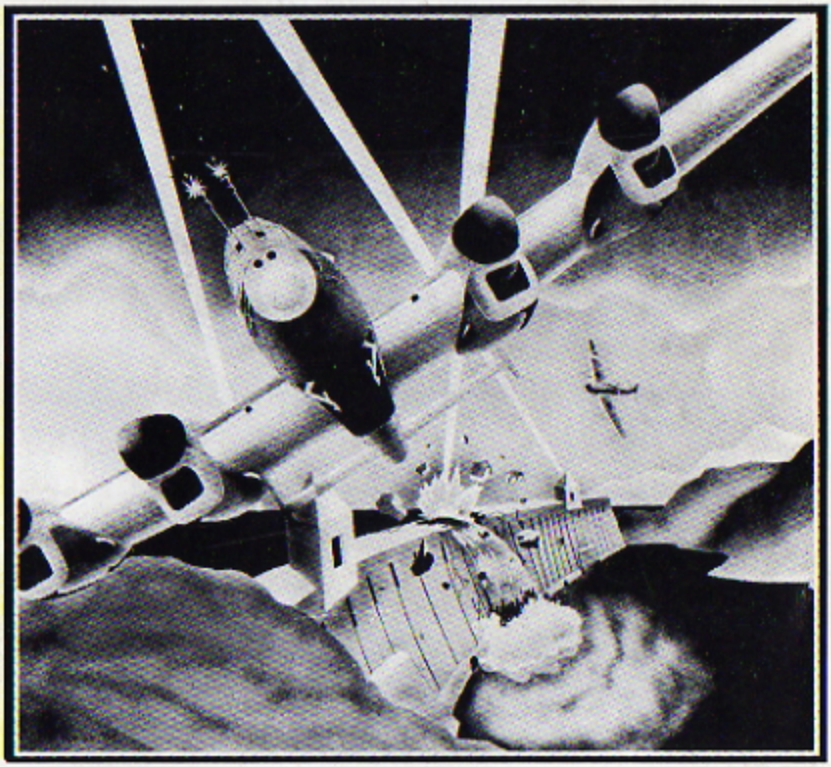
THE DAM BUSTERS™

TRAINING MANUAL



COLECO
ELECTRONICS

Guide No. 300275

No. 2686

GETTING READY TO PLAY

ALWAYS MAKE SURE THE COLECOVISION® OR ADAM™ IS TURNED OFF BEFORE REMOVING OR INSERTING A CARTRIDGE.

One-Player Game: Plug the hand controller into Port 1.

Choosing Your Challenge

Press the Cartridge Reset Button. The Title Screen appears on your TV or monitor. Wait for the Option Screen to appear. Then choose which option you want to play by pressing the matching Keypad Button. If you're playing the Flight Lieutenant option, the Pilot Screen will appear. If you're playing the Squadron Leader option, the Intelligence Report will appear. You're ready to start your mission. Good luck.

There are no skill levels in The Dam Busters; however you can choose between two different play options:

- **Flight Lieutenant (Option 1):** Your mission starts over the English Channel. This is a good starting level and is recommended to players who do not have experience using a flight simulator or playing military simulation games. Run a few missions as a Flight Lieutenant to get the feel of the controls before trying the Squadron Leader option.
- **Squadron Leader (Option 2):** Your mission starts with a take off from Scampton Airfield. The Squadron Leader option is a more dangerous mission and requires more skill in game play. At the beginning of your mission, you'll receive an Intelligence Report from which you can plan your strategy. The Intelligence Report can include any of the following:

  Radar Activity: Indicates whether enemy mobile radar installations have been moved and if the map for that area is incorrect.

  Night Fighter Activity: Indicates the probability of encountering enemy night fighters.

  Bombing Raid: Indicates that a large-scale night operation is taking place over a specified city. That area should be avoided as all air and ground defenses have been mobilized.

