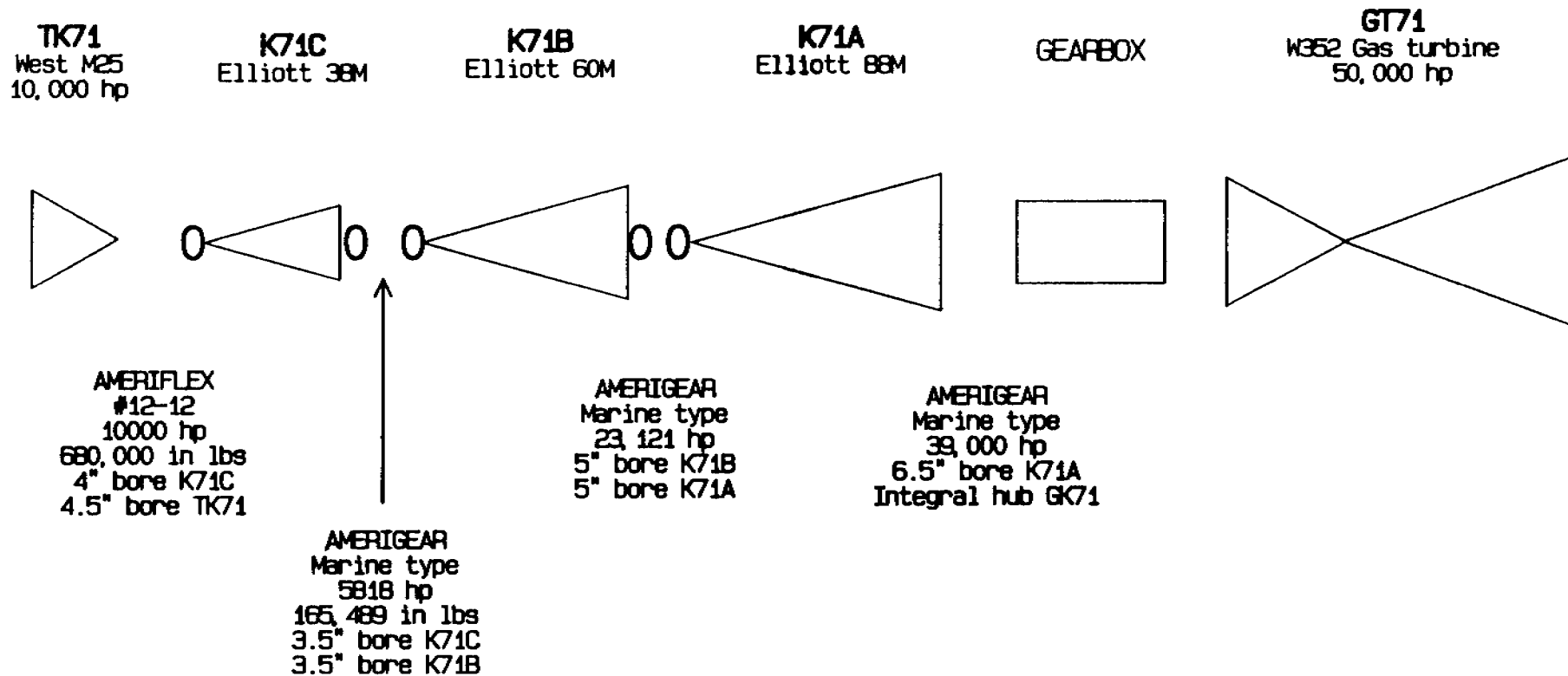


RED DENOTES HUBS THAT SPUN



DD A 036130
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APL 15 DEC

COUPLING FAILURE

ZURN MARINE TYPE CLASS I GEAR COUPLING

SPACER DROPPED STRAIGHT DOWN

ALL COUPLING BOLTS FAILED IN SHEAR (24 TOTAL, 3/8" DIAMETER, PLATED)

