

NACA - Langley

Langley Field, Va.
October 4, 1951

MEMORANDUM For East Mechanical Engineering Files

Subject: Installation of 22,000 horsepower drive in present 8-Foot High-Speed Tunnel - Scheduled date, October 1952

1. The following order of installation was arrived at in a conference held in East Mechanical Engineering Section on October 3, 1951 with Messrs. M. B. Seyffert, A. C. Norsworthy, H. Elksnin and the writer being present.

- (a) Install new door in cooling tower; remove 3 lower vanes in air exchanger.
- (b) Remove coupling bolts between shaft and main motor and inform East Engineering of bolt sizes. Holes in flange of new shaft must be finished after this information is obtained, and new coupling bolts manufactured.
- (c) Enlarge hole in motor room so present drive shaft can be removed.
- (d) Remove nacelle and shaft fairing.
- (e) Remove self-aligning roller bearing and spider assembly.
- (f) Remove present drive shaft and hubs and inform East Engineering of spigot size in motor half of coupling. Thickness and spigot of auxiliary drive gear (LDZ-1064, sheet 5) must be finished after this information is obtained. See paragraph (p).
- (g) Install propeller pit in bottom of tunnel in propeller sweep path.
- (h) Install bearing support ring on outside of tunnel using old bearing support rods as reference (new position is 66-1/4 inches downstream). Holes through concrete are cut and sleeves grouted for bearing support rods before ring is grouted in. Same rods for old spider are used for spider in new position, but must be shortened.
- (i) Remove split bearing housing and bore clearance hole for new shaft.

- (j) Move new shaft into tunnel.
- (k) Move new hubs into tunnel.
- (l) Block new hub approximately in center.
- (m) Install downstream spider.
- (n) Install upstream spider.
- (o) Install new shaft and mount hubs on cones. Complete oiling system for bearings.
- (p) Install shaft spool, main drive shaft and auxiliary drive gear. Gear thickness shall be such that upstream self-aligning bearing shall bear the relationship, with its housing, that is indicated on assembly drawing.
- (q) Install coupling bolts.
- (r) Install blades. Blades are already fitted in hubs.
- (s) Install pineapple on downstream end of shaft.
- (t) Install shaft fairing and nacelle. Length, diameter, and bolt holes in end flanges of LKZ-1065, sheet 5 shall match existing fairing as specified on drawing.
- (u) Install countervanes and pre-rotation vanes.
- (v) Replace bottom vanes in air exchanger.

2. Installation time estimated to be: 45 calendar days - 3 shifts - average of 10 men per shift.

Clarence B. Kline

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Head, East Mechanical Engineering Section

CEK:jll

cc: Messrs. Seyffert
Norsworthy
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