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FM 44-80 VISUAL AIRCRAFT RECOGNITION

PREFACE

This manual is primarily a ready reference to assist the ground observer in aircraft recognition and identification. It provides information on current operational aircraft of the United States and foreign countries, which may be observed worldwide in the combat area. It can be used as source material for personnel conducting unit training in visual aircraft recognition.

The procedures in this publication apply throughout the US Army. The data is based on the best information available at the time of publication; however, it is not all-inclusive because of some classification guidelines. This publication, by nature, has a built-in time lag, and some aircraft may still be under development or classified at the time of writing, but may be fielded or unclassified at, or after, publication.

The provisions of this publication are the subject of international agreement QSTAG, 699, Aircraft Recognition Training.

The proponent of this publication is USAADASCH. Submit changes for improving this publication on DA Form 2028 and forward it to Commandant, US Army Air Defense Artillery School, ATTN: ATSA-DT-T, Fort Bliss, TX 79916-3802.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

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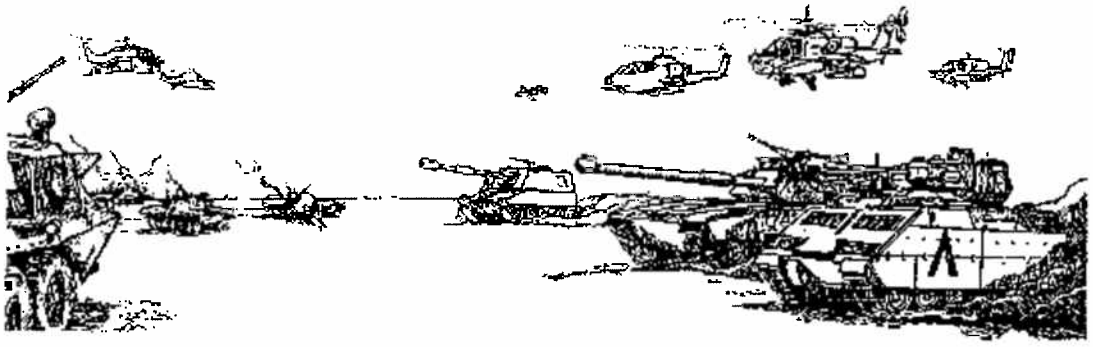


CHAPTER 1

Need for Visual Aircraft Recognition

This chapter provides the causes for the decline in recognition skills in the past, the reasons for visual aircraft recognition today, and an overview of the potential threat. Aircraft are as much a part of the battlefield as tanks and artillery. These aircraft add a vertical dimension and their presence must be accepted and dealt with by every soldier in the field.

On today's battlefield, a soldier must recognize and identify both threat and friendly aircraft. Since there may be many of each type, aircraft recognition training is necessary for every soldier in the combat force.

REASONS FOR VISUAL AIRCRAFT RECOGNITION

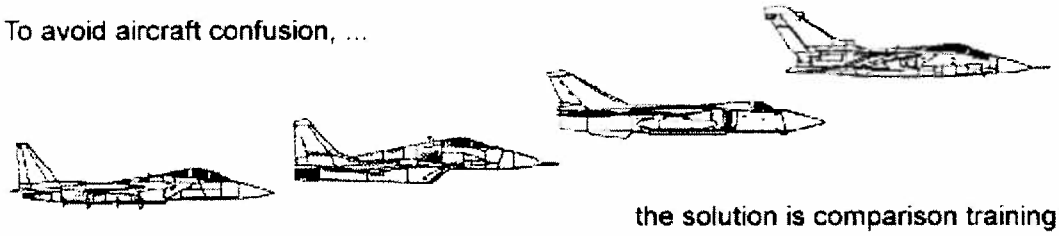
Following World War II, the emphasis on visual aircraft recognition declined as a required skill for ground-based weapons crew members. Causes of the decline were—

- The substitution of guided missiles for large antiaircraft guns.
- The assumption that US forces would continue to maintain air superiority.
- The reliance on electronic equipment for aircraft identification as hostile or friendly.

The need for visual aircraft recognition skills has become more critical since—

- An analysis of past military actions shows aircraft losses to air defense guns and small arms. It has reestablished that the soldier on the ground is capable of inflicting heavy losses on aircraft operating at low altitudes.
- Continued air superiority over every battlefield is not possible.
- Electronic identification has limitations and small units or individual soldiers do not always have access to these devices.
- Visual recognition and identification of specific aircraft types and timely reporting provide the S2 and G2 additional information of a passive nature in the form of early warning, threat air capability, or information on a possible new tactical situation such as supply drops, defoliation, or photographic reconnaissance.