BOLTS HAD IDENTICAL HARDNESS NUMBERS

NO DAMAGE TO COUPLING COVER

MINOR DAMAGE TO C CASE END OF GEARS ON SPACER

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ARL 14 DEC 89

KEY FAILURES

KEY UNDER C CASE THRUST COLLAR SHEARED IN DIRECTION OF ROTATION

SHAFT STOPPED, THRUST COLLAR CONTINUED TO ROTATE

KEY IS MILD STEEL

THRUST COLLAR FIT IS 0.001" LOOSE

THRUST PADS ON C CASE IN GOOD SHAPE THEREFORE NO LOCKUP

ACTIVE THRUST PADS ON B CASE VARNISHED AND CRACKED, NO BABBITT MOVEMENT

BABBITT CAVED IN OVER THERMOCOUPLES IN INSTRUMENTED PADS ON B CASE

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ROTOR INFORMATION

RESIDUE ON INTERSTAGE SUCTION (STAGE 4) OF THE 60M (B CASE)

OTHER ROTORS APPEARED TO BE "CLEAN"

ACTIVE THRUST BEARINGS ON B CASE WERE DAMAGED

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ARL 14 DEC 89

KEY FAILURES

C CASE WEST END ROTATING SEAL FACE KEY FAILED IN SHEAR AGAINST ROTATION

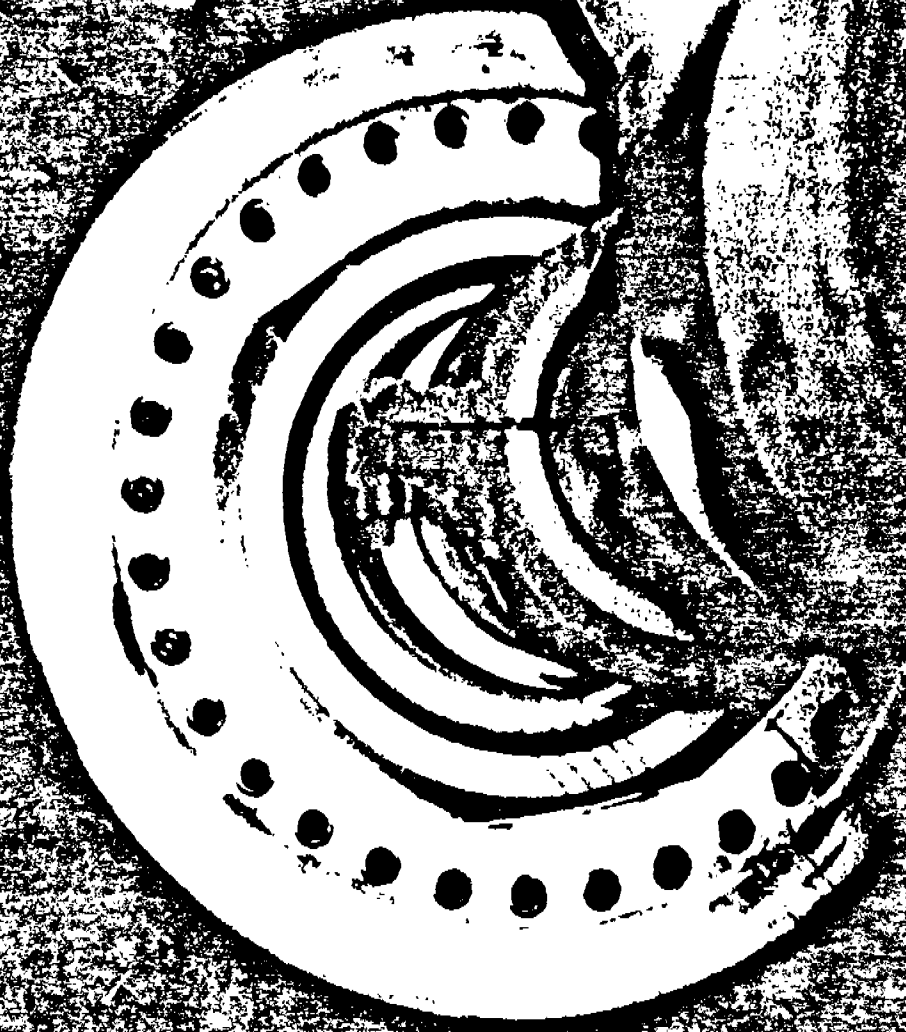
SHAFT ACCELERATED AND SEAL FACE REMAINED STATIONARY

