Afloat shopping guide 2018

GSA Global Supply™ has many publications to help customers with supplies. View online copies with the GSA Centralized Mailing List Service (CMLS) or call 800-488-3111 to request a printed copy. Last Review: 2020-09-10 AFLOAT SHOPPING GUIDE The Afloat Shopping Guide (ASG) (fig. 7-26) is designed to help fleet staff in identifying NSN for items frequently requested by ships. It includes a detailed description of each item, and (when applicable) a stock number for a replacement item. ASG is distributed in CD-ROM format and in printed form. ADMINISTRATION OF GENERAL SERVICES CATALOGUE FEDERAL SUPPLY Catalogue General Services Administration (GSA) Federal Supply Catalogue lists about 20,000 line items ironed at the GSA supply distribution facility. Items listed in this catalogue are assigned cognizance 9Q. The GSA supply catalog series serves as the main item instrument of the Federal Supply Services Stock Program (FSS). Since they are ready for public agencies, FED LOG must be referred for supply management data. The GSA supply catalog series consists of the following: The GSA Supply Catalogue Guide contains a consolidated alphabetical and NSN index to all stock items. These are items listed in the four commodity catalogues and other items that are available through the FSS program. It provides detailed information about the necessary programs and procedures. The GSA Supply Catalog (Tools) contains a listing of common and special use tools. They include alphabetical and numeric indexes and price lists. The GSA Supply Catalog (Office Products) lists a variety of goods for office use, including paper supplies, standard and preferred forms, and many equipment items. They include alphabetical and numeric indexes and price lists. The GSA Supply Catalogue (Industrial Products) contains descriptive listings of various goods, such as hardware, paint, stickers, and cleaning 7-38 Figure 7-25.—MRIL Part II of the FED LOG. Add reviews and share your thoughts with other readers. Be the first. Add reviews and share your thoughts with other readers. Be the first. AFLOAT Shopping Guide Afloat Shopping Guide (ASG) should be one of your most frequently used references. It is designed to help you identify NSN for supply items that are not related to parts/reference numbers. Descriptions and illustrations can be used to determine the replacement and the applicable NSN in the general hardware area. ASG consists of two volumes. Each volume contains descriptive data and illustrations that are included with group or class indicators. There is also an alphabetical list and an accryption NIIN. The NIIN index also shows the availability of items from the Portable Logistics Support Team Figure 5-5 is a sample page from ASG. DoD UNIFIED SUPPLY CATALOGUE 6700IL Consolidated Federal Supply Catalogue DoD 6700IL identifies FSC Class 6700 materials. This includes the FSC 6750 photography supply filled by the General Supply Of Defence Center. LIST OF PHOTOGRAPHY EQUIPMENT The List of Photographic Equipment (PEL) lists the repair section for repairable photographic equipment. All active PELs are listed in section C-0001 Naval Publishing List issued by the Office of Aviation Supply (ASO). NAVAL STOCK STOCKS Naval Stock Division used most frequently by Photographer Partners is the Main Assembly of Photography and Related Equipment, ASO E-6789. This publication lists standard stock photography materials under the control of the Aviation Supply Office. It describes the equipment and materials listed. The main equipment is listed alphabetically by Figure 5-4.-Page Samples from the Navy-Management List. Figure 5-5.-Example page from Afloat Shopping Guide. Name. The main equipment is followed in advance by its components, and secondly, when applicable, with related equipment and components. The name of the equipment is sorted alphabetically, and each particular type of equipment is alphabetical according to the type of designation under the listing of equipment or physical characteristics when no type of designation exists. The GSA CATALOG General Services Administration (GSA) has inventory control over and is responsible for cataloging non-military goods used by both the united States government's military and civilian agencies. GSA Supply Catalog is a useful reference for identifying types of consumable materials. The GSA Supply catalog is published in four volumes. Volume 1 contains an alphabetical index. Volume 2 contains the NSN index with current price and other order information and changes to volume 1. Volume 3 contains material descriptions in a format similar to ASG. Volume 4 is the price list for volume 3. 2 NATIONAL STOCK NUMBER YOU can imagine, the FSC number is not enough to identify specific supply items. After additional identification was added, the National Stock Number (NSN) created Figure 5-2 shows each NSN element in the correct sequence order. The NSN consists of nine digits. This includes the National Coding Bureau (NCB) code and the National Item Identification Number (NIIN). These numbers identify the supply items used by the DoD. They are used to independently identify items, and most of the supply catalogs you use are arranged in the NIIN order. Flume 5-2:-National share numbers. NAVAL ITEM CONTROL NUMBER Items are not included in the Federal Catalogue System, but stocked or monitored in the Naval Supply System, identified by the Naval Item Control Number (NICN). NICNs is the identification number of 13 character items assigned by the Navy inventory manager for permanent or temporary non-NSN items LOCAL ITEM CONTROL NUMBER Local item control numbers can be assigned to finished items that are insement locally, country, special developer and camera accessories, which are not identified figures 5-3 . The local item control number consists of 13 characters. The first four numbers correspond to similar NSN item FSCs; the fifth and sixth (NCB code area) are LL and the remaining seven are all numeric numbers. Locally assigned item control numbers are allowed for local use only; for example, records of ship stock, bin tags, remove documents, etc. It is not used in demand because this item's control number does not mean to the source of the supply. IDENTIFICATION Now, you can see that the key to getting material from the supply is to break the code. Once you have an NSN for an item, ordering it is simple. There are several methods you can use to get NSN items. One simple method is to ensure that all your supplies are identified by their numbers. You should label a barrel, put an introductory tag on an item, and include NSN in your inventory list. Then, when you start running short, you have an NSN in hand. Most small supply officers use this basic method to maintain a cautious record of their stock goods. There are times when you need new items instead of a substitute. When the control number figure 5-3.-New item is assigned locally. message is required, you must research the item to find the source. Your local shop keeper is here to assist you. They know the system, and this can help you. However, they don't know your equipment and supplies, so you may need to find the specific item you want in the catalog. Word warning. The supply system is very automated. Most fouls occur because the adequacy is not solved properly. If you're outside of a single digit in a stock number or using the wrong NSN, you can accept the aircraft engine instead of a typewriter. In this case, your unit has spent its money wastefully, and stock items are withdrawn from the supply systems that may be required by other vessels or stations. You also suffer unnecessary delays because the material must be repressed. Even when adding supplies, you need to check the current stock number. Usually, when a supply item becomes obsolete, the supply system automaticallys until your orders with the current item replaces it. However, there are circumstances when the current item differs from the original or uncertainty exists about what you want. Then your request is returned, and you have wasted time. Some catalogs and lists are available for you to use. When booking a replacement supply or completing an activity, you need to use one or more of the following catalogues: Naval-Management List, Afloat Shopping Guide, list of your activity allowances, DoD Unified Federal Supplies Catalogue, Photography Equipment List, Naval Stock List, and GSA. When you order the repair section, the Manufacturer Manual, Illustration Parts Breakdown, and Unified Consolidated The Cross Reference List (C-MCRL), or (CRL), allows you to track the section numbers provided by the manufacturer and find the corresponding NSN. To book publications and keep the latest technical and administrative Brary Ii, you need to use the Publishing Naval Stock List and Forms. The information that follows describes the content of various publications and how it can be applied to you. NAVAL-MANAGEMENT LIST The Navy-Management List (ML-N) is useful when you provide protection. It lists stock items in NIIN sequence with stock numbers, derivative units, unit prices, life expectancy codes, and other information related to items of Navy orders. It contains records of deleted items and is replaced with a suitable phrase to show disposal actions and what items that have replaced deleted items are ML-N sample pages. 