REF: 111-65

BRISTOL AERO-INDUSTRIES LIMITED

WINNIPEG DIVISION

E.R. 2210

LONG RANGE TANK INSTALLATION

EXPEDITOR 3N

OPERATING NOTES

2. DESCRIPTION

The long range fuel tank installation consists of a fuel tank assembly in the cabin attached to the seat attachment lugs; filled and vented through a plate in the front starboard window; drained through drain cocks secured over the B-3 driftmeter outlet in the fuselage belly; and connected to the aircraft fuel system through an additional selector valve.

The tank assembly consists of two cylindrical tanks stiffened longitudinally by three angles and rigidly attached together by bolts through these angles. The legs, which secure the tank to five of the aircraft seat lugs, are rivetted to the bottom tank angles. The rear legs do not themselves, attach to a seat lug but carry a cross channel to which is attached the rear tank pickup.

The tanks are internally stiffened by two baffles each of which also set as anti-slosh baffles. The ends of the tanks are stiffened horizontally by beading and vertically by hat-section stiffeners.

The tanks are filled through a filler neck secured to a plate which replaces the front starboard window. A hose connects this to a filler on the front tank. The rear tank is filled through the hose connecting the two tank outlets.

The tank vents, located on the tank so that a 3% expansion space is assured, are connected by hoses to the window plate and vent to the exterior of the aircraft.

Sumps, at the rear of each tank so as to trap any water in the tank with the aircraft in normal ground position, are drained through hoses connected to drain cocks mounted in the hole in the belly left by the removal of the B-3 driftmeter. These cocks maybe secured in the open position (as for the main and nose tank drains) for tank draining.

The tanks feed to a selector valve mounted just below the

cockpit floor just off to the left (port) of the aircraft centreline. The valve handle is mounted on the floorboard just by the pilots chair and directly above the valve.

The nose tank feeds in to the selector valve as well. The selector valve outlet runs forward to a tee and thereby splits to both main selectors.