  Flak Concentration: If the flak guns are warned by radar of your approach, you come under heavy attack. Since the flak guns were often moved from one area to another by rail, it's important to change your flight plan for each mission.

Taking Off: If you're playing the Squadron Leader Option, you start the mission by taking off from Scampton Airfield.

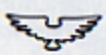
To take off: Set the flaps down and give engines full throttles and half boost. Press Keypad Button 1 to switch to the Pilot's screen. Wait for your airspeed to build up. (Your Airspeed Indicator will flash when ready.) After a short time, you'll be able to lift the tail by pressing the Control Stick up. Lift the tail section until the horizon is two-thirds down from the top of the screen. Don't lift the tail too high or you'll crash.

When the plane's altimeter shows an increase, the plane is taking off. Adjust the pitch (up and down motion) to level off at a constant altitude. (Perform this maneuver quickly to avoid stalling the plane.) Retract the landing gear and the flaps to increase airspeed. Lower the throttles and boosters as quickly as possible after take off to avoid over-revving the engine. Press the Control Stick down to start increasing altitude and you're off!

USING YOUR CONTROLS

Keypad Buttons:

Pressing Keypad Buttons **1-7** allows you to choose the crew position you want during game play.



Keypad Button 1 = Pilot



Keypad Button 4 = Bomb Aimer



Keypad Button 2 = Front Gunner



Keypad Button 5 = Navigator



Keypad Button 3 = Tail Gunner



Keypad Button 6 = First Engineer



Keypad Button 7 = Second Engineer (Squadron Leader only)

When a crew position needs your attention, its number will flash at the bottom of your screen. Press the matching keypad button to switch to that crew position.

At the end of a mission, press Keypad Button * to return to the Option Screen; press Keypad Button # to replay the same option.

Side Buttons:

The use of the Side Buttons is explained throughout the How-To-Play section of this guide.

Control Stick:

The use of the Control Stick is explained throughout the How-To-Play section of this guide.

HERE'S HOW TO PLAY

The Time: Early Spring, 1943

The Mission: Bombing a dam deep inside Nazi Germany. If the mission is successful, several important power sources for the Reich will be destroyed and river traffic in the Ruhr Valley will come to a virtual standstill. An added bonus: The propaganda value of a successful mission will allow the Allies and the Underground to spread rumors about epidemics resulting from the flooding, water shortages and loss of firefighting capabilities.

The Plane: Lancaster B.MK I/III (The Dambuster).

The Bomb: A cylinder 60 inches long; 50 inches in diameter; 3/8-inch thick steel, weighing 2650 pounds and carrying 6600 pounds of Torpex underwater explosive.

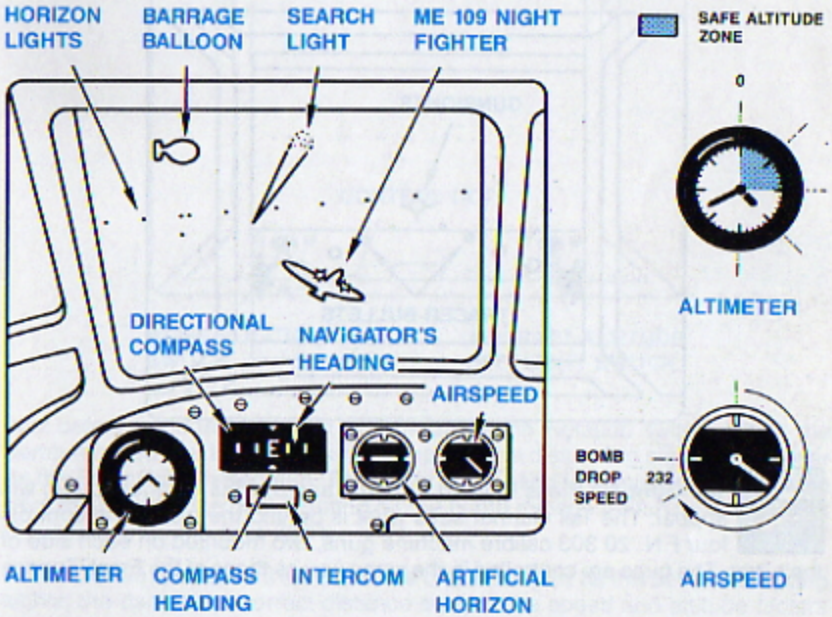
The Crew: You've been selected to fly the mission. Its success or failure and possibly the outcome of the war is in your hands.