3 GENERAL SERVICES ADMINISTRATION General Services Administration (GSA), although not part of the Department of Defense, does not provide some materials and services to the Armed Forces. It is responsible for supporting all Federal agencies. GSA retains share points in several locations across the country. It also has open contracts with the main suppliers for such items as typewriters, adding machines, and calculators. Most of the Navy's supply and administrative equipment are obtained from this source. GSA makes contracts with many manufacturers to buy at an agreed price. Most of the materials used by Navy imaging facilities are on GSA Tables. This means that local stores, carrying material you need, can sell them to you at a designated GSA price. However, naval-filled materials must be ordered from the Naval Supply System. Prices vary between the two systems; Sometimes you will pay more for goods when booking from a Navy stock than you would pay through the GSA Schedule. GSA government prices are generally 20 percent or more below retail selling prices. However, you must first purchase the Navy. SUPPLY CATALOG There are over four million types of supply items in the Department of Defence Supply System. The Naval Supply System alone stores more than one million items. So you may have access to the entire government resource, the same language has been developed-the-Federal Catalogue System. THE FEDERAL CATALOGUE SYSTEM The Defense Logistics Agency (DLA) administers the Federal Catalogue System which includes all goods carried by the Federal Government's Department of Defense and public agencies. Once the item is cataloged correctly, this information is used for all supply functions associated with the item from the purchase to the final disposal. When an item is placed in the Federal Catalogue System, it is assigned a number Federal Supplies (FSC). FEDERAL SUPPLY CLASSIFICATION SYSTEM Each item is classified in one, and only one, a four-digit FSC number. The first double digits indicate a major group or part of commodity; the last two digits are or division of commodities in groups. Currently, the FSC has 90 established groups (some are not supervised). This group of stocks covers a fairly wide category of materials. The second two numbers, setting classes in groups, allow for more specific identifiers. Class numbers can identify commodities according to their physical characteristics or performance or may be based on other items in the required class or removed together. Classes are used to divide the types of materials in the stock group and create FSC numbers as follows: Page 4 CHAPTER 5 OF SUPPLY AND LOGISTICSIn per imaging facility, a person is responsible for ordering and maintaining supplies. The large imaging facility has an Aviation ShopKeeper (AK) assigned to manage supplies and equipment. In the small imaging facility and shipwrecks, you can be given this responsibility as a small officer of the supply of parts. Many sailors fear the Naval Supply System initially. This is understandable because it is a huge system. What's even more spectacular is that it's just part of a large supply system that includes all U.S. governments and also provides services to the Allied Forces in NATO. Getting the supplies you need from a system like this is not easy. This chapter gives you some information and insights into the supply system so you can approach it with confidence. As a first step, you must know the various sources from which supplies are obtained. SOURCE The Federal Government is trying to buy America whenever possible. The supplies you order are made under contract, bought in wholesale lots, and sometimes purchased as individual pieces by various government agencies including the Navy. When booking supplies, you take advantage of this extensive reservoir of material. The Naval Supply System attracts its own resources, other U.S. government service sources, or U.S. government public agencies resources to fill your order. The supply system must catalog every goods available from the government to achieve it. As a Photographer Mate, you must be familiar with the Naval Supply System Command (NAVSUPSYSCOM). This command manages the inventory of the type of supply you use the most. The naval inventory manager is responsible for assigned groups or categories of supply items. Naval inventory managers include system commands as well as project managers, bureaus, offices, and inventory control points (ICP) under the direction of NAVSUPSYSCOM. They are met at a nearby location to ensure existing supplies to the fleet. STOCK POINTS Stock Points comprise the Fleet and Industrial Supply Centre (FISC). The mission of these activities is to provide supply support to fleet units, coastal activities, transparent ships, and overseas bases. They do this with receive, store, manufacture, and transmit or other distribution of the Navy, Defense Logistics Agency (DLA), and General Administrative controlled substances (GSA). The Defense Logistics Agency manages supplies commonly used by each military service. The following activities are share points for the Naval Supply System: FISC Norfolk FISC Oakland FISC Pearl Harbor FISC Puget Sound FISC San Diego FISC Guam YO The following FISC Jacksonville FISC Pensacola Scenario will give you some insight into the methods used by inventory managers and stock points to fill in the diagram supply order 5-1 1. USS Chance submitted a request to FISC San Diego for a piece of equipment. 2. FISC San Diego accepts the requirements of the USS Chance, checks their records, and determines that the item is not filled at the center. FISC San Diego then referred to the pillars of NABSUPSYSCOM. 3. NAVSUPSYSCOM receives a request reference from FISC San Diego, checks their parent records, and determines that the equipment is met and available at FISC Oakland. NAVSUPSYSCOM refers the pillars to them. 4. FISC Oakland receives required reference from NAVSUPSYSCOM and removes the item to USS Chance. Figure 5-1.-Typical request. 5. FISC Oakland reports on derivative transactions to NAVSUPSYSCOM. 6. NAVSUPSYSCOM uses its parent records issuance report and confirms that the stock of this equipment at FISC Oakland is below the required level. NAVSUPSYSCOM then issued a contract to the XYZ Corporation to add FISC Oakland shares. 7. XYZ Corporation sends equipment to FISC Oakland. 8. FISC Oakland reports on receipt transactions to NAVSUPSYSCOM. PAGE 5 CAPTION AERIAL PhotographyCaptioning and hand-held aerial photography scenes are just as important as captions and photographic scenes still and motion-photographs taken on the ground. In the aerial photography caption, however, caption information should be extended to include the length of the camera lens phynchal, altitude, and the direction of the aircraft from which the picture was made and the time the day the picture was taken. Figure 4-30:-Low contrast printer curves. Figure 4-31.-Curve medium contrast printer. Figure 4-32.-Curve high-contrast printer Caption for air intelligence photography is mandatory. It must be achieved as outlined in the Defense Intelligence Agency Manual, SILent 55-5, in a section entitled Aerial Photography and Airborne Electronic Sensor Imagery (Forwarding, Titling, and Plotting). THE DUPLICATIONTwo AERIAL method produces high-quality breeding of black and white air movies currently in use today. One method is the method of breeding a particular tone. The second method is easier and more eligible for shipboard use, so it is discussed in more detail in this chapter. This method is called trigradient tone breeding method or print gamma method of 1.00. The following criteria are recommended as a guide for the optimal quality of photography and the generality of the product in producing bothered or negative of the original air negatives. Original. The objective of this proposal is to ensure that the maximum amount of intelligence information is maintained in optimal form. Only straight line parts of the binary characteristics or printing material must be used. For most of the twisted films, the straight line lies between a density of 0.40 to 1.80. Therefore, D-min should be nearly 0.40 and D-max cannot be more than 1.80 in the dancer. * Typically, a tired contrast is correct when the range of density between D-max and D-min falls between 0.80 and 1.20, preferably nearly 1.00. The need to use a straight line is met when the printer's exposure level is correct. Contrast requirements are met when processing is correct. In particular, bother contrast can be increased or reduced relative to the original by increasing or reducing gamma, respectively. To achieve this, you must use several forms of tone control to guide printing and processing operations. Overlapping air reconnaissance images requires accurate standards and controls to be emphpressed. This helps ensure that imageing is of the highest quality. SPECIFIC TONE BREEDING METHOD The aim is to match the characteristic curve and range of original negative density to the characteristic curve of the duplicate material used. TRIGRADIENT TONE BREEDING METHOD The duplicate trigradient tone breeding method is an objective method for determining the need for printing and processing. This method allows you to choose one of three standard processes. Each process produces different contrasts or blessings. The processing requirements are selected by determining whether the range of ablution density should be increased, maintained, or reduced. In doing so, you can change the range of density of imagery, if necessary, in every generation. Therefore, the final product density range carefully adheres to the desired tonal value (based on D-min 0.40). Trigradient Control Curvature As mentioned earlier, the trigradient tone breeding method is based on three tone control curves (or printer curves): high contrast, medium contrast, and low contrast. Basically, the printer curve is produced in the same way that a sensational strip is made for process monitoring. Instead of using sensitometers to reveal movies, contact printers are used to reveal movies via step tablets. Due to the unknown volume of exposure, horrible axis of curves indicates the density of step tablets. The vertical axis represents the density produced after the wiped film is exposed via step tablets and processed. Each set of printer curves consists of a family of reaction curves that graphically display the various tones produced in duplicate material when it is printed under various conditions of exposure and processing. Each curve is labeled with the exposure settings used on the printer to create (fig. 4-30 4-31, and 4-32). This response curve allows for the range of density of imagery to be changed, so the final product density range adheres closely to the desired density range (1.00). Printer exposure is important because it determines the placement of tonal values of reproduced imagery on the duplicate material sensitometric response curve. Ideally, all tones should fall on the straight line side of the reaction curve to ensure that the images are uniformly reproduced. D-max tricked images are used to determine the necessary exposure as they reproduce as D-min in breeding. Trigradient Tone Reproduction Procedure The following procedures are used in trigradient tone reproduction systems: 1. Get three sets of tone control curves (high, medium, and low contrast) for certain duplicate materials used. 2. Determine the density of D-max and D-min on the roll of imagery to be scammed. Remember, D-max and D-min are areas where you want to maintain detail, not necessarily the highest and lowest density areas. Do not use specular highlights or black areas completely to represent D-max and D-min. 3. Determine the density range in the original, and determine whether the tonal range should be increased, maintained, or decreased. Do this to get the desired density range (usually 1.0) on the twist. 