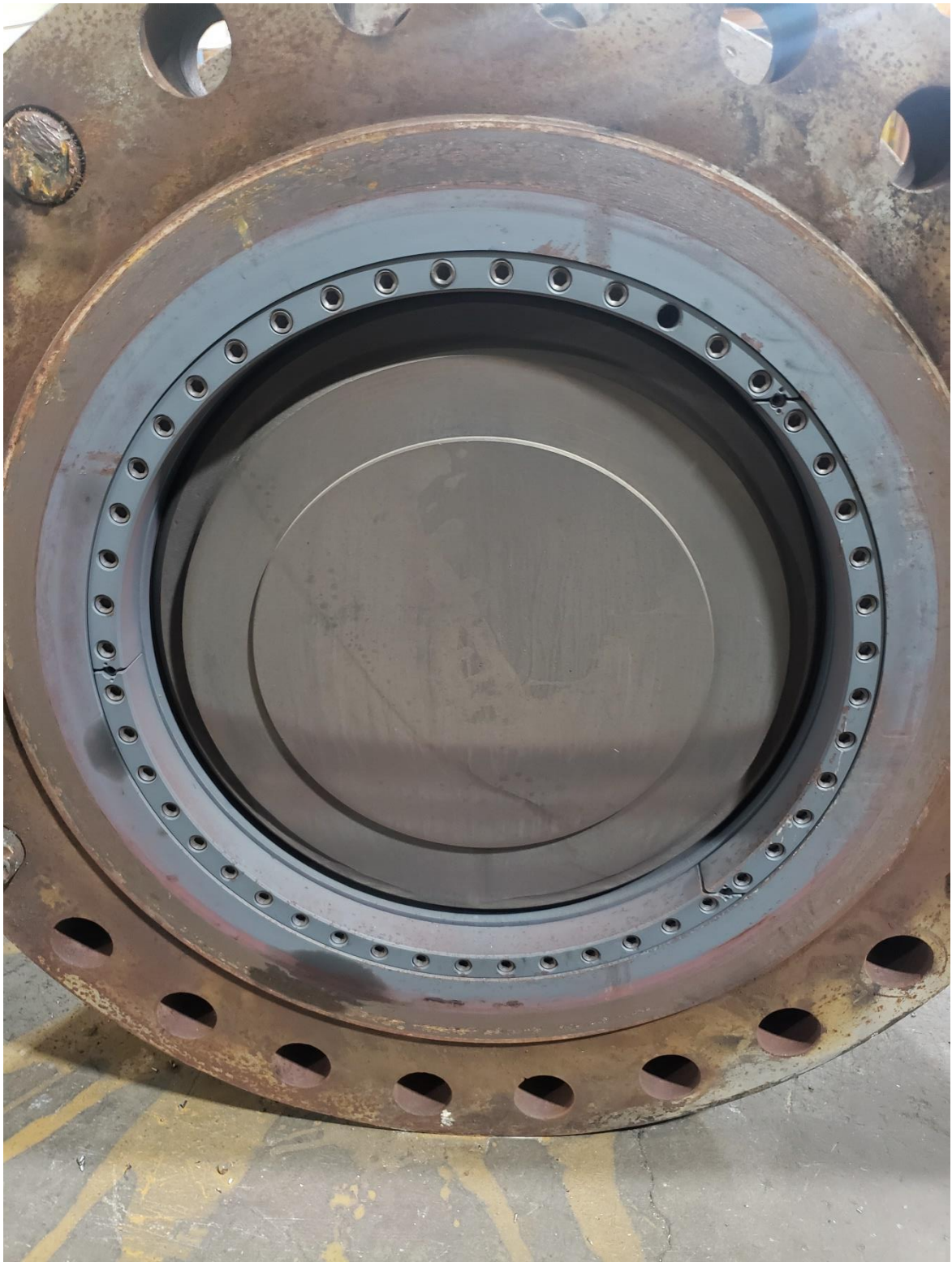


DOCKETED

Docket Number:	01-AFC-07C
Project Title:	01-AFC-7C Russell City Energy Company
TN #:	246111
Document Title:	Bay Valve Service's Photos of Butterfly Valve Inspection and Disassembly
Description:	N/A
Filer:	Patricia Carlos
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	9/15/2022 11:10:10 AM
Docketed Date:	9/15/2022