The provision of large numbers of AD weapon systems to all divisional and some nondivisional ground combat forces generates additional emphasis on the need for visual aircraft recognition. Crew and team members of these weapon systems depend on visual recognition and identification of aircraft when making engagement decisions. The effectiveness of



CHAPTER 2

Factors That Affect Detection, Recognition, and Identification

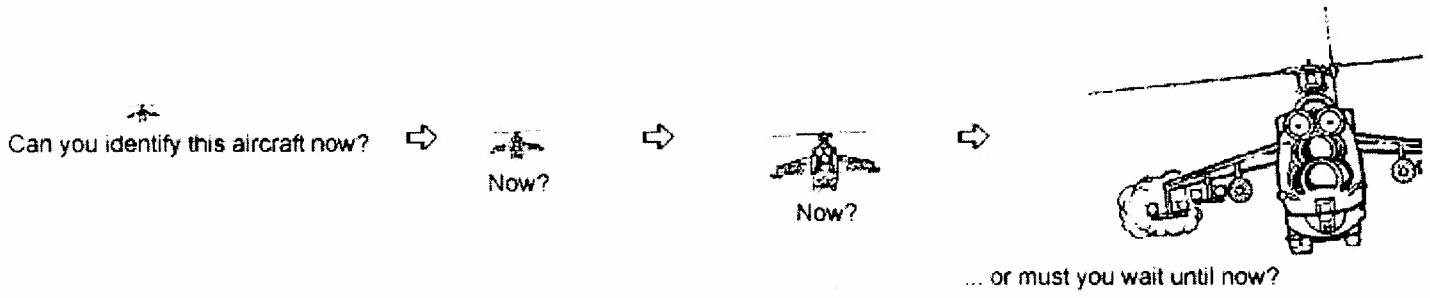
This chapter covers early recognition and identification, aircraft confusion, physical factors, and search techniques. It also covers markings and camouflage, the use of binoculars, and other recognition considerations.

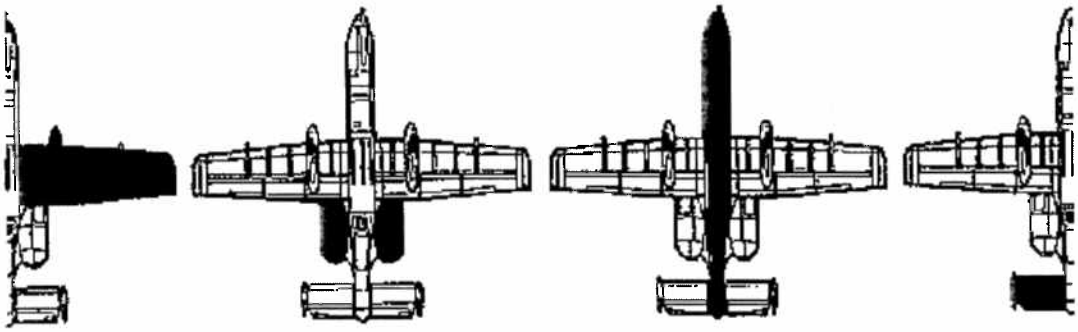
Every attempt made at visual aircraft recognition involves two events. First, an aircraft must be detected. Second, the aircraft must be inspected to distinguish the characteristics or shape that makes it recognizable as a particular aircraft.

Since detection, identification, and recognition are all visual processes, an aircraft must be detected, and then recognized at the farthest range possible, to make a timely engagement decision and or to report the aircraft. The task requires good, corrected if necessary, eyesight.

EARLY AIRCRAFT RECOGNITION AND IDENTIFICATION

The farther out an aircraft can be detected, recognized, and identified, the more time a gunner has to make an engagement decision. If the gunner is not going to engage the aircraft, then early recognition and identification will allow time to seek cover and or report the aircraft. The importance of early identification is demonstrated in the following illustration.





CHAPTER 3

Description of Aircraft

This chapter shows the features of aircraft that make recognition and identification possible, and sorts out similar and dissimilar aircraft. Additionally, it shows examples of how aircraft are named and or numbered.