KEY IS IN A Z SHAPE

KEY FIT WAS LOOSE IN SEAL FACE

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UP SUPERFICURE OPEN SET



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UP SUPERFICURE OPEN SET



et

↑ N380

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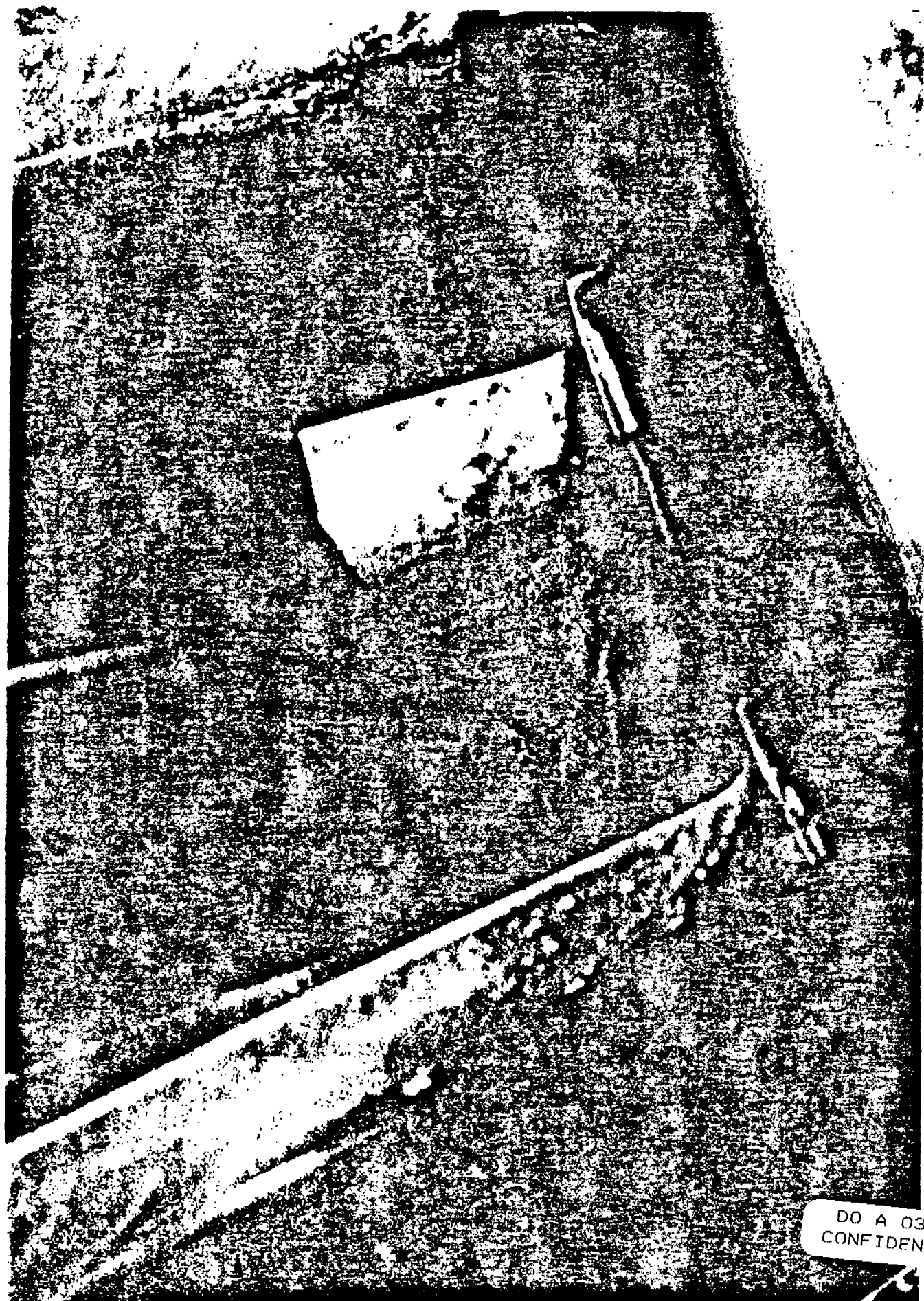


