CHAPTER

09

TOWING AND TAXIING

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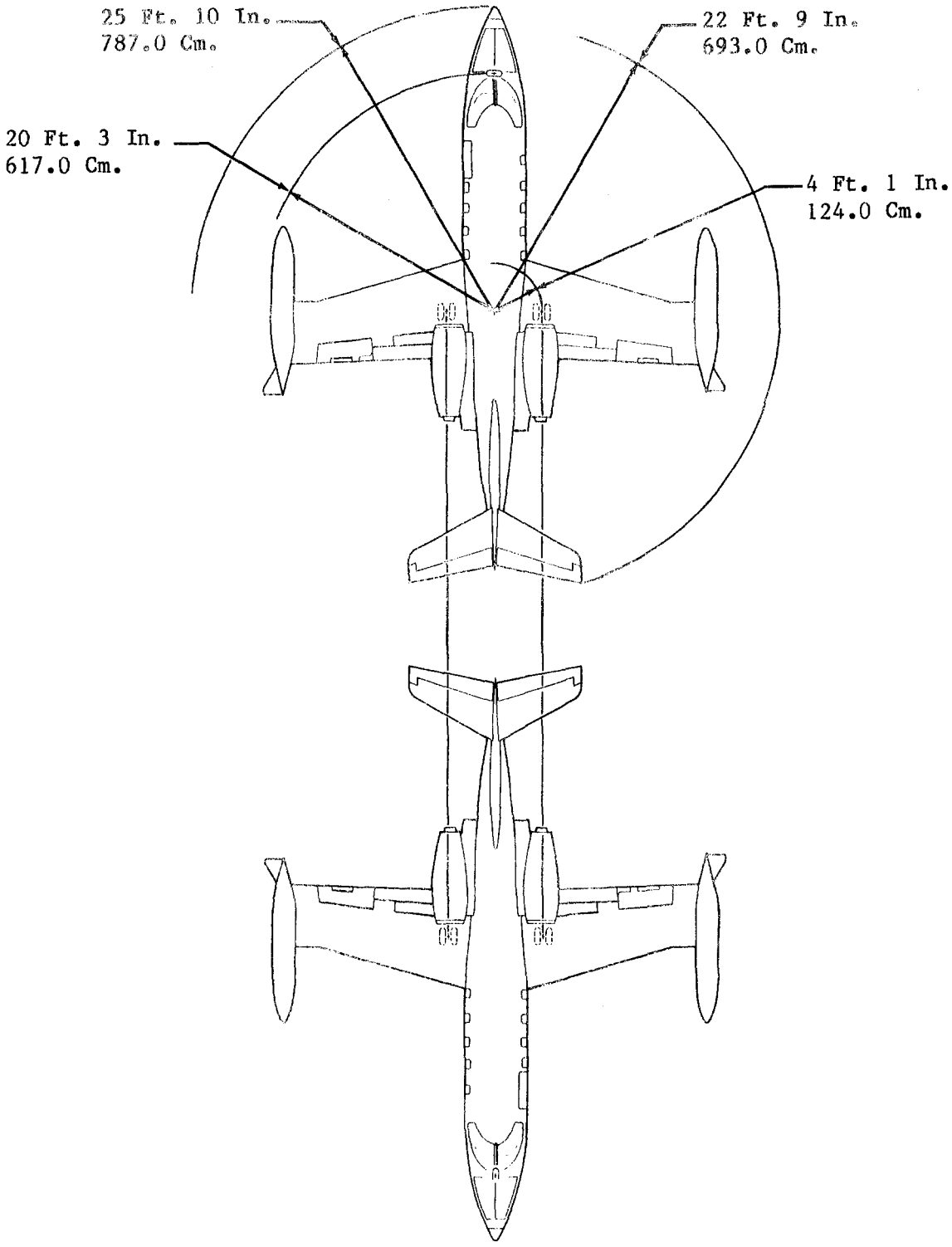
TOWING AND TAXIING - DESCRIPTION AND OPERATION

