

## GENERAL SPECIFICATIONS

### Armament

Two Caliber .50 M-2 machine guns.  
Ammunition Capacity 450 rounds per gun.

### Speed of Turret

Slow speed (tracking)  $\frac{1}{4}^{\circ}$  per second to  $12^{\circ}$  per second.  
High speed (slewing, with high speed button depressed)  $\frac{1}{4}^{\circ}$  per second to  $33^{\circ}$  per second.

### Weights

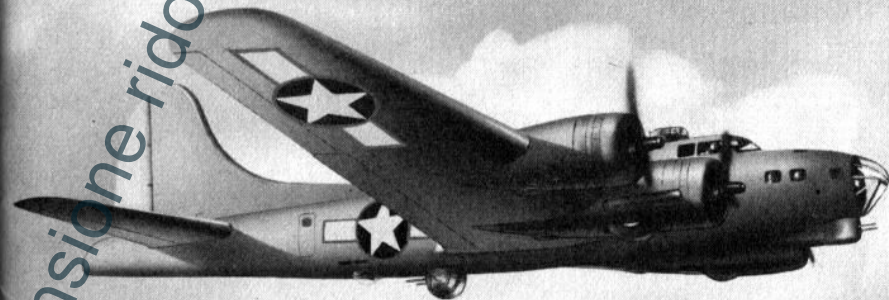
Turret Complete (no guns or ammunition) 438 lbs.  
Ammunition 33 lbs. per 100 rounds.  
Guns 65 lbs. each

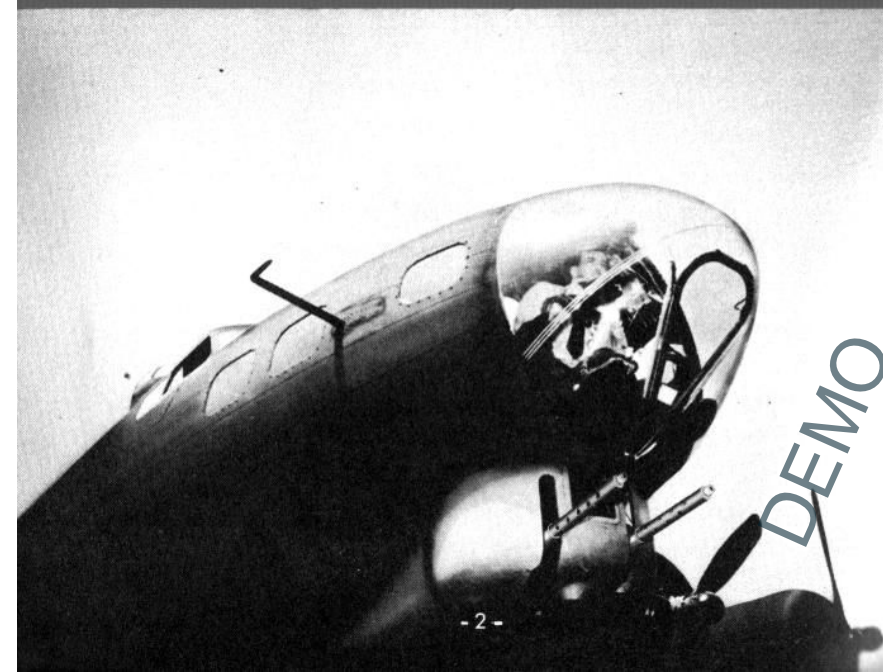
### Gear Drive

Speed Reducer ratio 25-1.  
Azimuth gear ratio 50-1.  
Elevation gear ratio 42-1.  
Azimuth gear train reduction 1250-1.  
Elevation gear train reduction 1050-1.

### Electrical Requirements

24 Volt D. C.  
Peak starting current motor amplidynes 1280 amps.  
Maximum current draw running full load 92 amps.  
Maximum current draw running no load 40 amps.

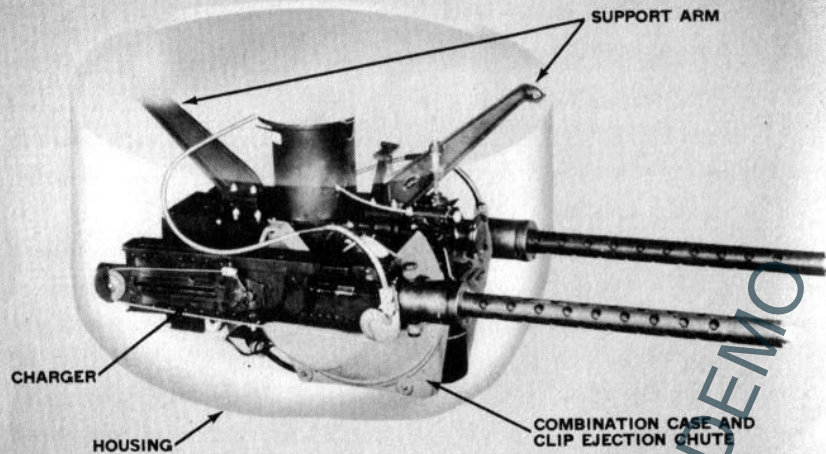




## GENERAL DESCRIPTION BENDIX CHIN TURRET

The Bendix Chin Turret Model "D" is an electrically driven power turret, mounting two caliber, .50 M-2 Machine Guns, equipped with recoil absorbing mechanism, firing solenoids, and manual gun chargers.