3. OPERATING INSTRUCTIONS

3.1 OPERATION

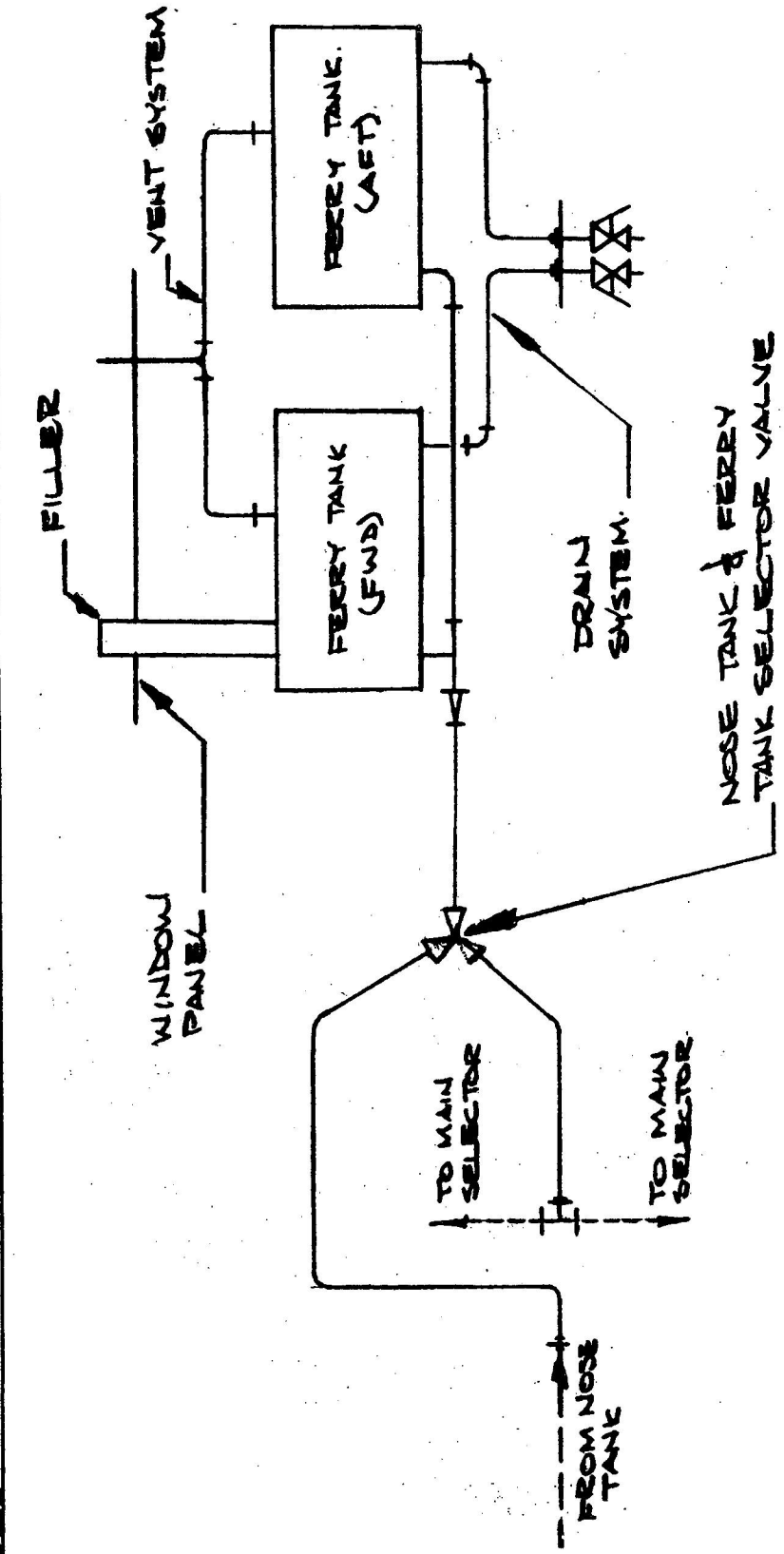
To operate the system, the main fuel selectors on the pedestal MUST be selecting nose tank. Then the ferry fuel tank installation selector is in the system. To select nose tank, put the FERRY FUEL selector at nose tank (3 o'clock position). To select the ferry tank, put the ferry fuel selector at ferry tank (6 o'clock position). Figure below gives a summary of the system selections. All other operations are as detailed in EO's 05-45B-1 and 05-45B-2.

TANK SELECTED	SELECTORS	
	MAIN	FERRY
OFF	OFF	NOSE OR FERRY
FRONT	FRONT	NOSE OR FERRY
REAR	REAR	NOSE OR FERRY
NOSE	NOSE	NOSE
FERRY	NOSE	FERRY

3.2 FUEL USAGE PRECAUTIONS

When flying the aircraft with this installation embodied and the tanks full, after take off the nose tank must be used first to keep the aircraft centre of gravity within limits. To this end, it is recommended that the following fuel usage order be followed:

a) 17 to 20 gallons nose fuel
b) Ferry tanks
c) Finish nose tank
d) Rear tanks
e) Main tanks