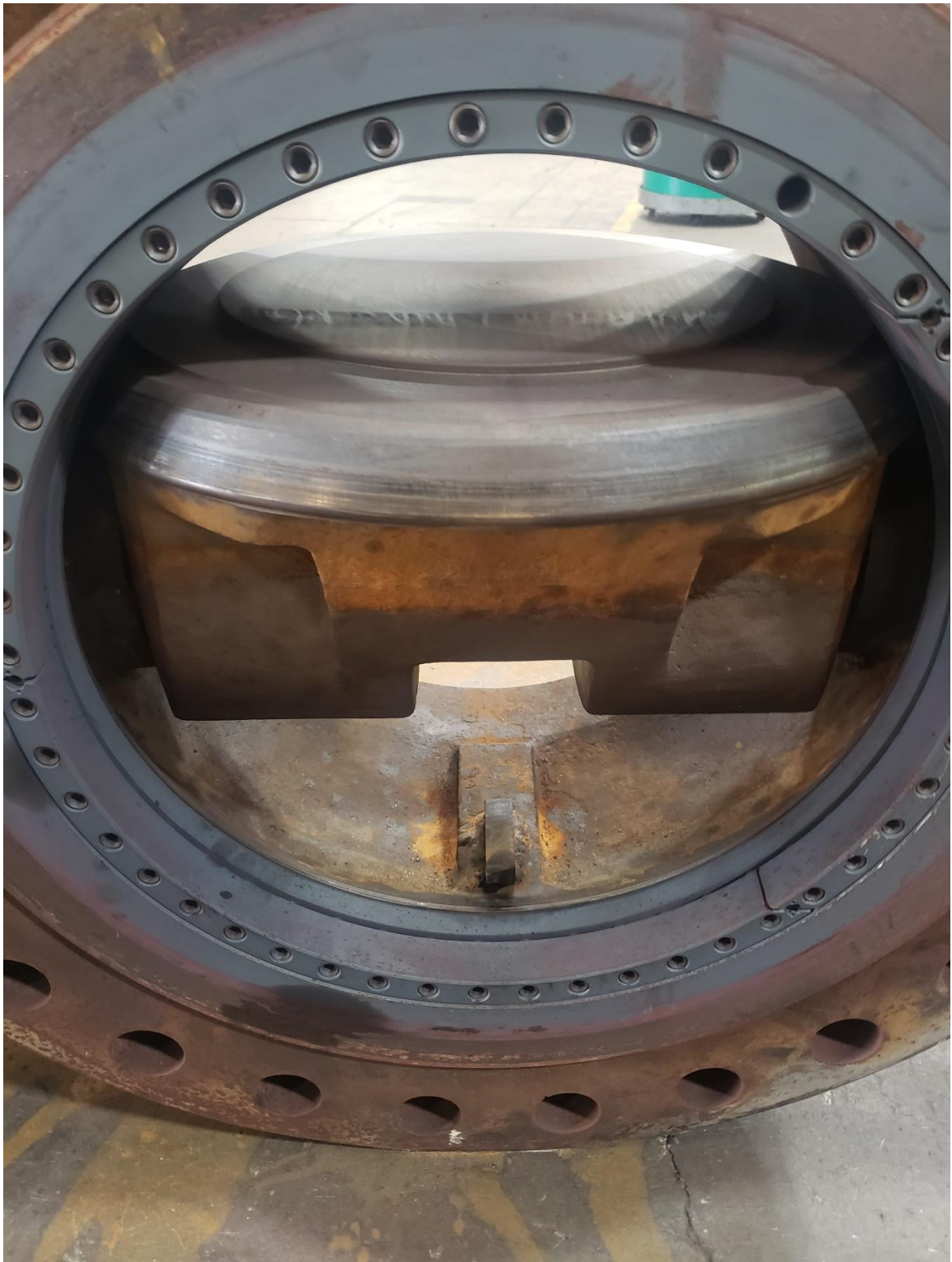


MOD.# :
RATIO : 1632:1
SER.# 14181MTH: YR:
MAX. IN: 153 Nm
D.G.# 2311632C125R1A1















NAMEPLATE INFORMATION:
MOTOR NAME: PVMFGJ601M0U
VOLTAGE: 230V
CURRENT: 1.0A
DUTY: S1
EFFICIENCY: 85%
POWER: 230W
WEIGHT: 1.2kg
SERIAL NO: 25483-230-POA-PV07-00001

STOCK TAG INFORMATION:
PO: PVMFGJ601M0U
ITEM# 1.0
1-AB-HV-531
STOCK CODE: 25483-230-POA-PV07-00001

FLOWSERVE Limbtorque Actuation Systems
Lynchburg, VA, USA

CE PRODUCT OF USA

MX-20 OUTPUT RPM 155

ORDER No. 175244-011 SERIES A

TAG No.

S/N L1225850 SHC-832

EXPLOSION PROOF, GLI, GP, C AND D
DIV. 1 AND 2, TEMP. CODE T4
DUST IGNITION PROOF, GL, I,
GRP. E, F, AND G, DIV. 1 AND 2
GRP. C & D, SEAL CONDUITS WITHIN 18" (0.5m)
GRP. B, SEAL CONDUITS AT ENCLOSURE
ACTUATOR MAY HAVE MULTIPLE POWER
SOURCES
DO NOT OPEN ENCLOSURE WHILE
FLAMMABLE ATMOSPHERE IS PRESENT OR
WHILE UNIT IS ENERGIZED
INSTALL PER MANUAL LMEM12306