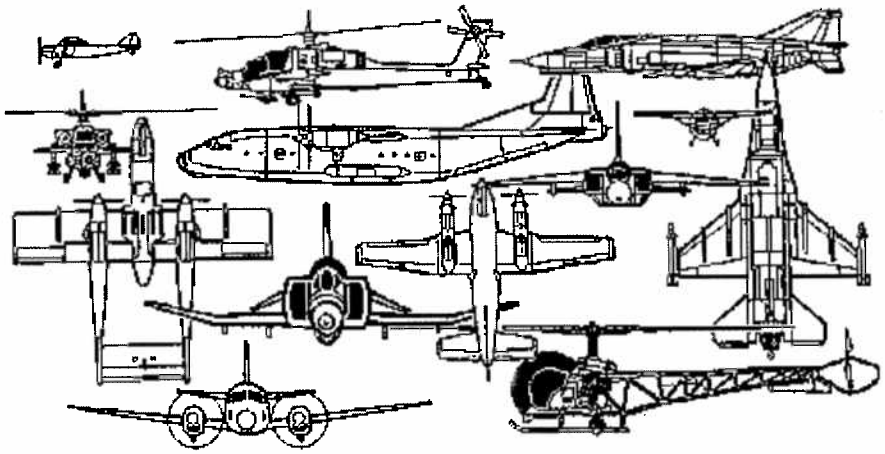
All of the possible aircraft configurations are not covered in this chapter. When instructing aircraft recognition, an instructor or small unit leader can follow the descriptive methods used in the examples and derive his own descriptions for features or configurations that are not covered in the text.

AIRCRAFT RECOGNITION AND IDENTIFICATION FEATURES

All aircraft are built with the same basic elements: wings to provide lift, engine(s) to provide motive power, a fuselage to carry the payload and controls, and a tail assembly which usually controls the direction of flight. These elements differ in shape, size, number, and position. The differences distinguish one aircraft type from another. An instructor can isolate the individual components for description and study as separate recognition and identification features, but it is the composite of these features that must be learned to recognize and identify an aircraft. The WEFT Features illustration shows **wings**, **engine(s)**, **fuselage**, and **tail** features of aircraft. Allied countries may teach more or fewer features of aircraft in their recognition and identification programs.

WEFT FEATURES

WINGS	ENGINES	FUSELAGE	TAIL
Type	Type	Shape	Location
Position	Number	Nose	Slant
Slant	Location	Mid	Number
Shape	Intakes	Rear	Shape
Taper	Exhausts	Cockpit	
		Special	



CHAPTER 4

Instruction Program

This chapter describes training methods and the fundamentals of VACR. In addition, the chapter features training aids and slide kit training which are used to develop and implement aircraft recognition training.

All soldiers are required to recognize a selected number of threat and friendly aircraft for survival and intelligence gathering. When the mission is to defend the airspace above the battlefield to protect friendly assets, the ability to recognize and identify aircraft becomes even more important. These skills make it possible to discriminate between friendly and hostile aircraft by name and or number and type which will help avoid destruction of friendly aircraft, and at the same time, recognize, identify, and engage hostile aircraft.

TRAINING PROGRAM

Aircraft recognition and identification proficiency skills are gained through training. The training functions of plan, prepare, present, practice, and perform are the same in VACR training as for other classroom subjects. The skill level to which the unit will train depends on the unit's mission. A VACR training program should be based on established training methods, clearly defined individual skill levels that must be met, and the fundamentals of VACR.

CHAPTER 12

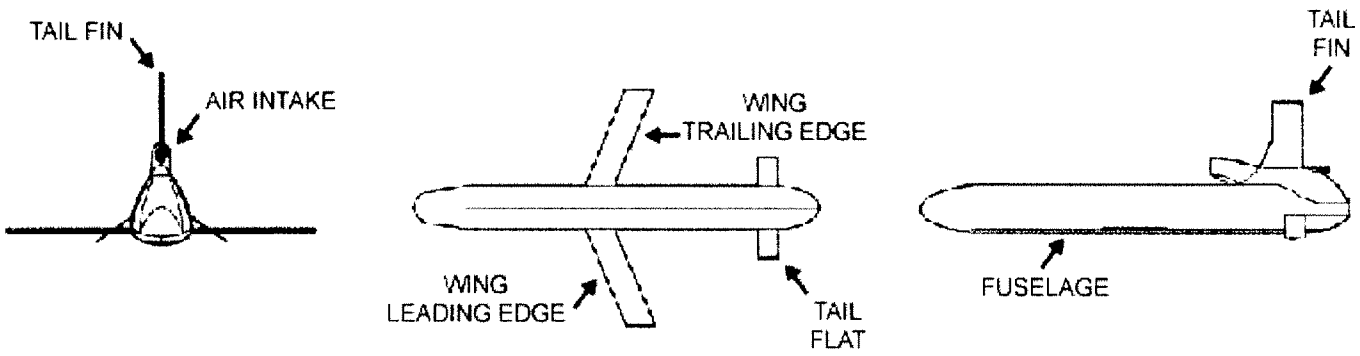
Unmanned Aerial Vehicles and Cruise Missiles

This chapter shows examples of unmanned aerial vehicles (UAVs) and cruise missiles. UAVs will perform a variety of missions; reconnaissance, surveillance, intelligence, targeting, and acquisition (RISTA). Cruise missiles are like artillery, which detonate at proximity, on command, or on impact.