4. Based on step 3 results, select the closest set of reaction curves to the density range (high, medium, or low). 5. On the cloating axis, find the density of the step tablet that matches the D-min density you choose. Ride from this point until you intersect line 1.40 and draw a tick. 6. On the cloating axis, find the density of the step tablet that matches the D-max density you choose. Ride from this point until you intersect line 0.40 and draw a tick. 7. Using straightedge, select the feature curve closest to your straight line. If the curve crosses, choose the curve closest to your D-max because this density controls D-min exposure on the ugly. 8. Disclose and process duplicate films according to your determination in step 7. 9. Read D-max and D-min twisted films. If these values are not in specified tolerance (0.05, for example), another twist must be made. Minor adjustments in exposure or processing may need to be made. For example, if D-min is too high, then less exposure is required. If D-min is in tolerance but D-max is too low, then more development is needed (to raise vice versa). The entire tone control system is based on data generated when the system is established. For accurate and reliable systems, all major variables must be controlled so that they can be carried out repeatedly. EVALUATIONPre-mission Page 7 verification must be done on processing before attempting to process mission materials. These tasks must be implemented so that the system operates within acceptable limits, established for certain missions. Six tasks must be performed as follows: The processing machine must be checked and confirmed to operate properly. This includes solution levels, transportation systems, temperature, increased rates, and water supply. Measurement equipment, such as densitometers and pH meters, must be properly calibrated to ensure valid and reliable data. Processing, printing and support equipment must be inspected and certified to operate properly. The composition of chemical solutions must be correctly verified before processing mission materials. 9 The sensitometric properties of photographic materials must be certified to be in the prescribed standards. * Scratch testing must be carried out to ensure that all rollers operate properly and no guidance is beyond adjustment. Once the pre-mission verification is complete, you are ready to process the actual mission material. Before processing a movie, you must attach the leader tab to roll the movie. The main end of the film must be cut directly before spying it to the leader's tab. Estar's 7-mil basic film piece can be used as a leader tab. Processed X-ray movies work well too. The leader tab should be about 12 inches long and cut with the same width as the film being processed (except when used to lead the control strip). Mission processing includes the following procedures: Protecting processed substances from dirt, dust, frees, and other solutions, such as oil and water. Avoid applying excessive force to the surface of the film; abnormal stress can cause sensitization stress. *Checking the materials being processed for physical defects before machine processing. Defects, such as tears, the edges of the crashed film, and splices are damaged, can cause the film to jam in the processor. * Ensure that the film is processed in a prior certified processor. Monitoring processing temperature and transport rates and additions while films are being processed. Monitor movies coming out of the dryer for the right dryness, possible defects, and image quality. Follow the instructions on film storage (before and after exposure) carefully. POST-MISSION IMAGE ASSESSMENT After processing, mission films are subject to strict post-mission assessment for the following reasons: * To determine whether the process meets the desired sensitometric goals and to provide feedback for process adjustments To disclose incorrect procedures or techniques and to identify damaged materials To identify damaged equipment, and laboratory evaluations. Image Quality The mission film must be checked for defects, such as fogging, streaking, pinholes, and shadows. This defect is caused by a foreign matter in the camera or the plane window from which the pictures were taken. You also need to find shallow defects, such as movie tears, dirt, scratches, abrasions, or foreign signs. Defects found should be described and reported about the actual frame position to assist the identity of the cause, such as handling, processing, or other laboratories or incorrect maintenance procedures. Image Analysis image analysis consists of a densitometer measurement made with densitometer. The properties to be assessed should include D-min, D-max, density range, and rough fog. Laboratory Assessment Anytime possible, you need to use samples of ingredients that are not disposed off from the mission to produce measurements and sensitometric standards. This data should be used for comparison with post-processing mission films. RETENTION AFTER MISSION Photographers Working in the Air Processing section must be able to provide accurate maintenance feedback information to the maintenance crew of the rearing system. Since final results are a true measure of system performance, this feedback will do the following: Ensuring that maintenance staff are aware of the possibility of system damage. Assist in assessing overall system performance. The process of assessing photography negatives to determine system defects, as related to overall performance, is one of the most complete system output measures. System defects noted during film assessment should be recorded on the film maintenance feedback form and submitted to the maintenance staff for action. Spacing Frame On all the serial frame camera imagery and panoramic camera imagery, you should enter space between each vulnerable movie frame. Although space may differ in width requirements, it should be present. Distance defect frames generally indicate that a system defect exists, such as an error in the film's progress mechanism. Overlapping Image Image Images overlap between consecutive frames providing stereo viewing capabilities and harassment-free imagery for mosaics. Instructions by camera manufacturers contain tables with overlapping specifications for serial frame cameras and panoramic cameras. If the overlap is not met, the camera may receive an incorrect V/A signal (veer/height on the ground) from the system. In addition to unjustified overlap, this problem can cause blurred images. Data Block Each frame contains data blocks and other important information about missions, such as movies and flight directions, frame counts, etc. In an inhorrectual rending set (IRRS), data blocks are usually recorded throughout the length of the film periodically. Dissent in data block images is usually caused by damage in the sensor (camera or IRKS). Static When a movie loses or gets electrons (negatively charged particles), the film becomes either positively or Charged. This material is expected to return to a neutral state by transferring electrons to or from other objects. This transfer can sometimes be heat and light. When the light occurs, it fogs the release of unprocessed films and causes a sign on the processed film. These signs may have a spider web or flash appearance. Appeal Turner is associated with the focus aircraft carrier. It is caused by a damaged turner operation. Appeals can be identified by the presence of uneasy lighting flow across flight lines. This defect is caused by slits of focused aircraft carriers, varies from size, and non-oppressive bloating blinds or film transportation that does not scribble through focused aircraft during the exposure cycle. Light Camera Leakage Cameras are often difficult to recognize. It can cause various forms of non-religious formation and appear and disappear as a light angle to the change of leaks. The leakage of light caused the film area to become foggy. Negative Exposure that has details in both shadows and areas of properly exposed highlights. However, when assessing negative images, it is necessary to consider the matter as fewer exposure is needed for light-shore shore and snowy terrain and more exposure is needed for dark terrain, such as forests and industrial sites. When you look at the negatives that have been normally exposed, snow patches or light beach scenes appear too much. Inverse, dark terrain spots or industrial sites appear less agried. When negative is completely less vulnerable or excessive, the film sensitivity or filter factor (S/C) has been incorrectly set or the automatic exposure control (ABC) in the camera system is damaged. A vacuum lacks sufficient vacuum in serial frame cameras allowing the film to smash from the focus aircraft, causing blurred images. The most common indicators of insufficient vacuum are crooked data blocks. Various Reflection Defects from the aircraft's camera windows, depending on the sun's angle in relation to windows, can cause the movie's (nonimage-forming exposure) flare. The loading on the camera lens can cause a halo effect around the eyes of the film image. This is generally due to the rapid descendants of the aircraft shortly before the photo run. Page 8 AIR FILM PROCESSINGBecause costs involved, interest or urgent images, and situations involved in obtaining aerial images, it is very important to process images under optimal conditions and images free of physical or chemical defects. The film processor must be examined and verified in accordance with the quality assurance procedures set by your imaging facility. Processing solutions, machine speed, and temperature must be checked with sensitometric testing and confirmed to comply with the processing instructions shown on the mission planning form. Each air movie processing work center should have a steady family of clues for every type of film used. camera exposure is based on the expected response (speed) of certain emulsions developed to a specific gamma in the chemical type at the specified temperature. If you deviate from the planned processing parameters, it affects the level of imagery development and can cause imagery not to be made. Photo processing crews are the key to success or failure of the entire reconnaulation mission. MISSION PLANNING FORM Fori 1g. 4-2) mission planning is used with TARPS. It is a communication tool between refrigation coordinators, squadron maintenance staff, and imaging facilities staff. This form is divided into three areas of basic responsibility: mission data, maintenance, and processing data. The main part of interest to you is mission data and processing data. Mission Data Section After rending mission requirements are created, sensors or sensor groups that are best suited to meet selected requirements. Mission planners should enter the sensors, appropriate sensor IDS, movie types, and film-type processing gammas. Mission planning forms should then be submitted to the aircraft maintenance personnel and to the photo staff. This data can then be used to equip the aircraft for the mission. The data also allows imaging facilities to make preparation for processing movies. Maintenance Section After receiving mission planning forms, online maintenance personnel begin preparing sensors, related equipment, and aircraft for the mission. As various tasks have been completed, the Maintenance section of the form is completed by the maintenance staff. When the plane returned from the mission, the film was released, and the appropriate postflight counter settings were included in the Maintenance section of the form by the maintenance staff. The film, along with a mission planning form, was then sent to the imaging facility for processing. The Movie Processing Data section is processed in accordance with the information included in the Mission Data section of the form. Movie processing results are included in the Form Processing Data section. The film is then evaluated for image quality and appropriate entries are also made in the Form Processing Data section. Finally, the completed mission planning form is returned to the reconnaissance coordinator for the purpose of debris and filing. Figure 4-29.