PREPRODUCTION INITIATIVE – NELP
ARRESTING GEAR HYDRAULIC FLUID PURIFIER
TEST PLAN

SITE: NAWC LAKEHURST

1.0 OBJECTIVE

This test plan describes the data collection procedure for determining the environmental and financial benefits of the arresting gear hydraulic fluid purifier. The data will also be used to determine the system's efficiency, effectiveness, overall performance, and ability to interface with site operations.

2.0 DESCRIPTION

Currently, the hydraulic fluid in the arresting gear engine is drained and disposed of as a hazardous waste when the quality of the fluid has diminished. The purifier is a filtration unit that will reclaim the fluid and restore it to its original quality. The purifier is attached and used in-line with the arresting gear system. This in-line functionality precludes the need for a separate reservoir because the fluid is simply pumped through the unit back to the arresting gear system. Recycling the ethylene glycol-based hydraulic fluid that is currently used for both shipboard and land-based aircraft arresting gear systems will:

- Eliminate the generation of hundreds of gallons of hazardous waste.
- Eliminate the need to drain, transport, and store spent hydraulic fluid.
- Avoid the cost of disposing this waste.
- Avoid the purchase cost of replacement fluid.
- Reduce maintenance time.
- Extend equipment life.

3.0 TEST PLAN

This test plan is designed to collect data that will be used to evaluate the efficiency, effectiveness, performance, and compatibility of the arresting gear hydraulic fluid purifier. The test plan will also quantify the amount of reclaimed hydraulic fluid, thus allowing the cost benefits and volume of waste reduced to be calculated.

3.1 Approach

Quantitative and qualitative data will be acquired through the completion of Table 1.

3.1.1 Instructions for Completing Table 1

- **Date:** Indicate the date on which the hydraulic fluid purifier was operated (month/day/year)

- **Time:**
  - ➢ **Start:** Indicate the time the purifier unit was turned on and commenced filtering.
  - ➢ **Finish:** Indicate the time the purifier unit was turned off and filtering ceased.
- **Volume of Fluid in Arresting Gear Reservoir:** Record the amount of hydraulic fluid in the arresting gear reservoir.
- **Flow Rate:** Record the flow rate through the purifier unit (volume of fluid per unit of time).
- **Downtime:**
  - ➢ **Time:** Record the amount of time that the purifier unit was not in use prior to the current run
  - ➢ **Reason:** Explain whether downtime was due to repairs, maintenance, workload, or other factors.
- **Repair/Maintenance Time:** Indicate the time required to repair or perform maintenance on the purifier unit.
- **Repair / Maintenance Parts Required:** List repair/maintenance parts required.
- **Consumables:** Record the type and quantity of any consumable (e.g., reinhibitor, filter, etc.) required to operate the purifier unit.
- **pH:** Record the pH of the hydraulic fluid before filtration and after the reinhibitor was added
- **Time/Task:** Record the time required to filter the hydraulic fluid. Include the time required to set-up the purifier unit, filter all the hydraulic fluid and clean up.
- **Comments:** Explain any problems with or repairs/maintenance done to the purifier unit, costs incurred, and any comments/suggestions about the purifier unit's effectiveness or efficiency.

4.0 REPORTING

The data entry form is a concise method of data collection. The form should be completed whenever the arresting gear hydraulic fluid purifier is used. Data will be collected for one year. During that time, periodic status reports on the testing will be submitted to NAWCADLKE. The final report will include detailed results and observations, assess the efficiency and cost-effectiveness of the unit, and evaluate its ability to interface with site operations.

TABLE 1
Arresting Gear Hydraulic Fluid Purifier Data Sheet

Date	Time		Volume of Fluid in Arresting Gear Reservoir	Flow Rate	Downtime		Repair/ Maintenance Time	Repair/ Maintenance Parts Required	Consumables		pH		Time/ Task
	Start	Finish			Time	Reason			Type	Quantity	Before	After	

Comments: _____

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