There are many more UAVs than can be listed here. For this manual, UAVs were grouped together based on similarities and roles. One, and in some cases, two, UAVs were selected from each group to be represented in this manual.

For each aircraft, there are line drawings, general data, WEFT descriptions, user countries, photographs, and aircraft manufacturer information. The following illustration shows early warning, observation, and reconnaissance aircraft WEFT description features. Line drawings are not to scale.

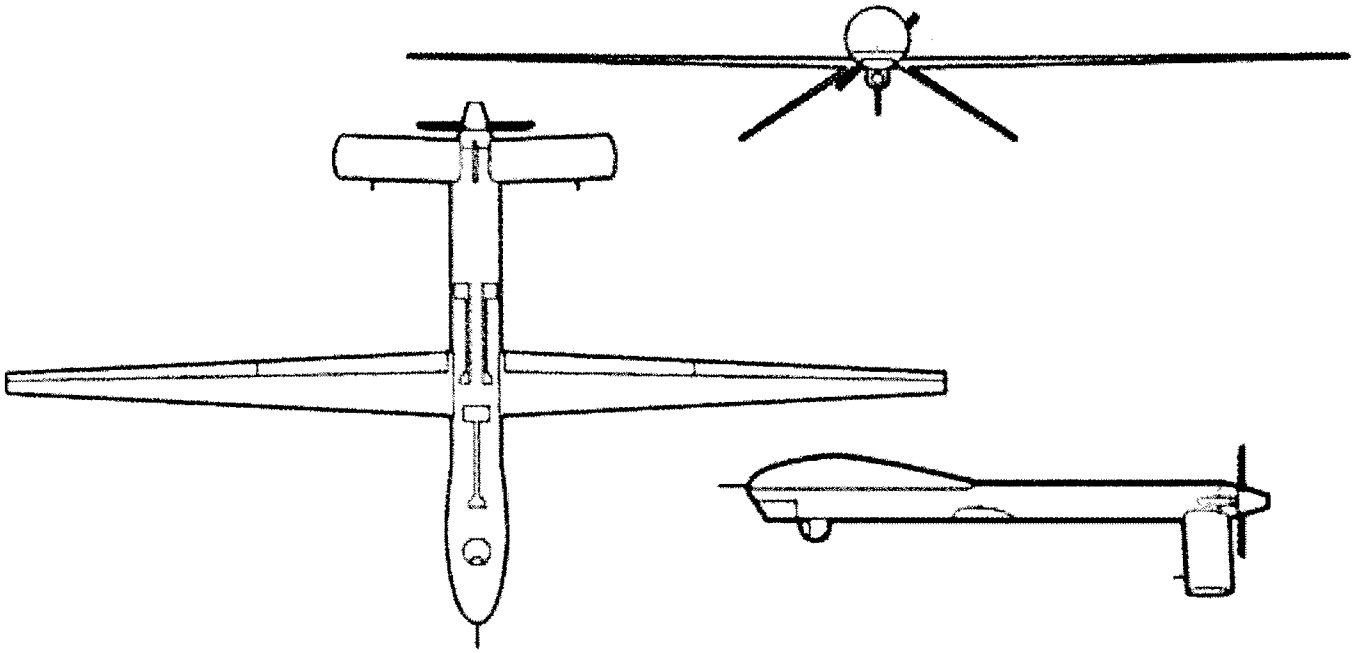
WEFT DESCRIPTION FEATURES



Chapter 12 Aircraft List

Apache CWS	D-4 NPU	Pioneer
AS-4 Kitchen	DR-3 Reys	Predator
AS-15 Kent	Model 324	Raven
Banshee BTT-3	Model 410	Scout
Brevel	Mirach 26	Shmel-1 Yak-061
BQM-34 Firebee II	Mirach 100	Taifun
C-101	MK-105 Flash	Tomahawk AGM-86
Crecerelle	MK-106 HIT	.

PREDATOR (GAAS)



GENERAL DATA

Country of Origin. USA.
Similar Aerial Platform. D-4 NPU.
Role. Reconnaissance, targeting.
Armament. None.
Dimensions. Length: 26 ft, 6 in (8.12 m). Span: 41 ft, 7 in (12.71 m).

WEFT DESCRIPTION

Wings. Low-mounted and sharply-tapered with a slight positive slant.

Engine(s). Single, prop-driven and mounted on rear in the opposing position.
Fuselage. Round, tubular. Bulging at the front one-third.
Tail. Low-mounted rectangular flats and sharp negative slant. No fin.

USER COUNTRIES

USA.