APPROVED
ENCLOSURE TYPE
3 4X 4X 6

RATED TO 170 190 210

30°C ≤ T_{AMB} ≤ 55°C

MOTOR RPM 3400

PHI 3 HZ 60

VOLTS AC 480

L-R AMPS 1815

RUN AMPS 135

DUTY 100%







ACTUATOR INSTALLED AND VALVE STROKED TO VERIFY FULL OPEN AND CLOSED











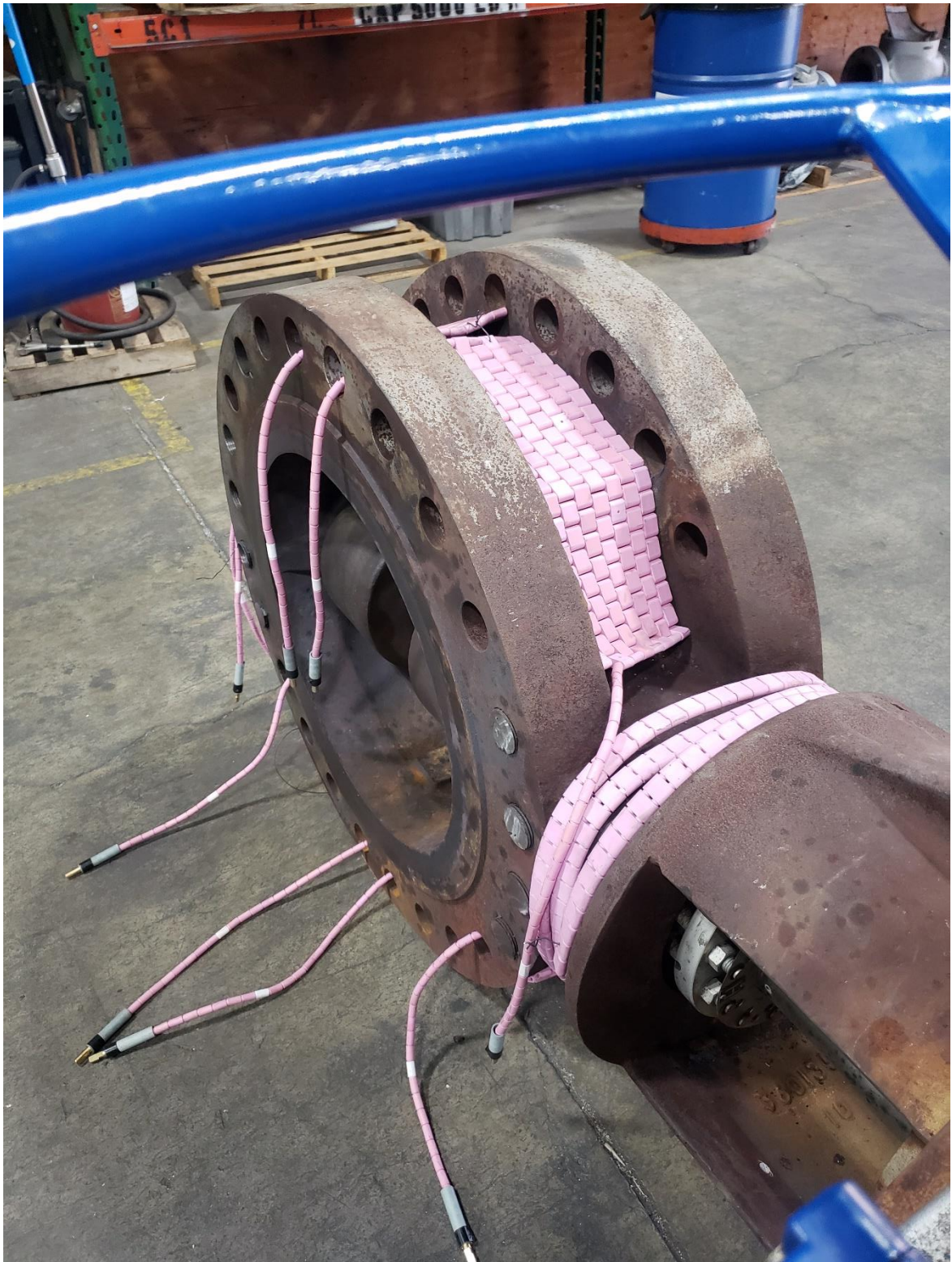






HOT STROKE

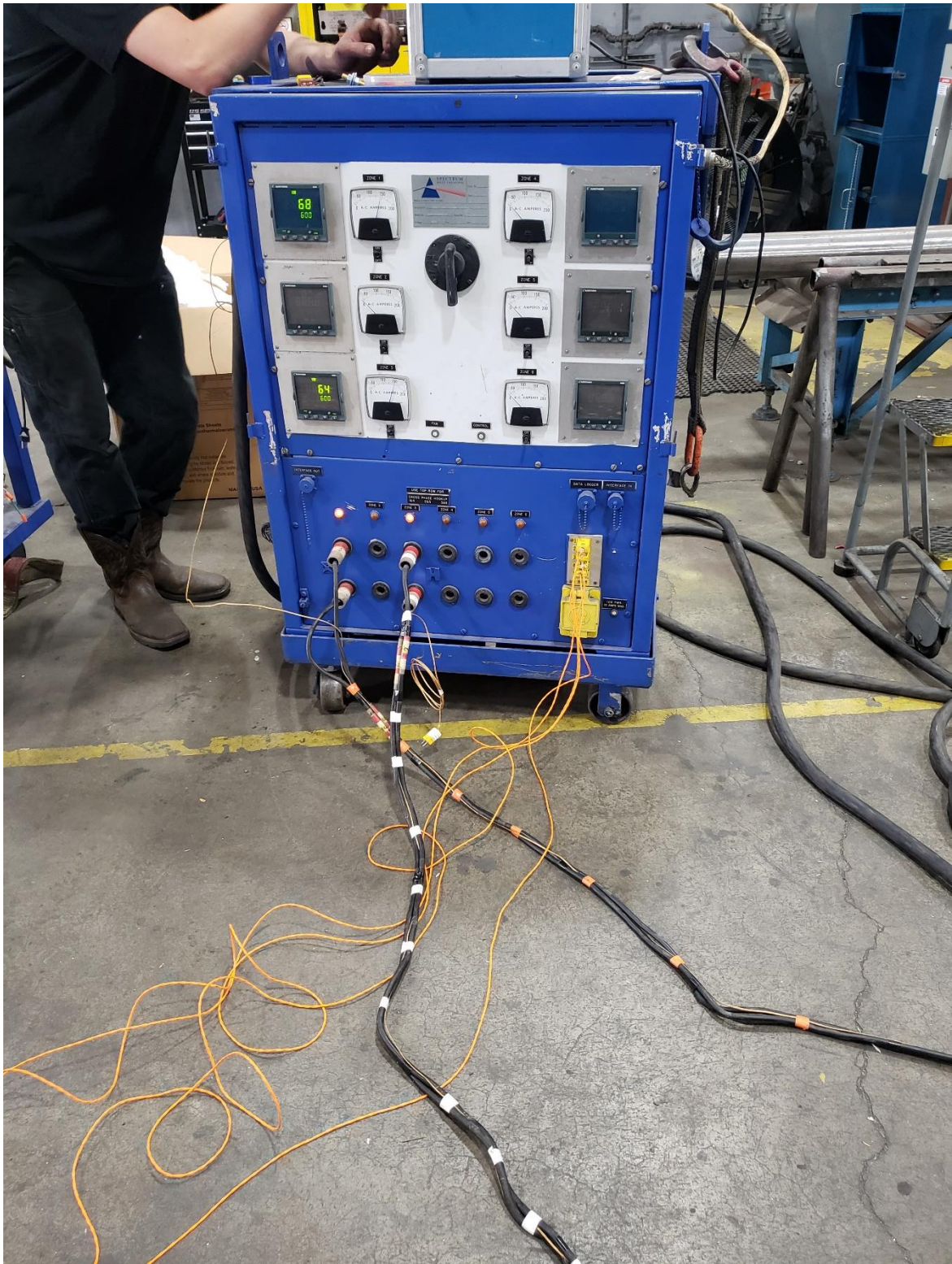






























DISC FIT CHECK WHEN MANUALLY TIGHTENED IN SEAT AT 750 DEGREES NO GAP WITH.002" FEELER GAUGE









HYDRO TESTING





CE

034...11G

Ex ia IIC T4/T3 Ga
Ta = -20C to 50C
FTZU 12 ATEX 0048X
IECEX FTZU 12.0009X



C 187869 US

Exia
INTRINSICALLY SAFE
Class I, Div 1, Grp A, B, C, D
T4/T3C



WARNING
DO NOT OPERATE
SERIAL INTERFACE
WITHIN
HAZARDOUS
LOCATIONS
SUBSTITUTION
OF COMPONENTS
MAY IMPAIR
INTRINSIC SAFETY

REPLACE BATTERIES
WITH APPROVED
TYPES IN
NON-HAZARDOUS
LOCATIONS ONLY

Refer to Operation Manual
Reportez-vous au Mode d'emploi

Crystal Engineering Corporation
805.595.5477 • 800.444.1850
San Luis Obispo, CA U.S.A.

ametekcalibration.com

Made in U.S.A.