735

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GT120 SCENARIO FOR COMPRESSOR WRECK

On 24 Dec there was a drop in performance of GT120 of approx 4%

The Inlet temp was 5 degC.

Sufficient to form ice on IGV's (consider pressure drop on IGV's)

Ice broke free and damaged blade tips on row 1A

Damage excited natural frequencies of two row 1A blades

GT120 SCENARIO FOR COMPRESSOR WRECK

At 2:30 am on 29 Dec one of the excited blades failed

Vibration dropped from 5.5 mls to 1.5 mls

No drop in performance

At 5:30 am on 29 Dec the second excited blade failed

Machine tripped on low control oil pressure

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GT120 SCENARIO FOR COMPRESSOR WRECK

The blades failed independently

Both blades failed from the leading edge to the trailing edge

Leading edge mode of failure was fatigue

Trailing edge mode of failure was ductile (ie. torn off)

Will not be able to attack Westinghouse with the bill

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GT71 PT BLADE FAILURE JUNE 1990

NO WARNING PRIOR TO FAILURE

PT BLADES HAD 29151 FIRED HOURS, 77 ATTEMPTED STARTS AND 24 SS

NOT ENOUGH EVIDENCE TO DETERMINE INITIAL FAILED BLADE

STRESS RUPTURE DATA ON WRECKED BLADES WAS WITHIN SPECIFICATION

#3 BEARING WAS DESTROYED. POSSIBLY IT FAILED FIRST (NOT LIKELY).

BLADE PARTS ARE AT WECAN. WAITING ON FEEDBACK FROM THEM.

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CRACKED CT ROTOR HISTORY

ORIGINALLY SHIPPED WITH THE SPARE ENGINE IN 1979

SPARE FOR 3 YEARS ON SITE. INSTALLED IN GT71 IN JULY 1982

REMOVED FROM SERVICE DURING LATE 1986 TURNAROUND

RETURNED TO WECAN IN JANUARY 1987 FOR MODIFICATION

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eri 2 Jan 81

CRACKED CT ROTOR HISTORY page 2

**ENCOUNTERED PROBLEMS REMOVING THE COMPRESSOR BLADES FROM THE
SPINDLE. MACHINED THE BLADES OUT AND PURCHASED ROWS
4-13 NEW FOR INSTALLATION.**

IN TALLED THE ROTOR IN GT120 DURING THE MAY 1989 TURNAROUND.

REMOVED THE ROTOR AFTER THE ROW 1A COMPRESSOR BLADE FAILURE DEC .

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CRACKED CT ROTOR HISTORY page 3

HIPPED ROTOR TO WECAN FEBRUARY 1990 FOR REPAIR

**NOVEMBER 1990 WECAN INFORMED US OF THE CRACKS IN THE BIRD BATH
PORTION OF THE ROTOR AND RECOMMENDED THAT THE SECTION OF
ROTOR BE DESTRUCTIVELY TESTED TO DETERMINE THE CRACK
INITIATION.**

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