

STATISTICAL STUDY OF B-29 LOSSESINTRODUCTION

The success of any combat unit may best be evaluated through a comparison of its target destruction with the cost of achieving this destruction. Target destruction is the primary objective, but the selection of a plan to secure this objective is based upon minimizing the cost in terms of men and materials. By examining the losses which this command has experienced, it is hoped that this study will at least clarify some of the problems concerned, if not aid in their solution.

The bulk of this study is concerned with an examination of 162 losses on bombing and mining missions which the command had sustained up to 30 April 1945. As discussed in greater detail on the following pages, several conclusions may be drawn from the statistical data that has been examined:

1. The loss rate per airborne aircraft, which averaged 3% - 5% for November - February, has dropped to less than 2% during March and April.
2. A reduction in combat operational losses* has been chiefly the result of (a) lower bombing altitude, (b) availability of Iwo as an emergency landing field, and (c) correction of specific malfunctions.
3. A reduction in losses caused by enemy action and unknown reasons has been chiefly the result of (a) less enemy air opposition, (b) utilizing a larger percent of the command's effort against less heavily defended targets, (c) the availability of Iwo, and (d) greater striking force over the target.
4. For daylight missions, losses to enemy action and unknown reasons have concentrated in the first groups over the target. For night missions, losses have been spread throughout the force.

SCOPE OF THE STUDY

This study covers a total of 194 B-29 losses which had been sustained by this Command from the start of operations to 30 April 1945. This total is comprised of the following:

<u>Type Of Loss</u>	<u>No. A/C</u>	<u>Percent Of Total</u>
<u>Lost On Or As The Result Of Combat Operations</u>		
Bombing and Mining Missions	162	83.5%
Other Type Missions	8	4.1%
<u>Training and Administrative Flights</u>		
	6	3.1%
<u>On The Ground Due To Enemy Action</u>		
	12	6.2%
<u>War Weary Aircraft</u>		
	6	3.1%
TOTAL	194	100.0%

* Combat operational losses are defined as all losses as a result of known reasons other than enemy action (Ex: mechanical failure, personnel error).

SECRET

The losses from enemy bombing attacks all occurred in 1944 when Saipan was the target for enemy raiders from Iwo. One enemy attack was particularly effective, that of November 27 when 8 B-29's were lost. The other 4 aircraft were lost on raids of December 7 and December 25.

Of the losses on training and administrative flights, three were the result of crash landings while the other three aircraft either crashed or ditched at sea. The details on these aircraft are as follows:

- 4 aircraft - Engine trouble; 1 crash landed.
- 1 aircraft - Pilot error on crash landing.
- 1 aircraft - Landing gear collapsed upon landing.

War Weary aircraft include 5 aircraft which were returned to the U.S. during March and April and 1 aircraft which has been redesignated to TB-29A. The decision to return an aircraft to the U.S. involves the problem of whether the time required to make the aircraft fully operational might better be spent on repairing other aircraft. The Guam Air Depot has set a limit of approximately 6000 man-hours or 45 days of repair on a single aircraft beyond which it is more practical to return the aircraft to the U.S. Although the number of aircraft in this category is expected to increase, at the present time they have constituted only a small percent of the Command's total losses.

The aircraft lost on other type missions are the following:

Type Of Mission	No. Of Aircraft And Cause
Shakedown	1 A/C - Engine failure enroute to target.
Weather Strike	3 A/C - Bad weather, poor navigation resulted in exhausted fuel supply.
	1 A/C - High winds and exhausted fuel supply; ditched enroute from target to base.
	1 A/C - Engine failure enroute from target to base.
Search	1 A/C - Crash landing with 2 engines out.
	1 A/C - Engine and wing caught fire; Aircraft crashed at sea.

It should be noted that none of the above losses were the result of enemy action. These losses constitute a small percentage of the total airborne on these missions. For example, the six aircraft lost on weather strike missions are 1.5% of the total WSM sorties.

None of the losses in any of the above categories, on ground by enemy action, on training or administrative flights, war-weary, or on other missions, represents an unusually high figure considering the operation of the Command as a whole. Moreover, the losses are so few that any further examination of the figures would not be statistically sound.

AIRCRAFT LOSSES ON MISSIONS

The problem of analyzing aircraft losses is complicated by the number of factors varying from mission to mission which influence the vulnerability of aircraft to loss. Among these, the following predominate:

SECRET

1. Target Area - Type and strength of enemy opposition will vary with significance of target.

2. Altitude Of Attack - This will affect type and accuracy of flak and ability of enemy fighters to attack. The chance for mechanical failure normally increases with increase in bombing altitude.

3. Day Or Night Attack - Enemy fighter opposition is less and flak accuracy tends to decrease for night attacks, depending on the effectiveness of the enemy radar system.

4. Time Exposed To Enemy Action - Route to and from target as well as target area itself will influence this factor. By reducing spread between first and last aircraft, losses from enemy action can be minimized.

5. Weather - Bad weather by interfering with fighter interception and flak accuracy may more than offset effect of such weather on our aircraft.

The effect of each of these factors on aircraft losses cannot be measured, but through a careful examination of them we should be able to analyze with comparative accuracy the trends of the Command's loss rates.

Table I and Chart I present a summary by cause of the aircraft losses on bombing and mining missions.