PILOT: Press Keypad Button 1 and the Pilot's screen will appear. The Pilot screen controls the direction of the aircraft: left, right, up, down. The Control Stick simulates the joystick in the Lancaster. Pressing the Control Stick down (toward you) makes the plane go up; pressing the Control Stick up (away from you) makes the plane go down. Pressing the Control Stick left or right makes the plane move in the selected direction.

The Pilot's screen also contains a view of the horizon lights, enemy barrage balloons, searchlights and Me 109 night fighters. (A similar view also appears in the Front and Tail Gunners' screens).

Several instruments are also displayed on the Pilot's screen. The left side of the Pilot's screen contains the altimeter which measures how far the aircraft is off the ground. The altimeter shows two indicators. The smaller indicator measures altitude in 200-foot increments while the larger indicator measures altitude in 10-foot increments. When you see the intercom at the bottom of your screen blinking a numeral 1, it means you are flying too high. Drop your altitude to below 1000 feet.



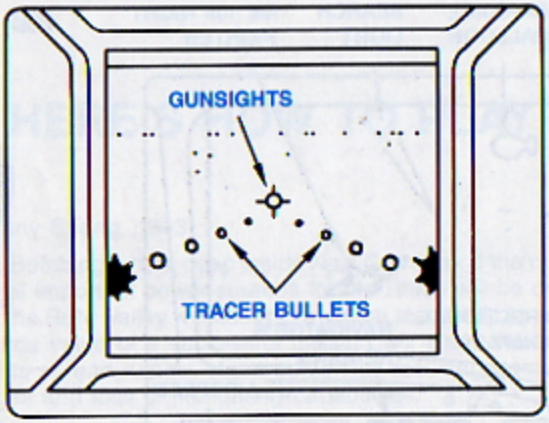
The second instrument from the left is the Directional Compass for the aircraft. It shows you what direction the plane is heading in relation to magnetic North. The small red marker that moves on top of the compass is the direction the navigator has set (see NAVIGATOR).

The next instrument is the Artificial Horizon indicator which shows what direction the aircraft is turning. This instrument is useful for night flying.

The Airspeed Indicator, on the far right, shows you how fast the plane is flying.



Front Gunner: Press Keypad Button 2 and the Front Gunner screen will appear. The Front Gunner sees what is ahead of the plane and controls the twin 303 calibre F.N.5 machine guns by guiding the cross hairs with the Control Stick and pressing the Left Side Button. The guns fire 20 rounds per second. Every fourth round fired from the guns is a tracer bullet which "glows" as it moves away from the plane to help determine direction and target.





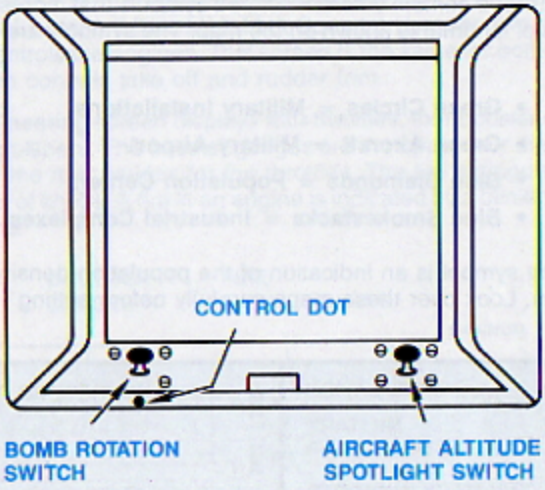
Tail Gunner: Press Keypad Button 3 and the Tail Gunner screen will appear. The Tail Gunner sees what is behind the plane and controls four F.N. 20 303 calibre machine guns, two mounted on each side of the turret. The guns are controlled in the same way as those of the Front Gunner.