-Mission planning form Page 9 MARITIME SURVEILLANCE PHOTOGRAPHY Collection surveillance data For intelligence purposes assisted by photography methods; that is, high-quality images to provide a permanent record so that a detailed interpretation of the data collected can be made. The camera can record full-target details immediately. Pictures should be made of all eligible maritime targets to be adhered to including surface ships (war and cargo) and submarines. Photographs of surface air reconnaissance and subsurface targets made from fixed-wing aircraft and helicopters add a lot of complete intelligence data on enemies or potential enemy transmissions. It is The duty of Fellow Photographers to obtain this type of photography by using handhills. Figure 4-27. -Aerial pictures into the air. The value of maritime surveillance photography can be enhanced if you use the correct photographic composition, appropriate areas of view, and the correct pattern of rigging figure 4-28. The best photographical composition of the ship cannot always be obtained by shooting a cropped view. In maritime surveillance photography, it is important for you to ensure that targets are recorded as small as possible in the film. Four basic rigging patterns for maritime surveillance photography arcs used today. They are Special Interest Platforms, Quick Platforms, Normal Standard Platforms, and Full Platforms. The target's correct rigging provides maximum intelligence data from the picture. To better understand the purpose of each platform, you must know what each view (or point) platform is designed to achieve. BOW QUARTER's view is useful in determining forward cargo handling equipment, various electronics, and the introduction of ships. BEAM view provides the target length plus heaps and antenna heights. STERN triBEs and STERN views are used to determine cargo and various electronics on the ship's theft section. Vertical views are valuable in finding a variety of electronics, in determining the cargo of the full deck, and for measurement purposes. Figure 4-2R: -Pattern of rigging of maritime surveillance photography. SPECIAL INTEREST RIGs are required when certain vessels are described for the first time, or there are specific areas of interest on a particular vessel. Prior to this type of mission, special briefings must be carried out to determine which rigs need to be flown to meet the requirements of the mission. FAST RIG is used for routine photography documentation of contacts (ships) observed during patrols. The quick rig consists of a quarter of submission, beams, and a quarter view of the ship's trunk. THE USUAL STANDARD PLATFORM, commonly referred to as the FIVE POINT RIG, consists of a quarter of submission, beams, quarters of stems, trunks, and vertical views of the ship. The rig is used to provide more detailed ship representation. A FULL RIG, or NINE POINT RIG, is required when an enemy or potential enemy ship is being portrayed. This platform provides complete protection for all interesting areas. The best approach to knocking most of the aircraft used in maritime surveillance photography is from the target's submission. Despite previous discussion concerns getting intelligence photography, the same procedure was useful in shooting photos of ships and submarines for PAO releases and for display prints. By using this procedure, you can kill two birds with one stone. You get a picture of the display, and it serves as a training mission in maritime surveillance photography for both you and the pilot. MOTION-MEDIA PHOTOGRAPHY FROM THE IN-AIR exposure cases, techniques and recommendations for still air used to shoot motion-media photography from the air. However, there are some differences. As a general rule, the frame-per-second (fps) rate that is above normal should be applied to motion pictures; that is, unless you have specific requirements for a movie at a real-time rate. Just like in still photography, the quality of the air movement media image experiences an image motion on recording. Scenes of movement-media taken from the plane always appear faster when viewed than when they were originally recorded. Aerial movies when shown at normal frame rates interfere with the audience. There are no hard and fast rules about what frame rates are right to see; There are a number of factors that play an important role, such as the speed and height of the aircraft. The general rule is to use about one and a half or twice the normal frame rate: 32 to 48 frames per second for 16mm and 24 to 36 frames per second for super 8. For video work, the turnup speed should be set to 11500 seconds or higher. When shooting, you must keep the camera steady, keep your upper body and camera from making contact with the aircraft, and make the necessary pans slowly and smoothly. Fixed wing aircraft need to make a soft arc around the subject (to the wind) at medium speed and with some degree flap. Sometimes, you may undergo filming of fast-moving activities on the ground. Again, the arc flying technique around the subject is often best as you move faster than the action below. You need a zoom lens or camera with different turrets and focal length lenses to change your view of the subject. However, avoid temptations to use zooming techniques during shooting. Instead, change the length of the focus between scenes to gain variety and interest in your images. The problem of maintaining a steady image is very enlarged when you must shoot with a focal-length lens. In this case, you need to use gyrostabilizer, if it is available. Gyrostabilizer is an air camera mountain that uses gyroscope to maintain the stability of the camera. Page 10 SHOOTING TECHNIQUE Camera equipment should be provided for aerial assignments well before you approach the target area. As you approach the target area, you need to reschedule your equipment and prepare for the first exposure. Check the height, speed, and direction of the aircraft. Check to see that you have the right camera angle for the best picture. Using voice communication or sealing hand gestures, instruct the pilot to explain the plane to the position of taking the best picture. Directing the required turn allows you to get the plane to the right position without much explanation to the pilot. Whenever possible specify the altitude you want to fly before departure. When a subject requires photography from different altitudes, start at the highest level and work your way around. Therefore en-route time to the target can be used to climb. Height can be faster than can be obtained. When the plane switches to take another title, the wings or rotor blades can obscure the subject. Ask the pilot for the right turn, steep; This technique will link the filter to the target just seconds. Do not shoot pictures as the plane changes. This causes your negative to be reasonably sharp in the center, but decreases sharply towards the edges. High-turner speeds may not fix this error. One of the main problems in hand aerial photography is the movement of the camera during exposure. This underlying problem was significantly enlarged where the aircraft vibrations and relative target movements were also present. The best picture results can be achieved when the pilot reduces the thickle. This reduces aircraft vibrations and minimizes image movement. Blurred images, caused by camera movement, can be reduced by using faster bloating speeds. You must handle the camera carefully to reduce the vibration effects of the aircraft delivered on camera. You should strictly injure the camera with your elbow firmly held to your side. No part of your top camera or body should touch the plane while revealing the movie. At the immediate exposure, you should hold your breath. The shyness should be stressed out in a steady and smooth manner. You Figure 4-26.