REPLENISHING - MAINTENANCE PRACTICES

EFFECTIVITY: ALL

1. General

   A. This section shows the procedures to fill/charge the aircraft systems with fuel, oil, gas, and other fluids as applicable.

   B. The main fluids used in the airplane routine services are shown in these tables. Other fluids and products less usually necessary will be given together with the related procedures.

EFFECTIVITY: ALL

2. Safety Conditions for the Fuel and Oxygen System Servicing

   A. Safety Conditions for the Fuel System Servicing.

WARNING:

- **CLOTHING WET WITH FUEL MUST BE REMOVED IMMEDIATELY AND THE RELATED SKIN AREA MUST BE FULLY FLUSHED. ALL JET FUELS CAUSE INJURY TO THE SKIN. DO NOT LET THESE FLUIDS TOUCH YOU.**
- **IF FUEL GETS INTO YOUR EYES, WASH THE EYES IMMEDIATELY WITH A LARGE QUANTITY OF WATER; THEN GET MEDICAL SERVICES.**
- **MAKE SURE THAT THE TECHNICIAN IS TRAINED AND PREPARED TO DO THE FUEL SYSTEM SERVICING.**
- **FOR CORRECT AND CAREFUL HANDLING OF SUPPORT EQUIPMENT, MAINTENANCE PERSONNEL MUST KNOW THE SYSTEM AND ITS SAFETY CONDITIONS.**
- **DO THE FUEL SYSTEM MAINTENANCE ONLY IN AREA WHICH PERMITS THE FREE MOVEMENT AND ACCESS OF FIRE FIGHTING EQUIPMENT AND PERSONS. MAKE SURE THAT FIRE EXTINGUISHERS ARE AVAILABLE, HAVE A MINIMUM CAPACITY TO OBEY THE LOCAL FIRE CODES, AND ARE READY TO BE USED IF THERE IS AN EMERGENCY SITUATION.**
- **THE AREA WHERE THESE TASKS WILL BE DONE MUST HAVE A GOOD FLOW OF AIR AND NO FUEL VAPOR CONCENTRATIONS OR EQUIPMENT WHICH CAN CAUSE FLAMES OR SPARKS.**
- **"NO SMOKING" SIGNS MUST BE PUT WITHIN A RADIUS OF 50 FT (15 METERS) OF THE OPERATION AREA.**
- **DO NOT WEAR CLOTHING IN SYNTHETIC MATERIAL OR CLOTHING WHICH HAS METAL ZIPPERS OR BUTTONS. THERE CAN BE A SPARK.**
- **ALL PERSONS WHO DO THESE TASKS MUST DISCHARGE THE STATIC ELECTRICITY FROM THEIR BODIES. FOR THIS, THEY MUST TOUCH A STATIC GROUND CABLE OR GROUNDED OBJECT BEFORE THEY START THE OPERATIONS.**
- **ELECTRICALLY GROUND ALL THE AIRCRAFT WITH THE CORRECT CABLES (AMM MPP 20-40-02/200).**
- **STATICALLY GROUND ALL ELECTRIC EQUIPMENT (AMM MPP 20-40-02/200). THIS PREVENTS A HIGH CONCENTRATION OF STATIC ELECTRICITY WHEN THE EQUIPMENT IS USED.**
- **USE EXPLOSION-PROOF LAMPS, IF AN EXTERNAL LIGHT SOURCE IS NECESSARY.**
- **ALL EXTERNAL LIGHT SOURCES MUST BE MOVED AWAY FROM THE AIRCRAFT BEFORE THE TASKS ARE STARTED.**
- **ALL SUPPORT EQUIPMENT NOT NECESSARY FOR THESE TASKS MUST BE MOVED AWAY FOR A MINIMUM OF 50 FT (15 METERS) FROM THE AIRCRAFT.**
- **STOP REFUELING PROCEDURES WHEN THUNDERSTORMS OR LIGHTNING ARE IN LESS THAN 16 KM (10 MILES).**
- **MAKE SURE THAT NO HIGH FREQUENCY RADIO TRANSMITTER IS OPERATED WITHIN A RADIUS OF 200 FT (60 METERS) OF THE AIRCRAFT OR A RADAR EQUIPMENT WITHIN A RADIUS OF 400 FT (120 METERS).**