Bomb Aimer: Press Keypad Button 4 and the Bomb Aimer screen will appear. Use the Bomb Aimer screen only on the dam approach. The instruments at the bottom of the screen are the Bomb Rotation switch and the Aircraft Altitude Spotlight switch.

To select a switch, move the Control Stick left or right. A black control dot appears under the selected switch. Press the Left Side Button to get control of the selected switch. With the Left Side Button held in, press the Control Stick down to turn the switch on or up to turn it off. Release the Left Side Button to release the control of the switch.

When the Spotlight switch is on and the altitude is less than 100 feet, press the Control Stick to adjust the altitude (up is less altitude; down is more altitude).



Just before the dam approach turn on the Bomb Rotation switch. When the bomb reaches maximum rotation (500 rpms), the distancing sights will appear on the Front Gunner's screen. These sights are used to determine the distance from the plane to the dam. Turning off the bomb rotation switch frees the Front Gunner to man the twin 303's.

When the two dam towers are the same distance apart as the bomb-distancing sights, the dam is the correct distance away. If the speed and altitude factors are also correct (see Dam Approach), release the bomb. To release the bomb: press the Left Side Button when the distancing sights are aligned with the dam towers.



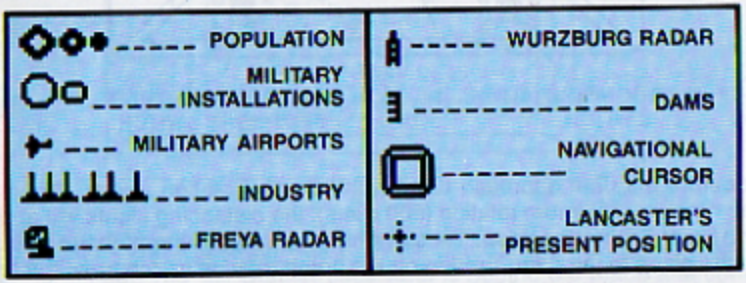
Navigator: Press Keypad Button 5 and the Navigator's screen will appear. There are six maps which display most of Northern Europe. Each map is selected by moving the navigational cursor toward a map edge. Pressing the Control Stick in the selected direction (up, down, left, right) controls where the navigational cursor goes on the displayed map. As soon as

the boundary of one map is reached, the next map will be displayed. If there are no more maps to select, the navigational cursor moves to the map edge and then stops.

The maps of Europe contain different colored symbols that represent the location and types of landmarks shown on the map. The symbols are classified as follows:

- **Green Circles = Military Installations**
- **Green Aircraft = Military Airport**
- **Blue Diamonds = Population Centers**
- **Blue Smokestacks = Industrial Complexes**

The size of the symbol is an indication of the population density and size of the installation. Look over these maps carefully before setting your course.



To view your present location in relation to the map on which you started the mission (Map 1 for the Squadron Leader Option; Map 2 for the Flight Lieutenant Option), press the Left Side Button.