-Aerial photographs into the air taken through a closed canopy. may also be able to minimize the movement of images by tapping the subject with the camera. When you fly low, the target can shoot past you so quickly that the shear speed can't stop that. This results in a sharp picture. To avoid this, follow the target (pan) with your camera. The pan must be persistent and smooth. Move the camera in the opposite direction of the flight, keeping the lens fixed at some point on the target. With this technique, the images on the film don't move as much as it would if the cameras were held still. With a hand camera, you have a freedom of movement; However, the view of the camera is limited by the structure of the aircraft. Do not include the wing end or any other part of the aircraft in your picture, unless you intentionally fig .4-25. The target view is best when the plane approaches or leaves the target and the target is turned off to one side. At level height, in fixed-wing aircraft, you may have difficulty excluding the wingtips from the view of the camera. You can notify the pilot for the aircraft bank; that is, raising the wings of high-wing aircraft on the sides from where you shoot. You can also tell the pilot to bring down the low-wing aircraft wing when the aircraft passes through the target. This maneuver should lift or drop the wings of the plane out of the picture area. Another flight maneuver to get the plane wing out of the picture is to aircraft pilot whbest. After the aircraft is stabbed, it is in a different title than the original direction of the flight; therefore the wing is photographic area. When you shoot a picture from a helicopter, have the pilot fly at a height of level or bank when the plane passes the target, so the rotor blade is raised from the picture area. This minimizes the chances of a rotor blade that appears in the picture. Slipstream off-plane can be very strong, so when you take pictures through open windows or doors, make sure you have a good grip on camera and all the loose objects, and the camera parts are well protected and secure. In some aircraft, you must take pictures through a canopy or closed windows diagram 4-26. Plexiglass, or glass, can cause a slight shift in the focus of the image. This focus transition can be reduced by stopping the lens; However, this is not always possible because you may need a quicker turner speed. The best method of shooting pictures through windows is to take pictures with the optical axis of rampant lenses to the surface of the window. The lens should be as far as possible to the surface of the window without touching it. Although this method allows you to take only one or two photos during each target pass, the quality and definition of the image is better. When shooting pictures with an SLR camera through a window or canopy, you will find it helpful to make the dough foam rubber about 2 or 3 inches thick. This foam rubber shield should be cheered onto the camera using surgical tape as it sticks well and can be removed without leaving gummy waste. After attaching a foam rubber shield to the camera, you should put it against the plane window to block the internal reins from the part of the window that the camera sees. The shield also absorbs vibrations from the window. Most of the air work of your hands, both compatible and vertical, consists of a single shot; However, you may need to fly an eldest and vertical strip that requires overlapping pictures. Distance changes cause the image size to change and make adjacent exposure matches impossible. You should make regularly cooked exposure at intervals. You can visually specify a time interval between exposures for strips. Before the flight, mark your pole prefect to show the distance the object must move in the stepfather to move the image 40 percent wide of the movie. During the flight, make the first exposure, hold steady, and make a second exposure after several points at the scene have moved the distance marked on the pole convenient. Scores are the same for any aircraft or altitude speed. When you don't use an SLR camera, change the mark on the stepfather if you change either the movie format or the length of the lens focal. Hand-held vertical photography is the easiest of helicopters. You can lean out of position on the floor or from the passenger seat and hold the camera with the correct attitude to Vertical. You should hold the camera firmly in your hands, keeping your torso relaxed so that your arm will act as a damp vibe. Using this method, you can take very sharp vertical air due to helicopter coincidence capabilities, its ability to slow flight, and the possibility for both pilots and photographers to look at targets. Due to these features, accurate vertical photography is easier than helicopters than fixed-wing aircraft. Most of the aerial photography into the air you shoot will be another aircraft. The aim is to produce display pictures and public affairs (PAO). You can also be tasked with taking aerial to-air photography for research and testing purposes. When shooting aerial pictures into the air, you should maintain voice communication with both pilots flying your plane as well as the pilot of the plane you are posing for. This gives you the opportunity to direct all the aircraft involved into a position for the picture. Generally speaking, the best air-to-air pictures are made from a little above, to the sides, and a little forward the plane described; However, you should try other views, such as from the bottom or a bit of the theft of the subject aircraft. Longer than the normal focus length lens (80mm or greater for 35mm camera) should be used when you take pictures of only one or two aircraft at a time. Longer focus length lenses prevent the solutions that appear from using regular or short lenses. With a regular or short lens, wings sticking out of the target aircraft fuselage and the nose or long tail parts appear distorting when you take their pictures from close range. When shooting formations three or more aircraft, you need to use regular focal-length lenses because you are further from the subject and the distraction is not a problem. For head display using long lenses and having pilots fly the plane you are across and up or under a projected flight path the plane is being pictured. Of course, each pilot needs plenty of room to avoid mid-air collisions. A better and safer way to get a head shot is to fly in front of the depicted plane, in the same direction, and at the same speed. You can take this shot from the aircraft's open ramp, such as C-130 or CH-53. In aircraft like this, you can stand on the edge of an open ramp; ensuring that you are safe with safety beams. The plane you photography doesn't always have to fly straight and level. A good, interesting picture can be taken while the plane moves, as in a long, slow turn or in the bank. When the bottom of the fuselage must be shown, ask the pilot of the target aircraft to The plane, so the sun shines on the bottom of the plane. For this blow, the aircraft containing the interpreter needs to fly in the bank on top of the subject plane. This maneuver provides you with a camera angle that looks down on the aircraft to When the shadows don't become a problem and enough light is reflected on the fuselage of the aircraft being portrayed, aircraft with photographers can fly under other aircraft and take pictures while it's on straight flights and levels. When shooting formation pictures of aircraft, you should keep the distance between them, as the camera sees, is uniform. Naval pilots are among the best in the world. They can fly their planes in tight formations with almost perfect distance between them; however this may not be as perfect as the camera sees that. Remember, what the camera sees is how the picture will look amb. 4-27. The pilot of the plane you are posing for may be looking at the camera while you take pictures of them. Go go enough and let them-to one shot. Then tell them I have your pictures, and I'll make sure you get a copy of it; but for the rest of the mission, please do not look at the camera. When the pilot was researching the camera, it looked unnatural and distracted from the main subject of the aircraft. PREFLIGHT INSPECTION and POSTFLIGHT Aerial Page shoot hand images, your preflight checks are focused primarily on your photography equipment and your personal protective equipment. You know what cameras and checking equipment to do before each photo assignment. The inspection of these equipment is very important in air work. In air work, more people are directly involved with the mission. At the very least, there are pilots, copilots, captains of the plane, and yourself. At the expense and great time involved in flying a Navy aircraft, IT IS IMPORTANT that you have your equipment working properly. Equipment damage may occur during the flight; However, it is your responsibility to ensure that the equipment and materials needed for the mission are present and function properly. Your personal protective equipment must be inspected before each of your life-dependent flights may depend on it. Due to the many types and applications of personal aviation safety gear available, you must obtain a professional examination of the use of your equipment and check on the size and fit your equipment from knowledgeable Survival Aircrew Equipment (PR). Preflight inspection of the aircraft is the responsibility of the pilot. However, this cannot be said that you cannot inspect the area of the aircraft where you will be directly involved during the flight. For example, is the door, window, or hatch open and close easily? Does the intercom system work? What about ringing a bond that you're going to hook your safety change? Is it safe? Has the ejection seat security pin removed? Is the canopy clean? Is the oxygen system Your postflight duties after a hand air mission include removing all your equipment from the aircraft and packaging, such as straightening the waistline and obtaining intercom systems and oxygen. You and your flying attendants also need to discuss a mission-how to do it? What goes right? What's wrong? What could be done better in the future to make flights get better? COMMUNICATION Pilots must know your intentions. This means that you must communicate with it before and during the flight. Remember, the pilot did not see through the camera viewfind. The target pilot's view, preparing him can see it, in contrast to you. You must instruct the pilot to put the plane for photography. Noise levels during flights are high and voice communication is difficult at best, especially in helicopters. Setting up some hand gestures with pilots first can prove very helpful during mission-hand signals that indicate there are targets, move to the right, left, turn right, and boil, I shoot' (fig. 4-23). On air, a pilot has a better understanding of your needs with early signals compared to making dissociation signals that may fail to deliver properly. Communication between you and the pilot is important. During the flight photo section, you should always communicate with the pilot. To get the best pictures, you must communicate with the pilot about the aircraft's position. Tell the pilot when the plane is too close or too far away from the target and when the height of the aircraft is correct or incorrect. If the camera problem develops, tell the pilot. The lengthy quiet period caused the pilot to wonder what was happening in the photography area and whether the mission would happen as planned. This is not the time to bashful or intimidate. Don't worry about talking too much. COMPOSITION Since vertical hands are made with the camera pointing straight down in the ground, the photographic composition for vertical photography is simple. The person asking for the job tells you what to show in the picture. Then it was mainly Figure 4-23. -Hand gesture. including all subjects or land areas in the