- **THESE TASKS MUST NOT BE DONE INDOORS OR WITHIN 100 FT (30 METERS) OF HANGARS.**
- **THE AIRCRAFT MUST BE PARKED AT RAMP LEVEL, HEADED INTO THE WIND.**
- **INSTALLATION OR REMOVAL OF THE BATTERIES OR ASSOCIATED EQUIPMENT ARE NOT ALLOWED.**
- **KEEP FREE OF VEHICLES AND EQUIPMENT THE AREAS AROUND THE FUEL TANKS AND VENT, DURING THE PRESSURE REFUELING PROCEDURE.**
- **DO NOT REFUEL THE AIRCRAFT IF THERE IS AN OVERHEAT INDICATION IN THE AIRCRAFT.**
- **DO NOT FILL OR CHANGE OXYGEN BOTTLES DURING THE REFUELING PROCEDURES.**
- **DO NOT START THE APU DURING THE REFUEL/DEFUEL PROCEDURE AFTER AN APU AUTOMATIC SHUTDOWN OR FAILED START EVENT OCCURS.**
- **IF A FUEL SPILLAGE OCCURS SHUT THE APU DOWN AND DO NOT START IT.**
- **PREVENT FUEL SPILLAGE. SOAK IT UP IMMEDIATELY IF IT OCCURS.**
- **MAKE SURE THAT THE FUEL LEVEL IN TANKS IS SYMMETRICAL AFTER REFUELING.**
- **DURING THE PRESSURE REFUELING PROCEDURE, MAKE SURE THAT THE REFUELING PRESSURE IS BETWEEN 35 AND 50 PSI. AN OVERPRESSURE CAN CAUSE DAMAGE TO THE EQUIPMENT AND INJURY TO THE PERSONS. AN UNDERPRESSURE CAN CAUSE UNSATISFACTORY OPERATION OF THE REFUELING COMPONENTS.**
- **MAKE SURE THAT THE FUEL QUANTITY UNIT IS CORRECT. A WRONG READING OF THE FUEL QUANTITY CAN CAUSE AN AIRCRAFT ACCIDENT.**
- **MAKE SURE THAT THE NACA AIR INTAKE IS NOT BLOCKED AND THAT THE NACA AIR INTAKE IS FREE FROM BLOCKAGE.IF YOU NOT OBEY THESE CAUTIONS, DAMAGE TO THE AIRCRAFT CAN OCCUR.**

B. Safety Conditions for Oxygen System Servicing.

WARNING:

- **HIGH-PRESSURE OXYGEN CAN CAUSE SUDDEN COMBUSTION IF IT TOUCHES OIL, GREASE, SOLVENTS, HYDROCARBONS IN GENERAL, CLOTH FIBERS, METAL CHIPS, ETC.**
- **FOR THE CORRECT AND CAREFUL HANDLING OF SUPPORT EQUIPMENT, MAINTENANCE TECHNICIANS MUST KNOW THE SYSTEM AND ITS SAFETY CONDITIONS.**
- **HOSES AND END-FITTINGS MUST BE DECONTAMINATED AND THE RECHARGING PANEL MUST BE KEPT FULLY CLEAN.**
- **IT IS STRONGLY RECOMMENDED THAT HANDS, CLOTHING, AND TOOLS BE FULLY CLEAN. USE GLOVES, APRON, AND SHOES WITH RUBBER SOLES.**
- **DO THIS TASK ONLY IN AREA WHICH PERMITS THE FREE MOVEMENT AND ACCESS OF FIRE FIGHTING EQUIPMENT AND PERSONS. MAKE SURE THAT FIRE EXTINGUISHERS ARE AVAILABLE, HAVE A MINIMUM CAPACITY TO OBEY THE LOCAL FIRE CODES, AND ARE READY TO BE USED IF THERE IS EMERGENCY SITUATION.**
- **"NO SMOKING" SIGNS MUST BE PUT WITHIN A RADIUS OF 50 FT (15 METERS) OF THE OPERATION AREA.**
- **GROUND ALL SUPPORT EQUIPMENT TO BE USED FOR THESE TASKS.**
- **ALL SUPPORT EQUIPMENT NOT NECESSARY FOR THESE TASKS MUST BE MOVED AWAY FOR A MINIMUM OF 50 FT (15 METERS) FROM THE AIRCRAFT.**

C. Special safety conditions are given together with each procedure.

3. Fluid Tables

A. Fuel System

Table 201 - APPLICABLE TO EMB-145ER/EP/EU/MP AND EMB-135ER/KE

TANKS	QUANTITY			
	LITERS		U.S. GALLONS	
	TOTAL	RESIDUAL	TOTAL	RESIDUAL
RIGHT	2,573	27	680	7
LEFT	2,573	27	680	7
TOTAL	5,146	54	1,360	14

RESIDUAL is the fuel in the collector tank plus the undrainable one.

