TO: BRANCH SERVICE MANAGERS

TO: DISTRICT SERVICE MANAGERS

FROM: DON CARLSON

OFFICE: MSD SERVICE OPERATIONS - NEW YOR

DATE: APRIL 26TH, 1977

SUBJECT: 19 SERIES BALANCING PROCEDURE

R. LANGONE - NEW YORK "C"
JIM DE TATA - NEW YORK "C"

F.E.R. 76-7

PURPOSE:

To provide the field with a recommended method to have a rotor assembly balanced in a qualified repair shop.

MACHINES AFFECTED:

ALL 19 SERIES HERMETIC MOTORS

PROCEDURE:

The recommended balancing procedures and tolerances are outlined in the following pages.

REGARDS,

Don

DON CARLSON

DC/iam

ATTACHED

FILE INSTRUCTIONS: FIELD EXPERIENCE REPORT BOOK

TAB: COMPRESSOR

BALANCING PROCEDURE

I. 19C, CB MACHINES

NOTE: IT IS EXTREMELY IMPORTANT THAT ALL PARTS ARE INDEXED ON THE DISASSEMBLY OF THE COMPRESSOR.

A. Balance rotor cold.
B. Heat rotor to a maximum of 180°F - rebalance.
C. Balance rotor and 2nd stage wheel.
D. Balance rotor and 1st stage, 2nd stage impellers and spacer.

II. 19D, DA, DG, EA, FA

A. Balance motor shaft with the bull gear installed on shaft (19D, DA, DG ONLY).
B. Balance motor shaft with the bull gear and the demistor spokes installed on shaft (19EA, FA ONLY).

BALANCING TOLERANCES

The balancing tolerance specified on 19 Series motor drawings is:

Tolerance = 0.000025 in. oz. per oz. of rotor + .02 in. oz.

For Example: The tolerance of a 400 pound rotor is .18 in. oz.

$$(.000025 \frac{\text{in. oz.}}{\text{oz.}}) (400 \text{ lbs.}) (16^{\text{oz.}}/\text{lb.}) + .02 \text{ in. oz.} = .18 \text{ in. oz.}$$

To convert in. oz. to peak to peak displacement (mils):

$$\text{MILS} = \frac{\text{Balance Tolerance (in. oz.)}}{\text{Weight in oz. of rotating part at each bearing}}$$

$$\text{MILS} = 2 \frac{.18 \text{ in. oz.}}{\frac{1}{2} \times 400 \text{ lbs.} \times 16^{\text{oz.}}/\text{lb.}} = 0.11 \text{ Mils}$$
$$1000$$

The balance tolerance agreed on (determined by the above procedure) is:

MACHINE	BALANCE TOLERANCE IN MILS
19C	.10
19D, DA, DG	.14
19EA, FA	.10

This tolerance pertains to the shaft-rotor assembly only. As outlined above, we recommend balancing the rotor assembly with all rotating parts. For our field balancing practices, a maximum balance tolerance of 0.20 mils is acceptable for all machines.

Mike Dechiaro

BUILDING SERVICES DIVISION

To: SERVICE MANAGERS (A)
DISTRICT MANAGERS (B)
OPERATIONS STAFF (C)

Date: JULY 21, 1986

From: DON CARLSON

Office: CBS CRANFORD

Subject: F.E.R. 76-7 ADDENDUM

Referenced Field Experience Report outlines procedures, and standards for field balancing 19 series rotors in a qualified repair facility. These standards should be discussed with the repair facility prior to any purchasing commitments.

As part of the services we are purchasing, the local CBS office should request a final report outlining the initial condition of the rotor assembly as received as well as the condition of the rotor upon completion of work.

Enclosed is a schematic that can be used to report all findings by the repair facility. We should present this form to the shop at the time of commitment and request the completed form prior to authorizing of payment.

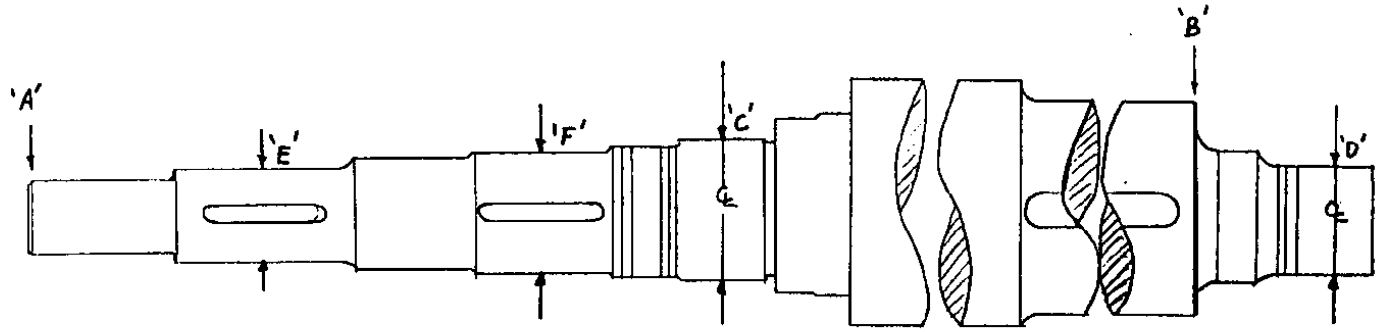
Hopefully, this procedure will minimize the potential for questionable balancing results due to the lack of communication/understanding between CBS and local repair facilities.

Regards,

Don

Don Carlson
DC:bg

Attachment



BALANCE INFORMATION

As Received

ROTOR END : _____ GRAMS AT _____ RAD.

IMPELLER END : _____ GRAMS AT _____ RAD.

SPEED : _____ RPM

FINAL

ROTOR END : _____ GRAMS AT _____ RAD.

IMPELLER END : _____ GRAMS AT _____ RAD.

SPEED : _____ RPM

DIMENSIONAL INFORMATION

SHAFT RUNOUT

POINT 'A' : _____ IN.

POINT 'B' : _____ IN.

JOURNAL SURFACES

POINT 'C' : _____ IN. DIA.

POINT 'D' : _____ IN. DIA.

IMPELLER SURFACES

POINT E : _____ IN DIA.

POINT F : _____ IN DIA.