picture. Hand-held aerial photography of the seria often provides a unique communication capability of an overall view that cannot be obtained from the ground in one picture or even in some pictures. Generally, air-conditioned photos show the relationship in size and distance between objects better than ground view. The point of view is incredible and the attention gets, partly because people aren't accustomed to seeing the subject from above. As with the composition for any type of photography, when you compose an aerial picture, you should consider all aspects of a good composition image size, placement of the subject in the picture area, balance, camera angle, lighting, and time (when to erase the shutter). Picture targets and purposes are the guides you need to use to determine the correct composition. Composition of aerial photography is harder to achieve than the composition of ground photography. In the air work you are in a moving plane and do not have the time necessary to fabricate in the stepfather. You must compose a picture in your mind as you observe the target from the aircraft during the approach. You can't move the subject around or change the direction from which light will come from. Your two main tools in the air composition are the viewpoint of the camera and the time. You must shoot your pictures in the right urgency to keep the area and object of interest in the picture. Also, in the order of exposure (stripes), each picture must have the right relationship to another in order. In other words, you cannot have any missed holidays or areas in the strip. You may have some control over the time of day to fly the mission. If so, use the sun to the best advantages for the most desirable lighting. When the sun is at an angle that causes the shadows to fall across the subject and obscure some important details, you may ask to fly the mission at different times of the day or even on too many days. As far as possible, the barricaque shot with the sun pluralated on the scene from about an angle of 45 degrees. This gives the right shadows and creates a feeling of depth. With the sun straight behind the camera, the picture looks flat. With the sun straight in front of the camera, shadows can obscure detail and flare lenses can cause. The shadows play an important role in the picture balance by creating the illusion of depth; they also help in determining the physical characteristics of the soil area. The size of the object in the picture can be determined by the length and width of their shadows. You can get the desired shadow effect by ensuring that the pilot puts the aircraft properly in relation to the target. Teamwork between pilots and photographers is another contributing factor to the good air composition. Remember, both the photographer and the pilot operate the camera, but you are responsible for getting images. A minimum image size may be required to find or identify large objects in the picture. Small and detailed objects require a large image size. You can get the correct image size in your picture by choosing the correct height of the aircraft and the focal length of the camera lens. The placement of subjects in the image area is also an important consideration. Because you are in the air and having a bird's eye view of the subject doesn't mean you have a good camera point of view. Are tall buildings or tree shelves hiding some important subject details? If so, instruct the pilot to move the aircraft to a position for a better point of view. A good rule for composing low oblique is to divide the camera pole predate into three parts: the first part at the bottom of the stepfather is the background, the third center of the picture is the area and the top third is the background. For a high bevel, divide the camera stepfather into four parts: the bottom of the stepfire is filed with a background, the next part on it is the target area, the third part is the background, and the last quarter Sky. The balance of subjects should also be considered while following three or four main parts or low and high barrel areas. Review views during your approach to targets. Horizons is another factor to consider in the work of horizontal or, in the case of low bevel, the imaginary horizon should continue in your pictures. The real horizons are bending, even in depictions of high bevelations, do not appear natural; it's disturbing and doesn't reflect the expected work of a professional air photographer. When making the beveled, you need to hold the camera so that the horizon is straight. This is easy to do in high bevel as the horizon is inserted into the picture and can be seen while the picture is taken. When making a low barricaque, hold the camera as if a high horizon is being made, straighten the horizon, then turn the camera carefully into the right angle for low barrier. Crooked horizons are often a result when a photographer concentrates on subjects alone and does not compose images in step-timers. The camera may tilt in some instances; for example, when two points of interest must be included in a single exposure. If you can't do this by holding the camera level, then turn the camera a little at an angle; both eyes can sometimes be included in the perpetrator of the picture is figure 4-24 . Figure 4-24:-Tilted camera to include the subject area. Figure 4-25-Missile used to draft the F-14 Tomcat. Page 12 SAFETYWhether you take pictures from the rear seat of the jet or from the open door of the helicopter, you must be checked and become familiar with the necessary safety equipment and applicable safety procedures. Before the flight, you need to arrive on the plane or briefing area in sufficient time for further briefing. The main responsibility of the pilot is to explain you and your photography equipment to the target, put the aircraft in a position to pose, and return to the base safely. The pilot knew the limitations of the aircraft and what procedures to follow in an emergency. Ask the pilot about the emergency plan and FOLLOW this advice. Aircrew's personal protective equipment plays an important role in the safety and survival of people flying on Navy aircraft. The equipment is designed to protect them against the elements and provide the necessary comfort for efficient mission performance. Its main function is to protect crews against environmental hazards. Different combinations of clothing and equipment are used to provide overall protection and comfort to air crew members under various flights, emergencies, and environmental conditions. Aircrew protective equipment is designed to meet combat environmental pressures and to provide fire and impersonation protection with a variety of features other forms of escape and elaction. Emphasis is on developing clothing materials and gatherings to increase individual opportunities and to minimize injuries in aircraft accidents. Before flying onboard, you must get the correct personal protective equipment specified for the type of aircraft where you will fly. Squadron-, intermediate, or depot maintenance activities can give you the necessary equipment. YOU CANNOT FLY WITHOUT THE RIGHT EQUIPMENT AND the equipment must suit you properly. Your life may depend on it. WARNING Unauthorized modifications or irregularities from designated life support and survival equipment by individual crew can create safety hazards. NATOPS General Aviation and Operations Directive, OPNAVINST 3710.7, sets the minimum requirements for such equipment and plus naval air training programs and standardization of operating procedures for each particular model of the aircraft. Configuration or modifications specific to life support and disability tools are not allowed. Aircrew Survival Equipment man (PR) which manufactures and maintains this equipment has no power or responsibility to perform these actions, so do not ask them to do so. When taking off and landing, your photo gear must be made safe on board, so it's not a danger. When your equipment consists of small items, such as hand cameras and exposure meters, hold them on your culprit. A tie strap or passenger seat belt provides a way of obtaining large equipment. If you can't find a way to protect your equipment on a plane, ask for help from an airplane captain or other crew member. During flights on the helicopter, keep all photo gear safe. This will prevent him from falling the door open. It is a violation of federal law to drop objects from aircraft while on flight. When working or leaning from an open door or window onboard, you need to use a neck strap or wrist strap to protect your camera and other items. Upon departure and landing, you need to occupy a designated passenger seat. Once the air and before you approach the door open, you must have the safety bearings of properly coordinated crew members around your waist. The safety of crew members must be adjusted BEFORE DEPARTURE. Attach the snap hook of the alternate to the tie ring on the aircraft deck. The tie ring should be about 3 to 4 feet from the open door. Do not attach snap hooks to pipes, tubes, cables, or similar items. Place the beam around your waist and tie the latch and link fence. Pull the belt adjustment of the belt, so it fits snugly around your waist. Now adjust the length of the safety strap, so you can sit at the door open and still about a foot. SCALE MAP MOSAIC READY Mozek tiles are ready to be determined using the following formula: Where S= S= Scale F = Focal length lens A = Altitud The answer obtained by using this formula provides fractional vice (RF) in the preferred units. Note that you are you convert altitude to inches, since the length of the lens focals is usually in an inch. For example, you use a 10-inch focal-length lens for mapping missions flown at 5,000 feet. You can specify the scale of the finished mosaic as follows: The scale of the completed mosaic is 1/6,000 (1:6,000). To strengthen mission planning procedures, you can use the following examples: You are tasked with assisting in the mission calculation required for recon mapping missions. You are briefed on the following missions and information provided: The mapped area is 10 nautical miles east and west with 20 nautical miles north and south. The required frontal overlap is 60 percent. The required side round is 40 percent. The focal length of the lens is 12 inches. The negative size is 9 x 9 inches. The true aircraft is 140 knots. Winds are from the north at 15 knots. The scale of the chart used to plan and fly the mission is 1/50,000 (1:50,000). The required scale is 1/12,000 (1:12,000). A graphic scale representing 3,000 feet is required on a printed mosaic map. 