The turret is designed to be mounted in the Bombardier's Compartment and to be operated by the Bombardier to protect the forward approaches to the ship. The guns rotate 172° in azimuth (86° to the left and to the right of forward,) and swing from 26° above horizontal to 46° below horizontal. Switch limits are adjustable. The turret is mounted at floor level in the Bombardier's Compartment. The guns extend below the fuselage at the nose of the ship. The lower assembly, with the exception of the gun barrels which



ting of the control handles regardless of the change of torque.

The open sight is synchronized with the movements of the gun in azimuth and in elevation and is driven by tachometer shafts from the azimuth and elevation gear trains. The gunner's field of view thus always includes the direction in which the guns are pointing and moves with the guns. The sight is equipped with a rheostat to control the intensity of the light of the circle which is projected on the sight glass.

The center of the field of view is marked by the center dot and is the point on which the guns are trained. The dot and circle are used in the same manner as a ring sight and bead on a flexible machine gun installation. The intensity of the light can be varied to satisfy the operating conditions of bright sunlight or night flying.

To operate the turret the Bombardier lifts the control column

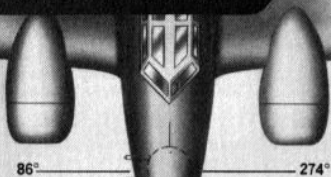


latch and swings the controller and column from the stowed position to the combat position; moves the power switch to the power position, charge the guns, and adjusts the intensity of the sight reticle to the light conditions. The movements of the guns in azimuth and in elevation are controlled by the handle bar type control handles. The turret can be operated only when the safety switch on the outside of either control handle is depressed. Rotation of turret in azimuth follows rotation of the control handles clockwise or counterclockwise about the vertical axis. The swing of the guns in elevation follows swing of the control handles up or down. The speed of the guns is proportional to the degree of movement of the control handles from the neutral position in low speed. The guns are moved in high speed by depressing the high speed button on the top of either control handle. High speed of the guns is proportional to the degree of

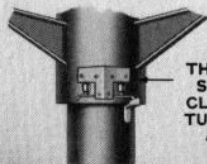
movement of the control handles from the neutral position. Looking through the sight, the gunner trains the guns on the target by moving the control handles. The guns are fired by pressing the trigger switch on the front of either control handle.

The gunner can follow a target freely, firing as required without the guns striking the fuselage or firing into any part of the ship. The limits of the gun movements in azimuth and elevation are automatically controlled by switches.

The turret can be stopped by releasing the control handle safety switches on the side of the control handles. The power supply to the turret is cut off by moving the main power switch to the "OFF" position. The turret can rotate in azimuth and the guns swung in elevation by use of a hand crank in the event of electric power failure.

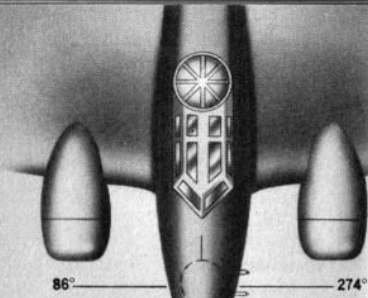


TOP VIEW OF AIRPLANE

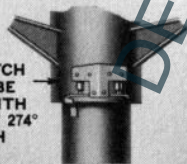


THIS SWITCH SHOULD BE CLOSED WITH TURRET AT 86° AZIMUTH

FRONT VIEW OF CHIN TURRET



TOP VIEW OF AIRPLANE



THIS SWITCH SHOULD BE CLOSED WITH TURRET AT 274° AZIMUTH

FRONT VIEW OF TURRET

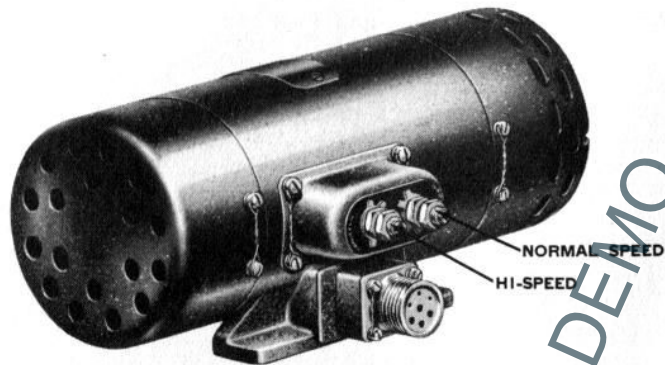
**Adjustment of azimuth limit switches.**

**PROCEDURE.**

- (1) Remove movable housing.