1. DESCRIPTION

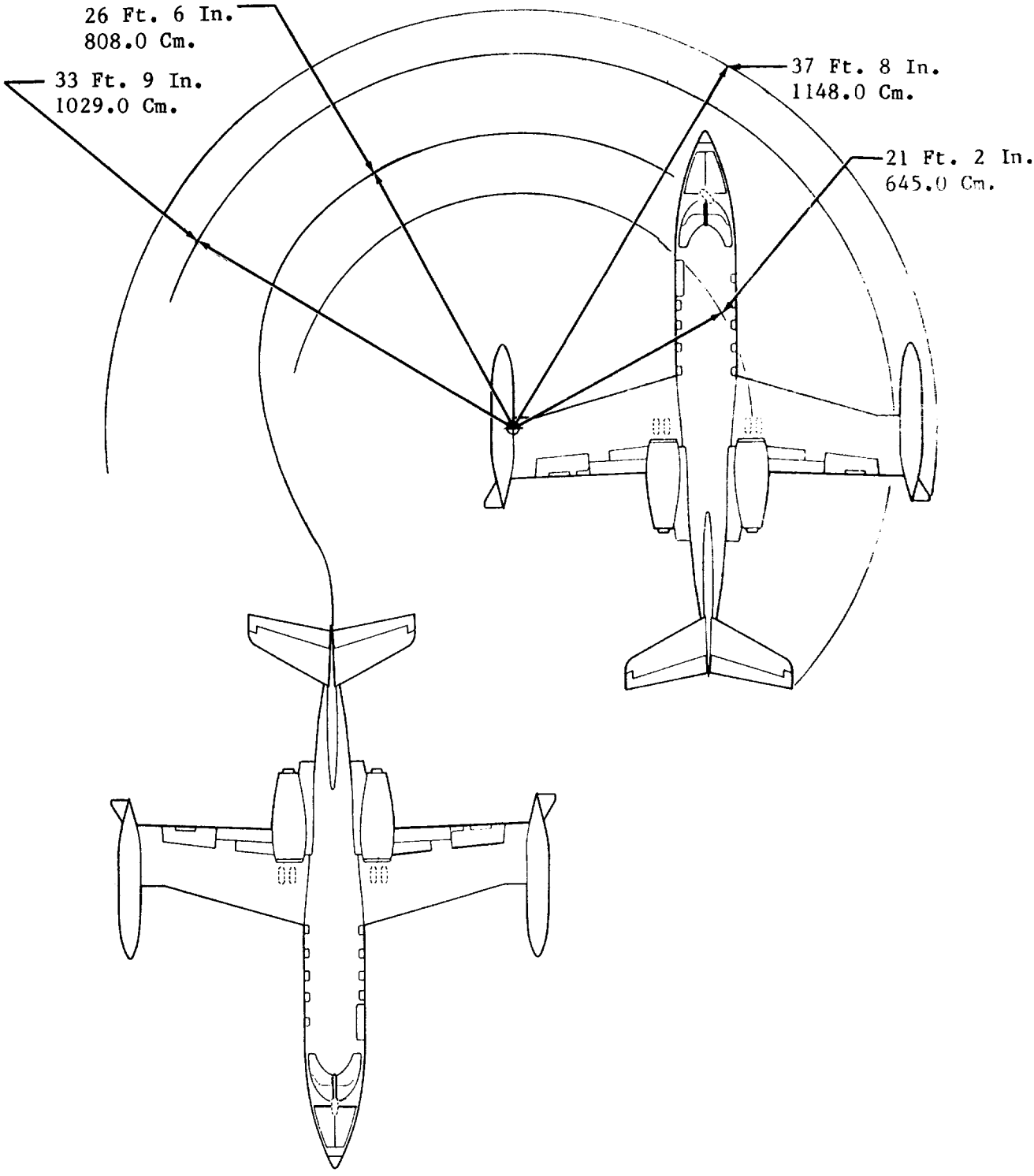
A. Towing and taxiing procedures are basically the same as those used for other aircraft equipped with tricycle landing gear.