1. Determine the height. The first step in this problem is to determine the height at which the aircraft needs to fly to get the required scale of 1/12,000. The IFGA formula used to determine height is as follows: Since G (ground coverage) is unknown, you must replace the required scale (1/12,000) for it. On the required scale of 1/12,000, each unit I (on film aircraft) recorded 12,000 units G. As A measured on the feet, you must divide your answers by 12 to get units on the feet. Divide by 12 to get altitude units in legs 144,000/12 = 12,000 feet 2. Determine ground protection. Now that you know the height at which the mission must be flown to get a scale of 1/12,000, you can determine the amount of ground protection on each frame. Again, this information can be determined using the IFGA formula. Remember that the required frontal overlap is 60 percent. The remaining 40 percent of the 9-inch negative is an imagean that can be used for GGF. You must first look for the size of the part that can be used negatively for GGF. This is achieved as follows: 0.40 x 9 = 3.6 inches of image area that can be used for GGF The required side round total is 40 percent. This leaves only 60 percent of the negative image areas that can be used for GGS. You specify the negative parts that can be used for GGS as follows: 0.60 x 9 = 5.4 inches of image area that can be used for GGS 3. Specify the required number of frames. Next, you need to specify the amount of frames needed to complete the mission. You know that the area to be mapped is 10 nautical miles east and west with 20 nautical miles north and south. Therefore, the strip will be flown north South. The number of exposures per strip is determined by dividing the GGF into the length of the map. First convert nautical stones to toes (1 nmi = 6,080 ft) and breed by 20 (length of area to map). 6,080 x 20 = 121,600 feet Next, divided by GGF as follows: 121,600/3600 = = or 34 frames per strip. Remember to add four more frames. This amounts to 38 frames per strip. Now you must find the required number of strips. The area to be mapped is 10 nautical miles long. Calculate the number of strips as follows: 10 (nautical miles) x 6,080 (foot per nautical mile) = 60,800 feet 60,800/5400 (GGS) = 11.25 or 12 flight strips Remember to add one strip, so a total of 13 flight bands are required. To determine the required number of frames for mapping missions, you must fold the required number of frames for GGF with the required number of flight bands as follows: 13 x 38 = 494 frames 4. Draw flight lines on charts. Your next step is to pull flight lines on the charts used to fly missions. The scale of this chart is 1/50,000. To determine the distance between the plotting lines on the chart, You must convert GGS into an inch, and then breed GGS (inches) with the following chart scale: 5,400 (foot) x 12 = 64,800 (inches) x 1/50,000 = 1.29 inches Distance between flight lines on the chart is 1.29 inches apart. Multi-finger dividers should be used to draw these lines. 5. Determine the time interval between exposures. To determine the exposure interval, first change the speed of the aircraft to the legs per second. Actual aircraft speeds operate at 140 knots, but there are 15 knot winds coming from the north. Since the aircraft will fly north and south, the wind factor must be taken into account. Currently determine the air corrected in the knot, then specify the air at the feet per second as follows: 1. Corrected broadcast. A. Planes fly northwards corrected (140 knots - 15 knots = 125 knots) b. Aircraft flying southwards corrected (140 knots + 15 knots = 155 knots) 2. To determine the speed of the aircraft in the legs per second, you must fold the aircraft corrected by a conversion factor of 1.7. A. Planes fly northward = 212.5 feet per second b. Plane fly southwards = 263.5 feet per second To calculate the exposure interval, you must use the following formula: T = Time within seconds D = GGF (distance) S = Ground speed in legs per second By replacing the value, you can specify the following exposure interval: 6. Graphic Scale. To determine the scale of the graphics represents 3,000 feet, you need to use the IFGA formula as follows: Therefore, 3 inches on the map represents 3,000 feet above the ground. INTERVAL 14 PageS BETWEEN EXPOSURESYou must convert the aircraft's ground speed to the legs per second to determine the exposure interval or frequency between the frames. Conversion factor for Figure 4-22: -Multi-finger divider. converting aircraft (in knots) to toe is 1.7 (kts x 1.7 = ft/sec). For example, when the aircraft is 125 knots, the ground speed, at the foot, is 212.5 feet per second (125 x 1.7 = 212.5). Wind and tailwinds should also be considered. When the head wind is present, you need to reject the head wind from Served. Tail winds should be added to the air. For example, when the plane flew north at 125 knots and the wind blew from north at 10 mph, then the corrected aircraft was 115 knots (125 - 10= 115). When the air craft flew south, then the corrected aircraft was 135 knots (125 + 10 = 135). The corrected air must be used to find the speed of the soil, in the legs. For intervals between exposures, the following formula should be used: Where T = Time within seconds D = Ground-gained forward S = Ground speed in the legs of each second NOTE: When the interval between exposures can be reached in just a few full seconds, the tenth seconds should be dropped. In doing so, little more than the required 60 percent forward overlap is provided. This can give an edge. 15 NUMBER OF EXPOSUREWhen you fly for mosaic mapping purposes, flight strips are usually made along the long dimensions of the area being depicted. This practice reduces the number of turns the aircraft must make a picture of the strip. For example, if the area to be described is 5 nautical miles east and west with 10 nautical miles north and south, the strip should be flown north and south. To determine the number of exposures per strip, you need to divide the land acquired forward into the length of the map. When the measurement unit is in nautical stone, you must convert it to the feet (1 nmi = 6,080 feet). Therefore, if the area to be described is 10 nautical miles, the area when converted to feet is 60,800 (10 x 6,080). You add four additional frames to each strip. Two additional photographs should be taken shortly before reaching the starting point and two shortly after the ending point. These four pictures allow a possible mistake in reading the starting point and the Figure section of 4-20_Usable negative 9- x 9-inch. run ending point on the ground (from the data shown on the flight chart). You must first calculate the number of flight bands required to close the area. Next, divide the land-acquired sideways (GGS) by the number of widths of the area to determine the number of bands. Always add an additional strip to your calculations. To specify the number of pictures (frames) required for the entire mosaic mission, multiply the number of pictures needed for each strip with the number of strips. If the camera can hold enough movies for the entire mission, you don't have to have a problem. However, if the camera doesn't hold enough movies for the entire mission, you either have to switch movies between stripes or be prepared to make some flights. FLIGHT LINE Before mapping flights, you need to plot a flight line for each run and pull it on a flight chart with a simple recognizable color. Draw the first flight route at boundaries of the area to be described. The remaining flight routes should be aligned altogether and parallel to each other. Figure 4-21 shows which nomographs can be used determining the number of flight lines needed to accommodate the target. This noography is for low altitude coverage only. The nomograph fig.4-21 is used as follows: 1. Place the straightedge on the width of the area to be searched and another along the altitude to be flown. 2. Pay attention to the intersection at Rl. 3. Place the straightedge on point on Rl and another along the field of view of the camera lens. 4. Observe the intersection on line R2 5. Move to R3, maintaining the same relative position on the Rl and R2 6 segments. Put straightedge on points on R3 and another along the required side round. 7. Read the number of flight routes (to the largest frame number). To determine the distance between the plotting lines on the chart, you must convert the acquired side of the ground into an inch and breed with the scale (fraction) applied to the chart. For example, if the GGS is 5,400 feet, or 64,800 inches, and the scale of the Figure chart is 4-21.-Number of nomograph flight lines. is 1/10,000, the distance between flight lines drawn on the chart is 64,800 x 1/20,000, or 3.24 inches. Since it is difficult to accurately measure the flight line distance, the multi-finger divider should use figure 4-22. To use a multi-fingered divider, first multi-proponent distance between flight lines with the number of fingers on the divider. This will give you the total width of the flight online plot. Using a dealer, place the first divider finger on zero and finger divider at a sign that matches the total width of the flightline plot. Individual fingers of dividers automatically range themselves to the correct distance for each flight line. Multi-fingered dividers can then be used to place flight line plots. OVERLAPTo Page 16 FORWARD ensures complete coverage of this area, you need to take each picture in each flight or stripe line so that it overlaps both the previous picture and the following picture. The total overlap on each picture is about 60 percent. Creating this overlap ensures that the strip does not contain empty areas (fig. 4-17). Overlap also serves another important function. In the construction of a mosaic map, only the central area of each print is used. Only the central area is used because the central area of all vertical pictures is the actual reproduction area of the terrain. (See fig. 4-18) In a figure of 4-18 the plane flew over the mountain while making a series of vertical photos. For all practical purposes, when the plane continues to over the mountain, perfect breeding of mountains is obtained. Photographs taken before and after a direct one on the mountain show the section near the mountain clear, but very little, if any, the far side. This is due to the different camera positions with respect to the subject. Scale affected by differences This camera. It is impossible to match the edges of the mold when disturbances of the earth's appearance are present. Therefore, the outer print edges) are discarded and in 40 