**ADJUSTMENT.**

- (1) Using hand crank rotate guns clockwise to 86° azimuth, turn adjusting screw on azimuth limit switch lever to actuate micro-switch as arm just raises lever.
- (2) Rotate guns counter-clockwise to 274° azimuth and perform same adjustment for counter-clockwise limit switch.



**Compounding instructions Model "D"**

**PROCEDURE.**

(1) Loosen locking nuts of the compounding rheostats located on the sides of the amplidyne. If the turret slows down under load turn the rheostat in the direction of the arrow, until it runs at a constant speed under load. If the turret speeds up under load turn the adjusting rheostat in the opposite direction from that of the arrow, until it will run at a constant speed under load.

(2) Depress high speed button and set high speed compounding adjustment at a low RPM (no load) so that no change in RPM occurs when the turret is loaded, that is applying a 40 lb. load to the front of the gun arm.

(3) Release high speed button and set the normal speed compounding adjustment at a low RPM (no load) so that there is no change in RPM when the turret is loaded, that is applying a 40 lb. load to the end of the gun arm.

(4) Tighten both locking nuts on the compounding adjustment.

(5) The above procedure must be followed for both azimuth and elevation.



**Greasing.**

To check the grease level of the azimuth gear assembly, unscrew the Allen head cap screw located in the center of the inspection panel on the side of the azimuth gear housing at the bottom of the center column. The grease must be at this level, if below it is necessary to add grease. The plug on the top of the azimuth gear housings is removed to fill with grease to proper level.

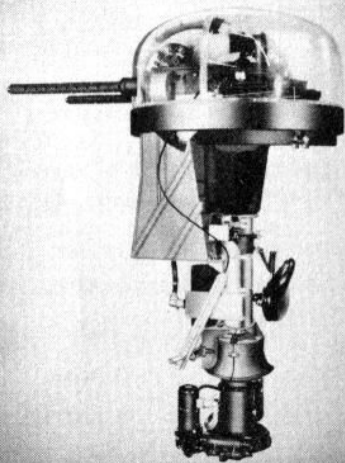
To check the grease in the speed reducer, back out the Allen head screw in the center of the side inspection plate. If the grease is not up to this height, remove top inspection plate and add grease.

The elevation gear housing grease level is checked by removing the plug on the side of the gear housing. Grease is added through the plug hole on top of the gear housing.

**Maintenance checks.**

1. Be sure turret is supplied with 20 volts or more for proper operation.
2. Check all firing limits and dynamic brakes by swinging turret in azimuth and elevation against all stops.  
Note the guns do not strike fuselage or fire into any part of the ship.
3. Inspect sight for illuminated reticle. If reticle fails to light, switch to other filament. Switch for this is located on side of sight.
4. Ammunition containers should be filled and ammunition threaded into guns properly.
5. Charge the guns to be sure that charger is functioning.
6. Depress the interphone switch to test the ship's interphone system.
7. Be sure that the guns and sight are harmonized correctly.

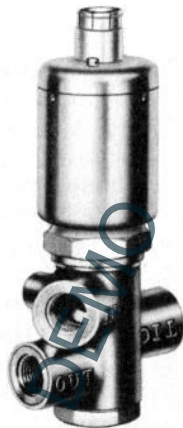
**OTHER BENDIX AIRCRAFT ARMAMENT PRODUCTS**



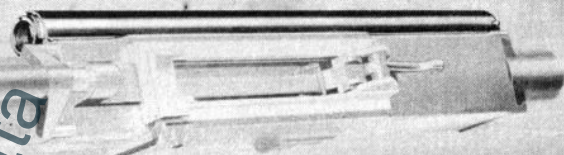
**UPPER TURRET**



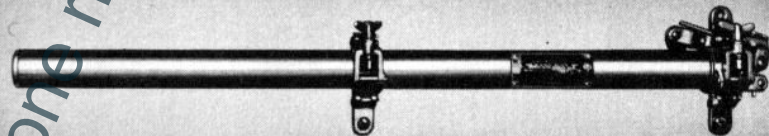
**HAND  
CONTROL VALVE**



**ELECTRIC  
CONTROL VALVE**



**20 mm. CANNON CHARGER**



**50 cal. HYDRAULIC CHARGER**



**50 cal. AUTOMATIC GUN CHARGER**

*dimensione ridotta*