B. The aircraft can be towed or pushed backwards, on hard surfaces, using a tow bar attached to the nose wheel. The turning angle of the nose wheel with tow bar is 90°, either side of center. (Refer to figure 1 for turning radius.)

C. For taxi operations, directional control is accomplished utilizing the nose wheel steering system. The maximum turning radius for the nose wheel steering system is 50° either side of center. (Refer to figure 2 for turning radius.)



Tow Bar Turning Radius
Figure 1



Nose Steering Turning Radius
Figure 2

1. Aircraft Towing

NOTE: Towing aircraft is normally accomplished by utilizing a tow bar connected to the nose wheel.

B. Towing by Hand (See Figure 201.)

CAUTION: MAKE SURE THAT BATTERY SWITCHES ARE OFF WHILE TOWING TO AVOID DAMAGE TO ELECTRIC NOSE STEERING ACTUATOR. IF TOWING WITH POWER ON THE AIRCRAFT IS NECESSARY, PULL BOTH AC AND DC NOSE STEER CIRCUIT BREAKERS ON PILOT'S CIRCUIT BREAKER PANEL.

(1) Acquire necessary tools and equipment.

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Tow Bar Assembly (hand)	2370100-1	Bombardier Aerospace Learjet Wichita, KS	Hand towing of aircraft.
Wheel Chocks		Commercially Available	Block wheels.
Ground Cables		Commercially Available	Grounding.

(2) Attach hand tow bar in nose wheel axle.

CAUTION: MAKE SURE THAT LOWER PASSENGER/CREW DOOR IS CLOSED AND LATCHED WHEN TOWING AIRCRAFT TO AVOID POSSIBLE AIRCRAFT STRUCTURAL OR DOOR DAMAGE.

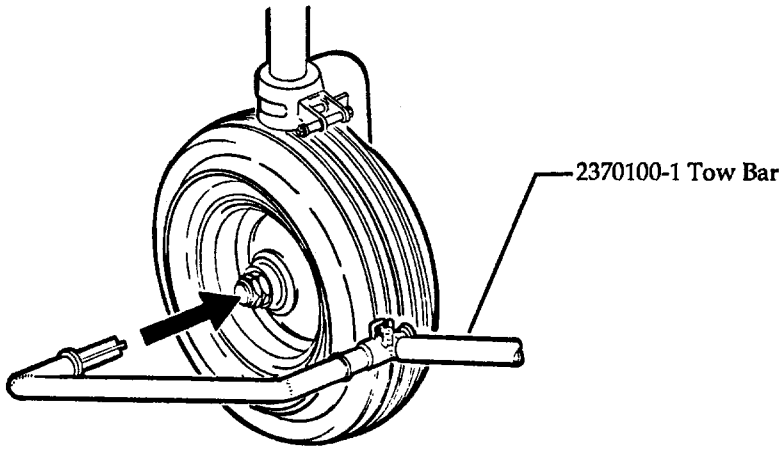
(3) Make sure that lower door is closed and latched while aircraft is being towed.

NOTE: It is recommended that upper door is closed and latched while aircraft is being towed.