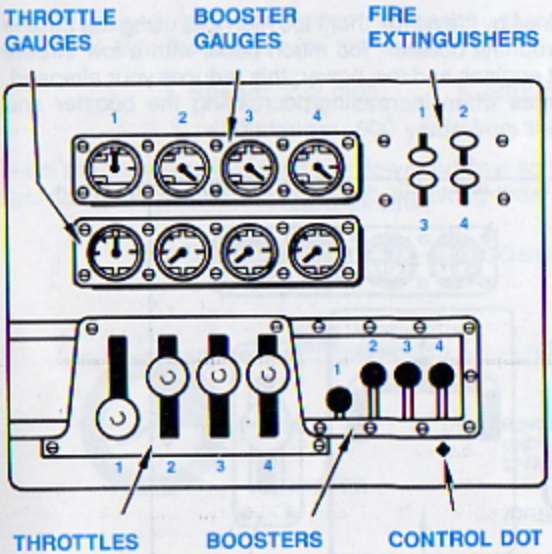
On each map, you'll see two movable objects. One object indicates the plane's current position. The other object shows the navigational cursor that is used to set the compass heading. Pressing the Control Stick controls where the navigational cursor goes on the current map.

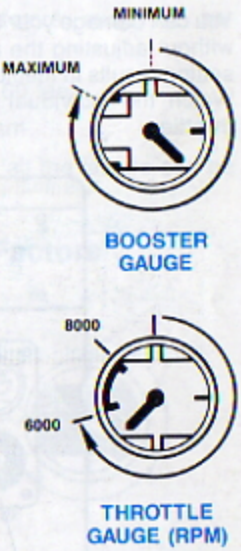
As you move the cursor around the screen, the heading will be reflected in the Pilot's screen and indicated by the red directional mark on the top of the pilot's compass. For example, if the cursor is directly above the position of the aircraft, the navigator's compass heading reads N (north).

Engineering: Press Keypad Button 6 and the First Engineering screen will appear; press Keypad Button 7 (Squadron Leader option only) and the Second Engineering screen will appear.

The engineer controls one or two screens, depending on which option you're playing: Flight Lieutenant (one screen) or Squadron Leader (two screens). The first screen controls the engines. This screen is the same for both options. The second screen controls take off and rudder trim.

The First Engineering screen displays four throttles, four booster controls, and four fire extinguishers. The booster gauges are the upper four dials. The lower four dials are the rpm gauges for the throttles. The fire extinguishers are the upper right set of knobs. A fire in an engine is indicated by a blinking rpm gauge for that engine.





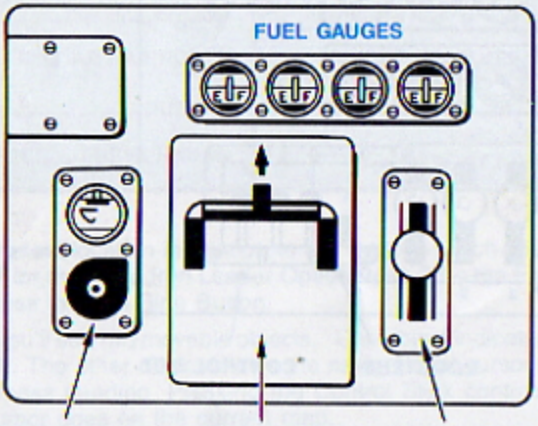
To select an instrument, press the Control Stick left, right, up or down. Under the selected control, a black dot will appear. Press the Left Side Button to gain control of the instrument. With the Left Side Button held in, press the Control Stick up or down depending on what you want to do. Release the Left Side Button to release control of the instrument.

All four throttles can be controlled at the same time as can the four boosters. To do this, choose the last booster or first throttle then press both Side Buttons at the same time. To get the last booster when entering the First Engineering screen, press the Control Stick left. Try using this maneuver during take off.

The upper-right section of the screen controls the fire extinguisher for each engine. Each fire extinguisher can be used only once. After putting out a fire, take care in restarting an engine as this may cause another fire to ignite.

The throttles control the rpm on a specific engine. The boosters control the angle of the propeller blades in relation to the airstream near the propeller. For example, a large pitch takes a larger bite of air. Setting a booster is similar to selecting a gear in a car's manual transmission. The speed of the plane can be set by any combination of booster/ throttle settings. The fastest airspeed is achieved by combination of boost and maximum throttle.