From an examination of this table, it is evident that the loss rate during March and April is substantially below the December - February rate. Moreover, this trend holds for all three general categories of loss: Known enemy action, combat operational, and unknown.

The following is a more detailed analysis relating the factors noted above to these loss rates. The combat operational losses will be considered first.

COMBAT OPERATIONAL LOSSES

The reduced loss rate for combat operational reasons is the result of the following factors: (1) Specific remedies for certain malfunctions have been perfected and installed. (Example - Fuel transfer system).

(2) As combat crew personnel have become more experienced, losses from personnel error have declined.

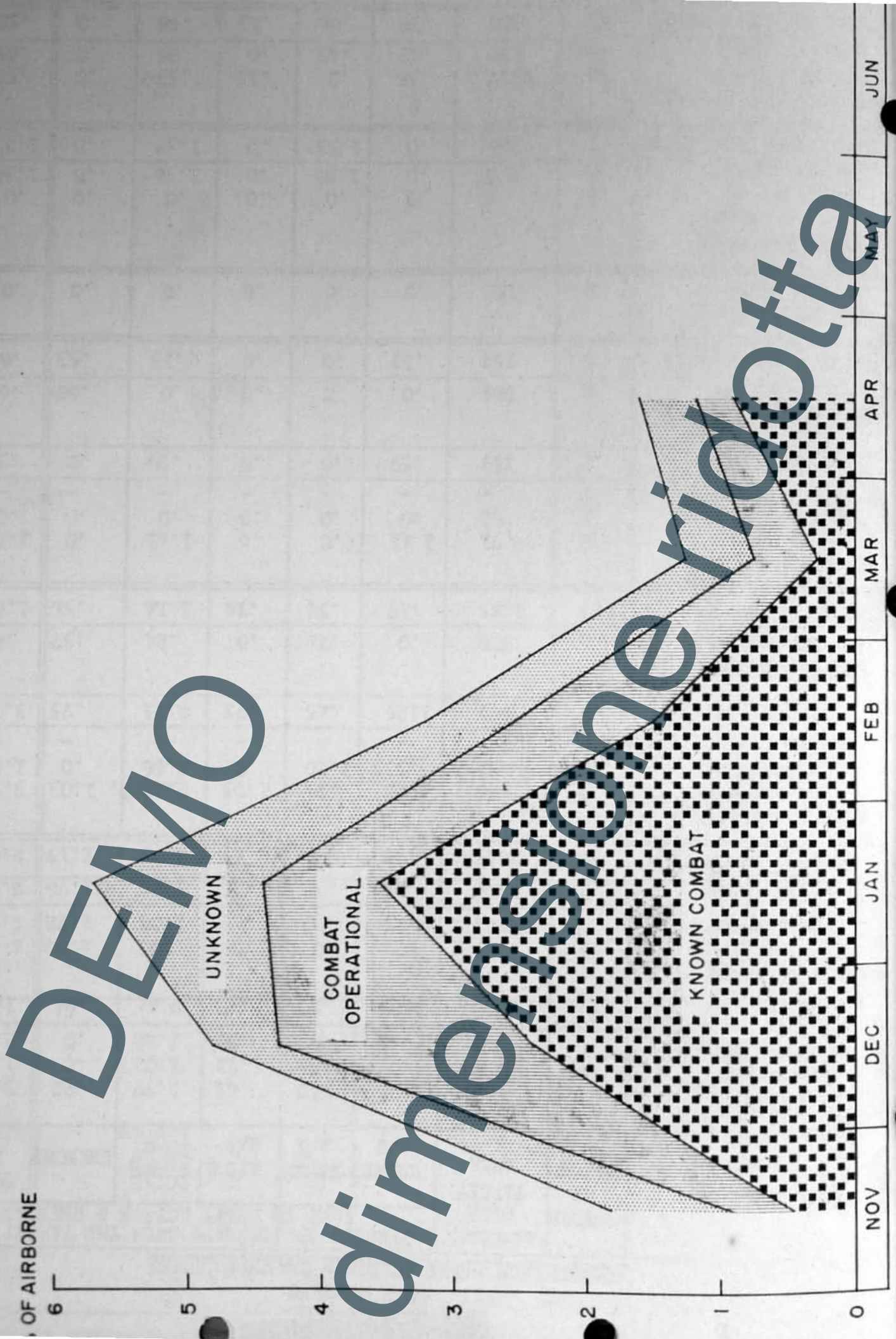
(3) The reduction in bombing altitude has put less strain on all mechanical aspects of B-29 operation as well as on the combat crew.

(4) The availability of Iwo Jima as an emergency landing field has meant that many aircraft in difficulty, particularly those short of fuel, no longer have to ditch.

Listed below are the more specific causes for the combat operational losses of this Command:

Cause	No. A/C	Remarks
<u>Mechanical</u>		
Engine Failure	20	2 A/C attempted early returns; crashed at base. 8 A/C crashed on take-off or shortly thereafter. 1 A/C crash landed at Iwo Jima. 2 A/C crashed on return.

AIRCRAFT LOSS RATE



DEMO

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LOSSES FROM ENEMY ACTION & UNKNOWN CAUSES

NOV 1944 - APR 1945

% OF AIRCRAFT
OVER TARGET

- ENEMY AIRCRAFT
- ANTI-AIRCRAFT
- ENEMY A/C & ANTI-A/C
- UNKNOWN