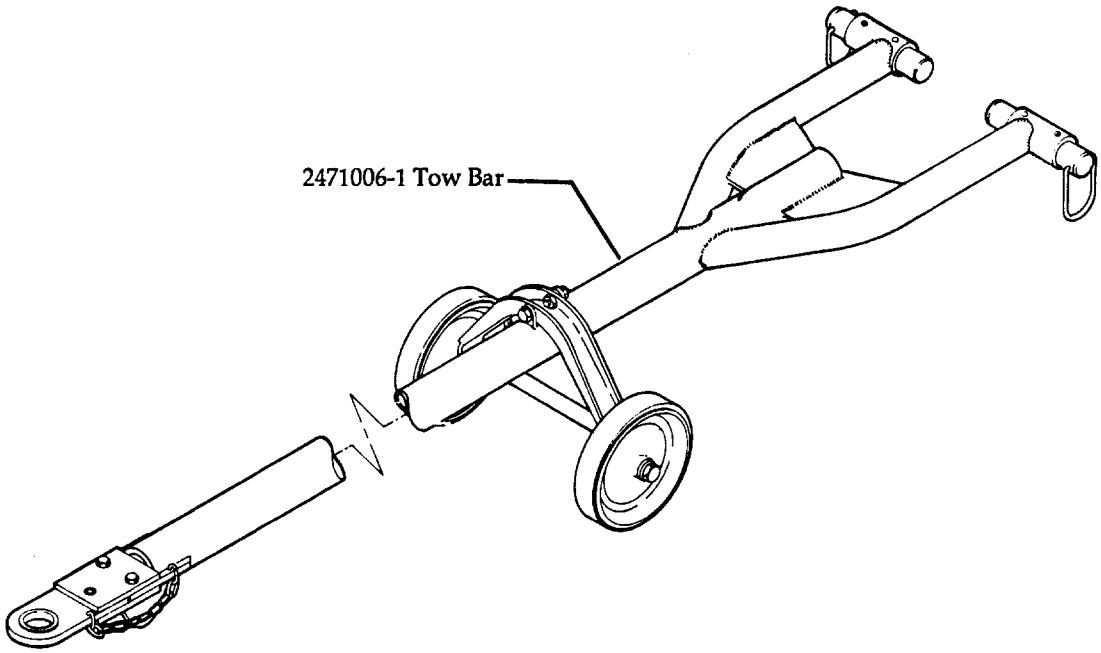
(4) Make sure that wheel chocks are removed and ground cables are disconnected.
(5) Make sure that controls gust lock is removed.
(6) Release parking brake.

NOTE: During towing, a technician is to remain in aircraft to apply breaks in the unlikely event of towing device disengagement.

(7) In congested areas, station wing walkers to check clearance between aircraft and adjacent structures.
(8) When towing operation is complete, center nose wheel, set parking brake, install control gust locks, chock wheels and attach grounding cables.
(9) Remove hand tow bar from nose wheel axle.



(HAND TOW BAR)



(VEHICLE TOW BAR)

Tow Bar Installation
Figure 201

C. Nose Gear Towing with Vehicle (See Figure 201.)

CAUTION: MAKE SURE THAT BATTERY SWITCHES ARE OFF WHILE TOWING TO AVOID DAMAGE TO ELECTRIC NOSE STEERING ACTUATOR. IF TOWING WITH POWER ON THE AIRCRAFT IS NECESSARY, PULL BOTH AC AND DC NOSE STEER CIRCUIT BREAKERS ON PILOT'S CIRCUIT BREAKER PANEL.

TOWBARLESS TOWING IS TO BE PERFORMED USING THE CART MANUFACTURER'S PROCEDURES.

(1) Acquire necessary tools and equipment.

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Tow Bar Assembly (vehicle)	2471006-1	Bombardier Aerospace Learjet Inc. Wichita, KS	Vehicle towing of aircraft.
Towbarless Towing Cart	AP8700	Lektro, Inc. Warrenton, OR	Towbarless towing of aircraft.
Wheel Chocks		Commercially Available	Block wheels.
Ground Cables		Commercially Available	Grounding.

(2) Attach tow bar to nose wheel axle.

CAUTION: MAKE SURE THAT LOWER PASSENGER/CREW DOOR IS CLOSED AND LATCHED WHEN TOWING AIRCRAFT TO AVOID POSSIBLE AIRCRAFT STRUCTURAL OR DOOR DAMAGE.