You can damage your engines by "revving" them too high and using the throttle without adjusting the appropriate booster. Too much boost with a low throttle setting results in inefficient engines and low power; this reduces your airspeed. Watch the individual gauges when increasing/decreasing the booster and throttle.



The Second Engineering screen shows the flap control indicator, landing gear and rudder trim. These instruments are controlled in a similar manner to the First Engineering screen.

The landing gear control activates the hydraulic motor control that lifts the gear. The rudder trim adjusts the direction of the aircraft to the left or right. Pressing the Control Stick up introduces a negative yaw (side-to-side motion) that turns the aircraft to the left; pressing the Control Stick down introduces a positive yaw that moves the plane to the right.

The flap switch turns the flaps on and off. The flaps are retractable extensions of the plane's wing. When the flaps are down, the wing area is larger and its lift is increased.

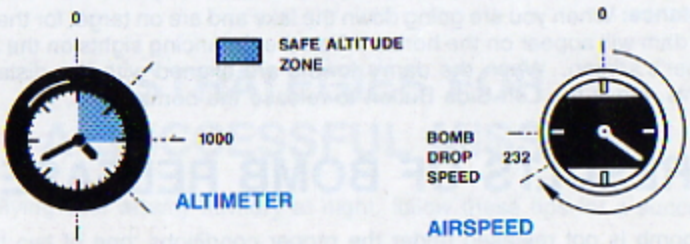
DAM APPROACH

When making your bomb-run approach, three factors must be set exactly to skip the bomb over the water:

- **Speed:** 232 mph
- **Altitude:** 60 feet
- **Distance:** 800 yards from the dam

Have the plane make a long run down the lake so that all the factors can be set. Once the factors are set, keep checking them.

Setting the Bomb Approach Factors

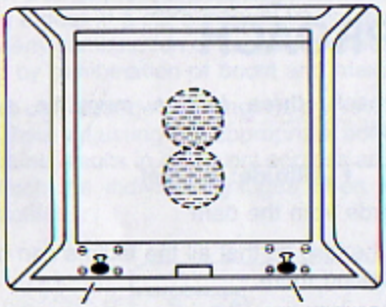


PILOT'S VIEW: AIRSPEED AND ALTIMETER FROM SCREEN 1

- **Speed:** Set the speed by adjusting the throttles. When the Airspeed Indicator blinks white, the 232 mph speed has been reached. It is advisable to set your speed well before the dam approach—perhaps over the English Channel. Try lowering the boosters until the throttle's dials start to move up. Then increase the boosters to stabilize the throttle's. This should put you right on the money!

- **Altitude:** You don't have time to make mistakes, so try to get this right the first time! Just before you reach the lake, press Keypad Button 4 to select the Bomb Aimer Screen. Turn the Bomb Rotation and the Aircraft Altitude Spotlights on. When you're just over the lake, reduce your altitude to 100 feet. Adjust the plane's altitude by pressing the Control Stick to move the spotlight circles closer together until they form a figure eight. When that happens, your altitude is 60 feet. Now press Keypad Button 2 to switch immediately to the Front Gunner's screen.