FUEL SYSTEM SCHEMATIC
LONG RANGE TANK INSTALLATION
EXPEDITOR 3

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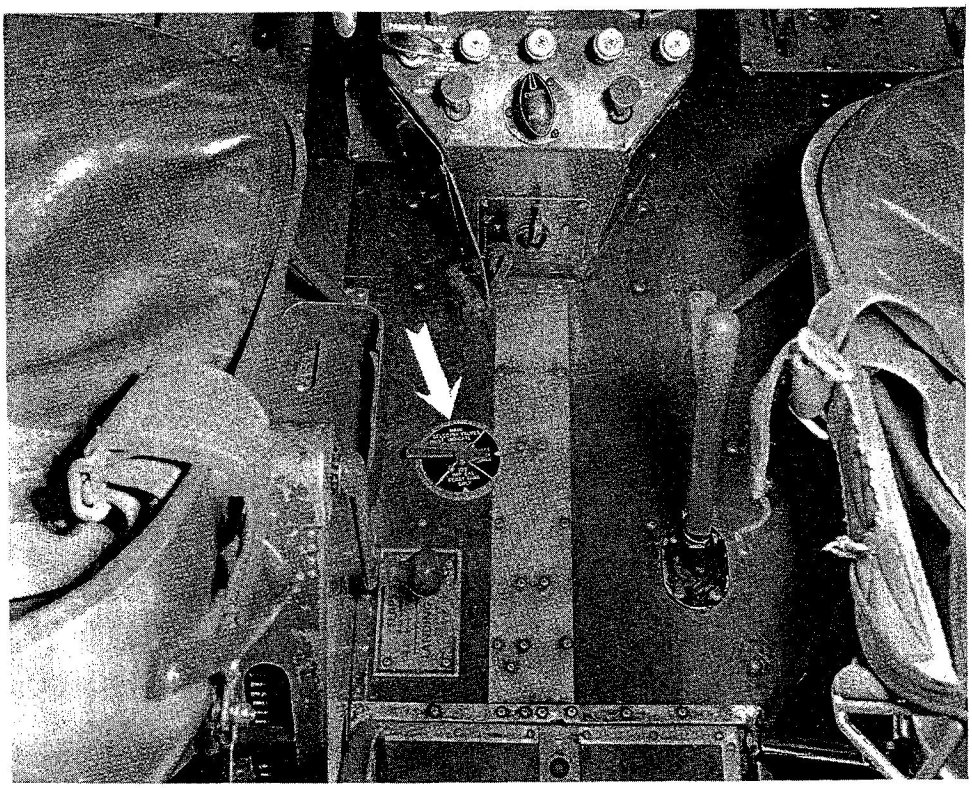

View of cockpit interior showing the selector handle.

View of starboard exterior of aircraft showing ferry tank filler.

6. WEIGHT AND BALANCE DATA

6.1 Weight and Balance change due to embodiment of modification

ITEM	WEIGHT	ARM	MOMENT
REMOVED EQUIPMENT			
Air mileage unit Mk 1.	17	110	1870
First Nav. Table.	8	115	920
Navigator's Data Case	2	135	270
Front Seat Complete	22	138	3036
Second Nav. Table	7	156	1092
Type B-3 Driftmeter	23	170	3910
Rear Seat Complete	22	182	4004
Navigator's Shelf	6	184	1104
Astro Compass Box	2-1/2	184	460
	-110		-16666
RELOCATED EQUIPMENT			
Cabin Window	1	+139	139
Foot Rest	1	+155	155
BC733D Receiver	22	+ 6	132
			+ 426
INSTALLED EQUIPMENT			
Long Range Tank Installation	96		+13084
TOTAL	-14		-3156

i.e. decrease of 14 lbs. weight and 3200 in./lbs. moment.

6.2 The loading slide rule for the Expeditor aircraft should be used to determine fuel usage and loading provisions for each particular case. See EO 05-1-8 for instructions on use.

6.3 The centre of gravity table is to be extended above 9300 lbs. as follows:

GROSS WT.	MOMENT / 1000 MINIMUM	MAXIMUM
9310	1021	1097
9320	1022	1098
9330	1024	1099
9340	1025	1100
9350	1026	1102
9360	1027	1103
9370	1028	1104
9380	1029	1105
9390	1030	1106
9400	1031	1107
9410	1032	1109
9420	1033	1110
9430	1034	1111
9440	1036	1112
9450	1037	1113
9460	1038	1115
9470	1039	1116
9480	1040	1117
9490	1041	1118
9500	1042	1119
9510	1043	1120
9520	1044	1122
9530	1045	1123
9540	1047	1124
9550	1048	1125
9560	1049	1126
9570	1050	1127
9580	1051	1129
9590	1052	1130
9600	1053	1131