(3) Make sure that lower door is closed and latched while aircraft is being towed.

NOTE: It is recommended that upper door is closed and latched while aircraft is being towed.

(4) Make sure that wheel chocks are removed and ground cables are disconnected.
(5) Make sure that controls gust lock is removed.
(6) Connect tow bar to tow vehicle.
(7) Release parking brakes.
(8) In congested areas, station wing walkers to check clearance between aircraft and adjacent equipment.

CAUTION: WHEN PUSHING AIRCRAFT BACKWARDS WITH A TOW VEHICLE, PERFORM ALL BRAKING WITH TOW VEHICLE. BRAKE APPLICATION WHILE AIRCRAFT IS BEING PUSHED BACKWARDS, OTHER THAN BY HAND, MAY CAUSE DAMAGE TO BRAKE COMPONENTS, NOSE GEAR STRUT, NOSE GEAR AND ACTUATOR ATTACH POINTS AND ADJACENT STRUCTURE.

(9) Tow aircraft, making smooth starts and stops.

NOTE: During towing, a technician is to remain in aircraft to apply breaks in the unlikely event of towing device disengagement.

(10) When towing operation is completed, center nose wheel, set parking brake, install control gust locks, chock wheels, and attach grounding cables.
(11) Remove tow bar from aircraft.

D. Main Gear Towing

CAUTION: IF AIRCRAFT IS OFF RUNWAY AND HAS BECOME MIRED IN SOFT EARTH OR MUD, DO NOT ATTEMPT TO TOW AIRCRAFT BY NOSE WHEEL. THE FOLLOWING PROCEDURE SHALL BE USED AS A GENERAL GUIDELINE.

(1) Inspect areas of aircraft structure as outlined in Chapter 5.
(2) Reduce weight of aircraft as much as possible.
(3) If landing gear is sunk deeply in mud, shovel a sloping path to gear wheels.
(4) Place large planks in path against wheels to provide a makeshift ramp.
(5) Position large ropes or belt straps on main gear strut as low as possible to drag of wheels.
(6) Connect towing chain or cables to ropes or belts. Towing chains or cables shall be of sufficient length to allow tow vehicle to be 50 to 100 feet [15 to 30 meters] from aircraft.

CAUTION: DO NOT LIFT OR PUSH ON CONTROL SURFACES.

(7) Position two persons at nose and tail of aircraft and at each tip tank. These persons will help push, lift, and guide aircraft onto planks.
(8) Slowly increase tension on tow lines and, with aid of personnel, move aircraft onto planks.
(9) Slowly move aircraft to runway.

TAXIING - MAINTENANCE PRACTICES

1. Aircraft Taxiing

NOTE:
- Taxiing procedures are generally the same as those used for other aircraft with tricycle landing gear.
- Taxiing requires two persons in the flight compartment, one to maneuver the aircraft and one to assist and act as an observer.

A. Taxiing Procedures
(1) Station two persons in flight compartment.
(2) Disconnect grounding cables, remove wheel chocks, engine inlet, and exhaust covers.
(3) Clear area of personnel and equipment.

WARNING: AIRFLOW INTO THE TFE-731 ENGINE IS SUFFICIENT TO DRAW PERSONNEL AND EQUIPMENT INTO THE ENGINE INLET. PERSONNEL IN PROXIMITY OF THE ENGINE INLET SHOULD MAINTAIN A SAFE DISTANCE AT ALL TIMES DURING ENGINE OPERATION.

(4) Start one engine. (Refer to Airplane Flight Manual for engine starting procedure.)
(5) Release parking brake and start taxiing roll using only sufficient thrust to start roll.
(6) After taxiing, set parking brake and shut down engine. (Refer to Airplane Flight Manual for shutdown procedure.)
(7) Connect grounding cable and chock wheels.
(8) After engine has cooled, install engine inlet and exhaust covers.