
K) THRUST BEARING OIL INLET (ACTIVE SIDE)  
L) THRUST BEARING LOAD CELL CONNECTION (INNER PADS)  
M) THRUST BEARING R.T.D. CONNECTION (INNER PADS)  
N) THRUST BEARING R.T.D. CONNECTION (INNER PADS)  
P) THRUST BEARING OIL OUTLET  
R) RADIAL MOVEMENT PROBE CONNECTION (X POSITION N.D.E.)  
S) RADIAL MOVEMENT PROBE CONNECTION (Y POSITION N.D.E.)  
T) JOURNAL BEARING OIL INLET N.D.E.  
U) JOURNAL BEARING OIL OUTLET N.D.E.  
V) JOURNAL BEARING OIL R.T.D. N.D.E.  
W) JOURNAL BEARING OIL INLET D.E.  
X) JOURNAL BEARING OIL OUTLET D.E.  
Y) JOURNAL BEARING OIL R.T.D. D.E.  
Z) RADIAL MOVEMENT PROBE CONNECTION (X POSITION D.E.)  
AA) RADIAL MOVEMENT PROBE CONNECTION (Y POSITION D.E.)  
BB) MECHANICAL SEAL FLUSH N.D.E.  
CC) MECHANICAL SEAL DRAIN N.D.E.  
DD) MECHANICAL SEAL FLUSH D.E.  
EE) MECHANICAL SEAL DRAIN D.E.  
FF) KEYPHASER CONNECTION  
GG) CASING THERMOWELL CONNECTION  
HH) CASING THERMOWELL CONNECTION



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