B. Fuel System

Table 202 - APPLICABLE TO EMB-145LR/LU AND EMB-135LR/KL

TANKS	QUANTITY			
	LITERS		U.S. GALLONS	
	TOTAL	RESIDUAL	TOTAL	RESIDUAL
RIGHT	3,198.5	22	845	5.8
LEFT	3,198.5	22	845	5.8

Table 202 - APPLICABLE TO EMB-145LR/LU AND EMB-135LR/KL (Continued)

TANKS	QUANTITY			
	LITERS		U.S. GALLONS	
	TOTAL	RESIDUAL	TOTAL	RESIDUAL
TOTAL	6,397	44	1,690	11.6

RESIDUAL is the fuel in the collector tank plus the undrainable one.

C. Engine Oil System

Table 203 - OIL

SYSTEM	QUANTITY	
	LITERS	U.S. QUARTS
SYSTEM TOTAL CAPACITY	13.25	14
TANK TOTAL CAPACITY (on a bench)	12.30	13
TANK TOTAL CAPACITY (on aircraft)	11.36	12
USABLE OIL	6.62	7

D. APU Oil System

Table 204 - OIL

SYSTEM	QUANTITY	
	LITERS	U.S. GALLONS
SYSTEM TOTAL CAPACITY	2.9	0.77
TANK TOTAL CAPACITY	2.8	0.75

E. Hydraulic System

Table 205 - HYDRAULIC FLUID

SYSTEM		QUANTITY	
		LITERS	U.S. GALLONS
1	TOTAL CAPACITY	22	5.812
	RESERVOIR CAPACITY	6	1.585
2	TOTAL CAPACITY	18	4.755
	RESERVOIR CAPACITY	6	1.585

F. Nitrogen System

Table 206 - NITROGEN GAS

SYSTEM	COMPONENT	AIRCRAFT VERSION	DIMENSION	PRESSURE (Loaded)
MAIN LANDING GEAR	TIRES	EMB-145ER	30X9.5-14 16PR	145 - 0/+ 5 psi
		EMB-145EU	30X9.5-14 16PR	
		EMB-145LR (PRE-MOD. S.B. 145-32-0030)	30X9.5-14 16PR	154 - 0/+ 8 psi
		EMB-145STD	30X9.5-14 16PR	136 - 0/+ 5 psi
		EMB-145EP	30X9.5-14 16PR	148 - 0/+ 5 psi
		EMB-135ER	30X9.5-14 16PR	134 ± 3 psi
		EMB-145MP	30X9.5-14 16PR	150 ± 3 psi
		EMB-145MK	30X9.5-14 16PR	
		EMB-135KE (ERJ-140ER)	30X9.5-14 16PR	145 ± 3 psi
		EMB-135KL (ERJ-140LR)	H30X9.5-16 16PR	153 ± 3 psi
		EMB-135KL (ERJ-140LR)	30X9.5-14 16PR	148 ± 3 psi
		EMB-135LR	30X9.5-14 16PR	
		EMB-135BJ	H30X9.5-16 16PR	160 ± 4 psi
		EMB-145LR (POST-MOD. S.B. 145-32-0030)	H30X9.5-16 16PR	
		EMB-145LU	H30X9.5-16 16PR	

Table 206 - NITROGEN GAS (Continued)

SYSTEM	COMPONENT	AIRCRAFT VERSION	DIMENSION	PRESSURE (Loaded)
NOSE LAND-ING GEAR	TIRES	EMB-145ER	19.5x6.75-8 8PR	82 - 0/+ 4 psi
			19.5x6.75-8 10PR	
		EMB-145EU	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-145STD	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-145EP	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-135BJ	19.5x6.75-8 8PR	84 ± 2 psi
			19.5x6.75-8 10PR	
		EMB-135ER	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-135KE (ERJ-140ER)	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-135KL (ERJ-140LR)	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-135LR	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-145LR	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-145LU	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-145MK	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
		EMB-145MP	19.5x6.75-8 8PR	
			19.5x6.75-8 10PR	
BRAKE (PARKING/ EMERG.)	ACCUMULA-TOR			2,000 psi
LANDING GEAR/PAX DOOR	ACCUMULA-TOR			1,500 psi

G. Oxygen System

Table 207 - OXYGEN GAS

SYSTEM	QUANTITY	
	LITERS	ft^3
Cylinder System	1,418	50

Table 207 - OXYGEN GAS (Continued)

SYSTEM	QUANTITY	
	LITERS	ft^3
Portable Cylinder for Crew Members	312	11
Portable Cylinder for Passengers	312	11