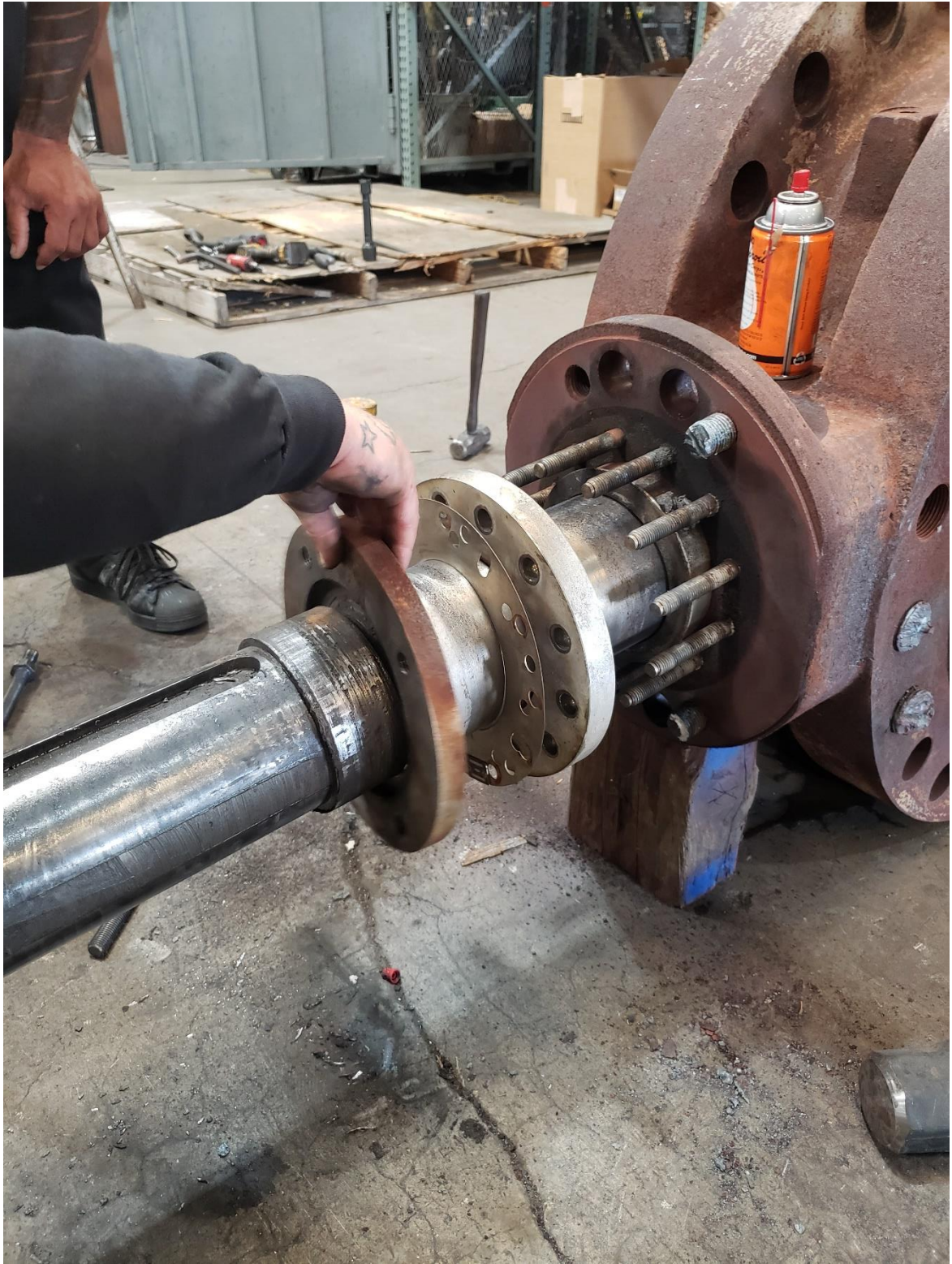




DISASSEMBLY

















4:53



VOLTE LTE 47%

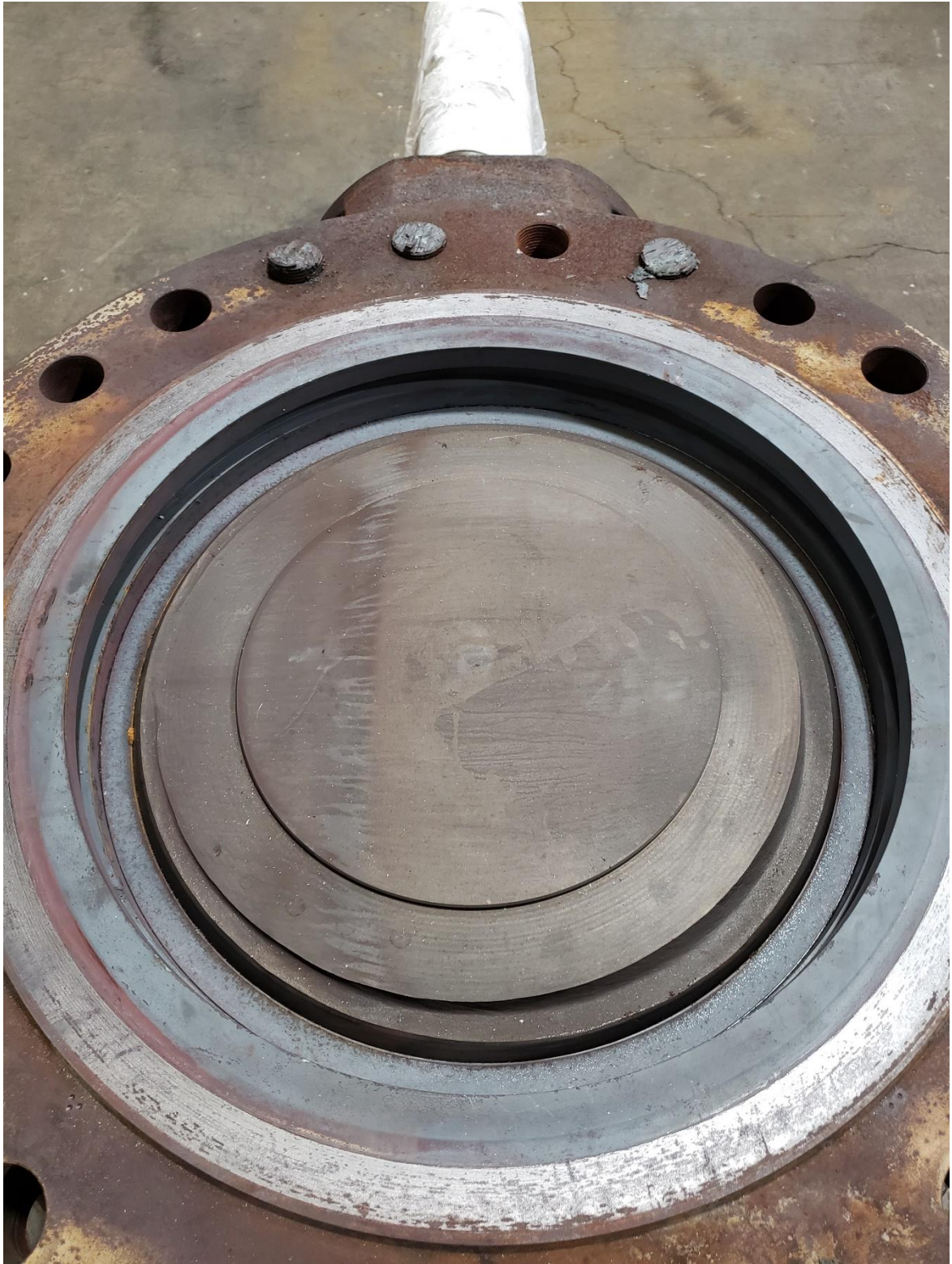






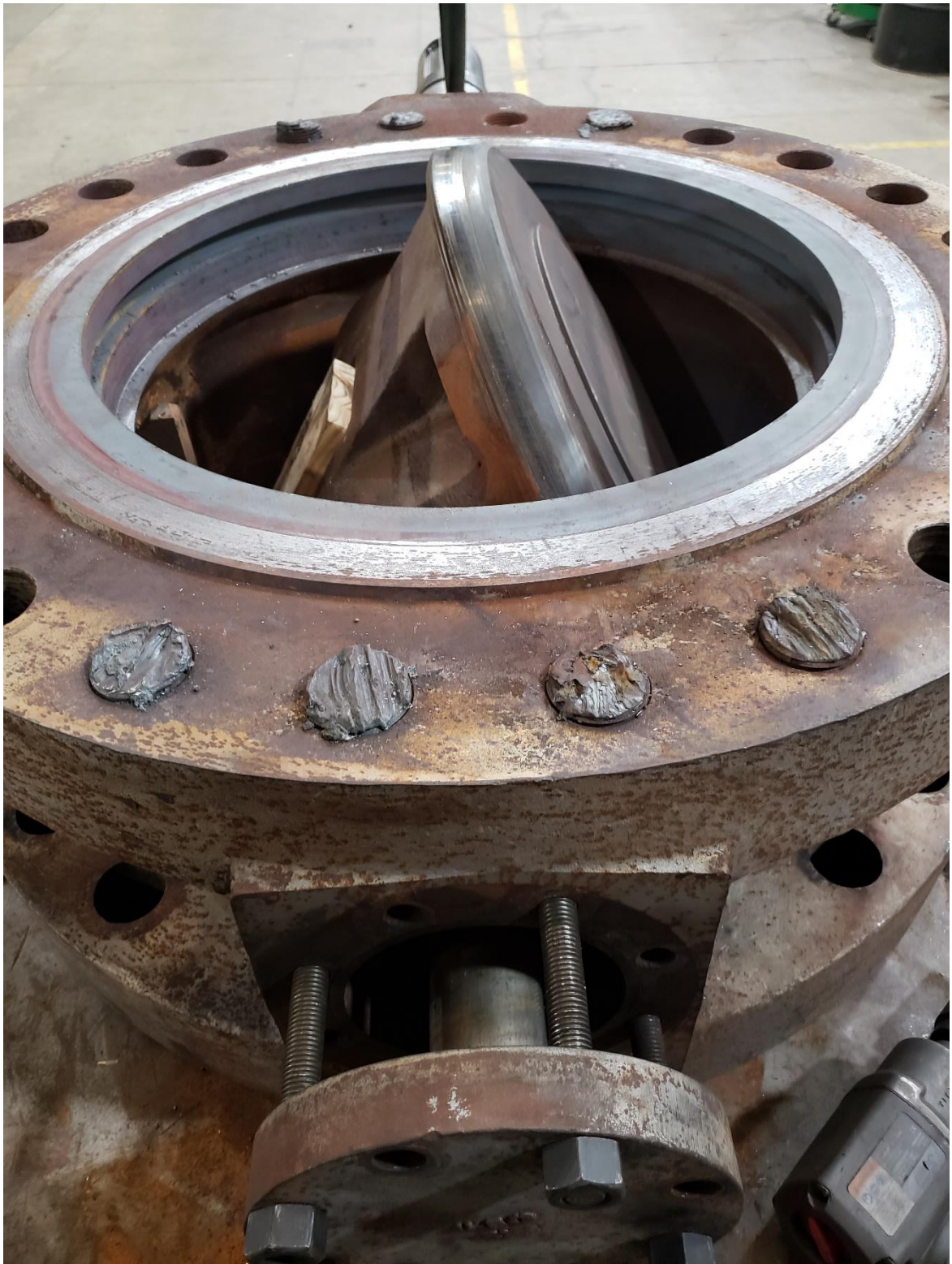




























GEARBOX













GEARBOX SPEC AND FAILURE ANALYSIS

Gearbox Ratio 1632 to 1

Gearbox ratio at 90 degrees 408 to 1

Gear reduction ratios

Input gear 13 teeth

First gear ratio 3.92 to 1

Middle gear 51 teeth

Middle gear reduction 9 teeth

Second gear ratio 5.33 to 1

Input gear to worm gear shaft 48 teeth

Total gear reduction before worm gear shaft 20.91 to 1

19.5 total turns of worm gear shaft for full 90 degrees of operation

Average thickness of conical roller bearing .437"

Lash on worm gear shaft allowed if conical roller bearing is destroyed 9.14 turn in open direction and 9.14 turn to closed direction

Total turns of lash 18.28 turns which would equate to 4 to 5% of total stroke

Diameter of quad gear 20.875"

Avg diameter of disc seating surface 20.375"

With the diameters between the disc and quad gear being so close to each other, it would almost be a direct correlation of the distance

Between the disc and seat face and the distance of lash on worm gear due to bearing failure.