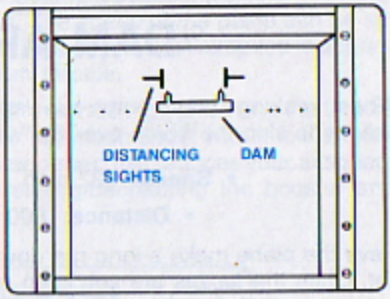
SCREEN 4: ALTITUDE ADJUSTMENT



BOMB ROTATION SWITCH

AIRCRAFT ALTITUDE SPOTLIGHT SWITCH

SCREEN 2: DISTANCING



RELEASE THE BOMB AT THIS POINT

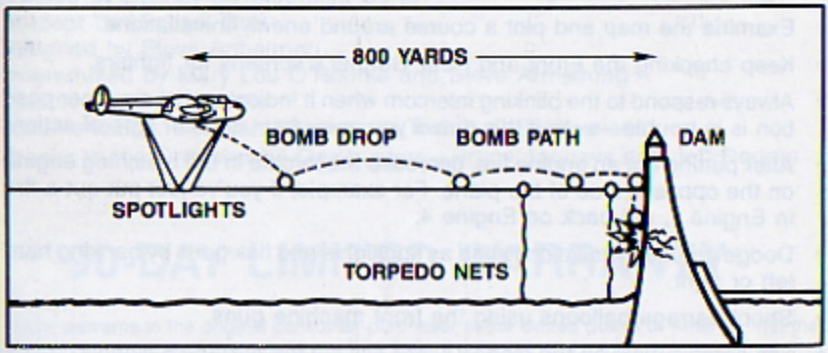
- **Distance:** When you are going down the lake and are on target for the dam, the dam will appear on the horizon. Use the distancing sights on the Bomb Aimer's screen. When the dam's towers are aligned with the distancing sights, press the Left Side Button to release the bomb.

RESULTS OF BOMB RELEASE

If the bomb is not released under the proper conditions, one of two things happens:

- If you come in too fast, too low, or release the bomb too late, the bomb hits the crest of the dam and skips into the valley beyond.
- If you come in too slow, too high, or release the bomb too soon, the bomb drops short of the dam causing a harmless explosion in the water in front of the dam.

VICTORY!



PERSPECTIVE VIEW OF BOMB RUN

If the release of the bomb is within the acceptable limits described by B.N. Wallis (see Mission Guide), the bomb skips across the water above the torpedo nets, hits the crest of the dam and sinks to the a depth of 30 feet. The hydrostatic pistols ignite, detonating the bomb, and the dam is destroyed! You are promoted in rank and go on to the next, tougher round of play.

STRATEGIES FOR A SUCCESSFUL MISSION

When flying over enemy territory at night, follow these tips for a successful mission:

- Flying at an altitude of over 800 feet gives night radar a target to lock onto. Keep monitoring your altimeter.
- Flying at an altitude of under 100 feet can cause you to crash into a ground object.
- Knock out spotlights and flak installations by firing at the base of the light.
- Shoot down Me 109's or perform a corkscrew maneuver to avoid the planes. To perform the corkscrew maneuver: Dive left, pull up and climb sharply, then dive from left to right.

- Keep switching between screens. For example, over enemy territory, switch back and forth between the Front and Rear Gunner's screens. Keep checking the Pilot and Navigator's screens to check your course.
- Examine the map and plot a course around enemy installations.
- Keep checking the Front and Rear Gunner's screens for fighters.
- Always respond to the blinking intercom when it indicates that a gunner position is in trouble—even if this draws you away from another type of action.
- After putting out an engine fire, decrease the throttle in the matching engine on the opposite side of the plane. For example, if you've just put out a fire in Engine 1, cut back on Engine 4.
- Dodge ground installations such as spotlights and flak guns by banking hard left or right.
- Shoot barrage balloons using the front machine guns.
- The cable cutters on the plane's wings will cut the barrage balloon's cables most of the time before they snag on the wings. It is best to shoot them or avoid them.
- Always recheck your heading and position after trying to dodge night fighters or spotlights.

SQUADRON LEADER OPTION

After you've reviewed the Intelligence Report, pressing the Control Stick in any direction takes you to the Navigator's Screen. Before take off, examine the maps to see which areas you want to avoid and which areas have chinks in their defenses. Set the compass heading using the Navigator's Cursor for the first location you want to fly to.

CREDITS

Created by Sydney Development Corp.
Concept by Michael Bate
Designed by Steve Armstrong
Programmed by Mary Lou O'Rourke and Steve Armstrong
Graphics by Dan Hoecke
Documentation: Deborah Ritchie and Technical Publications
Thanks to the Greenhouse Dambusters—Bruce Jaquays and Jeff Rogers

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