percent of each print is used. Another important reason to use only the central area of the print is that the stereoskip measurements associated with either contour mapping or photographic interpretation require the highest level of accuracy. Since a 60 percent overlap was created, only 40 percent of the ground-acquired forward (GGF) could be used in each negative. For example, a 5- x 5-inch negative has an image area that can be used 2 inches. (5.0 x 0.40 = 2.) To find the exact amount of GGF that can be used in each negative, land coverage of 0.40. For example, using the IFGA formula, you have determined that ground coverage for each negative is 9,000 feet. The GGF that can be used in each negative is 3,600 feet (9,000 x 0.40 = 3,600). SIDE LAP The area you photographed for the mosaic map may be extensive and cannot be described in one strip. The plane must fly several side-by-side strips to get complete coverage so that none of the areas overlapping Figure 417-Forward. Figure A-18-Effect on a scale when posing on a rough terrain. Missed. Since only the central part of each picture is used in a mosaic map, each consecutive strip must also overlap the previous strip. The overlap of this strip is called SIDE LAP. Side rounds for mosaic maps are usually 40 percent diagrams 4-19. Since each flight strip overlaps 40 percent, only 60 percent of the side areas that can be used remain on each negative. To find the number of sides that can be used on land, land coverage lands by 0.60. For example, when ground coverage is 9,000 feet, the soil-acquired side (GGS) can be used is 5,400 feet (9,000 x 0.60 = 5,400). Shorter negative dimensions are always used for GGF. This is to limit the number of flight lines to as little as possible. This helped eliminate the round of Fiunre 419.--Sisi. possible errors in the layers of each consecutive flight line as well. Longer movie dimensions are always used for GGS. Figure 4-20 shows the usable negative 9-x 9-inch negative after GGF and GGS have been photographed. PAGE 17 AIR PHOTOGRAPHY DATA COMPACT coverage of aerial photography and flight planning computers, such as Air Photography Data Computer (BM-38A Type). can help you with many calculations required for mission planning. The aerial photography data computer contains the scale, indicator, and information related to the panoramic camera frame and photography as well as radar mapping and detection infident. This computer is a useful tool in mission planning. It can give a quick response to some flg.4-16 mission requirements. Air computers are primarily designed for automated camera systems of large formats. However, it helps in making calculations for hand air when a 70mm film is involved (using Bronica ETRS or Agiflite, for example). The information that can be provided by the air calculator is as follows: Focal Factor index scale length Land coverage Altitude Rajah 4-16.-Computer aerial photography data (front). Exposure hoses (in a while) for 60 percent of ground-baseds get Ground coverage every inch of negative hoses and exposures When you desire to use a BM-38A computer, refer to the Photography Computer Landing Book, RC-025063, for detailed directions. SCALE Typically, the area to be mapped is indicated on the chart and a maximum border is provided. Fractions of the scale of this carta, or its linear scale, provide important information. The number of areas to be protected can be determined from one of these scales. The scale of the map is indicated as a regular fraction or as a ratio. For example, the scale might be 1/10,000 or 1:10,000 on a map. In any case, the scale reads one to ten thousand. This scale indicates that one unit of measure on the map is equal to the same 10,000 units above ground. One problem in aerial mapping is looking at the scale of mozek maps. If the required scale is provided, then altitud and focal length must be specified to obtain the required scale. The scale of the photographic mozek map is calculated as follows: S = Sup map F = Focal length of the canta A = Altitud above ground With F (in inches), A (in feet) should be familiarized with 12 to switch to the same unit of measurement (inches). Example: Is the scale of the map taken from an altitude of 5,000 feet, using a 6-inch canta. Therefore, the scale is 1/10,000. This means 1 inch on the image at the same time as 10,000 inches above the ground. SPEED 18 AND DEPTH LENS APERTURESince terrain is not important in air-to-ground photography, you can focus on the problem of unpleasant image movement. Set the focus on the infiniti, and set the aperture wide open. There is no need to stop for depth of field, as the whole scene is effective on infiniti. (You might prefer to stop one or two f/ stops to get a critical aperture of the canta for the sharpest images.) Create the required exposure alignment by changing the speed of theup. With your kanta wide open, you can use monitored speeds that the terms will justify. Therefore, you better be able to reduce the movement of images. For air-to-air photography, depth of field may be a factor you need to look forward to, especially when you're making meetings. You may need to stop and use slower up round speeds to gain the required depth of field. This doesn't much of a problem because photos of birds (planes where you are present) and targets, usually other aircraft, fly at the same speed and the movement of very few subjects is obvious. You need to use the speed at which the monitored airs are possible to compensate for the vibrations of the aircraft in which you are flying. AIR MISSION CALCULATION In the air mission design rankings, you have to do some calculations. Design thoroughly it is important before preflight, so you, the pilot, and the flight crew know exactly what steps are needed for mission requirements. The facts and requirements for mapping missions consist of the scale of the required photography and the areas to be described. Using this information, you can create multiple calculations to determine factors such as altitude, number of frames per flight line, movie requirements, etc. There are several mathematical methods and formulas that you can use to arrive at this conclusion. Through careful calculations, you can specify the following factors: Altitude Focal Long Ground coverage in foot Number of passes Required Scale Ground-getting forward Interval exposure or frequency of Shutter speed pictures of Altitude speed on top of the terrain of film interval coverage of film use in vertical photography, areas protected by pictures may be limited, especially when pictures are taken , but each part of the area is recorded smaller. To increase the area covered at low altitude, you need to create a series of overlapping pictures, then splice them together to form a large picture (strip or mosaic). By doing so, you can cover large areas and objects on the ground are reproduced in relatively large image sizes. NOTE: When working on a planning calculation, re-record your work for accuracy. The specific steps of each problem depend on the other part of the problem. An error made at the beginning of the calculation caused errors in the steps that followed. IFGA FORMULA One of the most useful formulas for air photography calculations is the IFGA formula. Although only one frame is needed to capture your subject, the IFGA formula should be used. For example, when tasked with taking aerial pictures of a new vessel, you need to use the IFGA formula to determine the minimum height or distance required to adjust the vessel into the frame. By knowing the length of the ship, the length of the lens focus, and the negative size, you can determine the distance or height from the ship. When the aircraft must fly at certain altitudes, you can specify ground coverage by replacing other variables in the IFGA formula. Refer to the Photography training manual (Basic), NAVEDTRA 12700, for step-by-step application of the IFGA formula. Page 19 SPEEDA fast rating method for air movies is known as Aerial Film Speed (AFS). This speed rating system is adopted by the American National Standards Institute (ANSI) and is used to create aerial film speed. Effective Air Film Speeds (EAFS) are used to reflect the actual air movie speeds contained from processing films through any process other than those determined by ANSI. Air Movie Speed and Effective Air Film Speed cannot be confused with ISO speed exposure index (EI). They are NOT equivalent. When using ground picnic films given ISO speed, such as Vericolor, Ektachrome, or Technical Pan, you should to determine which movie speed settings for your camera or light meter will produce optimal results. FILTER Two main reasons for using filters in aerial photography are being used today to control the haze and get pure infarative pictures. The view of the air posing

without a filter may seem flat because of the atmospheric haze. This haze may be evident in the aerial photographs even though the photographs are made in the clear days. Haze has a reflective effect and spreads shorter ultraviolet radiation and blue light. Since all movies are sensitive to these shorter wavelengths, they record as veiled above the scene when filters are not used. These veiled images become more pronounced as the height of the aircraft is increased. This is because the mass of haze (water vapor and dust particles) between the aircraft and the soil increases. The filter used to control the haze within the range of airwork in color from light yellow to red. When you use this filter, photographic images are recorded by light with longer wavelengths (green or red) that are not appreciated by haze. Filters, such as Kodak Wratten No. 2B or 2E, absorb ultraviolet radiation and reduce the effects of haze without compromising visible color monochromatic performances. When larger haze controls for black-and-white photography are required, a deeper yellow or red filter should be used. However, when this deeper colored filter is used, color tonal presentations are affected. The amount of haze control in black-and-white air photography increases with the use of the following filters in this order: No. 8 (yellow), No. 15 (in yellow), and No. 25 (red). The greatest penetration or control of haze for black and white air photography can be obtained by using black-and-white infreditive sensitive films with appropriate filters, such as No. 25, No. 29, No. 70, or No. 89B. The haze filters for conventional color films differ in contrast to those commonly used with black-and-white movies because all the colors of light must be used to get the right results (true color). Filters used with colored movies are usually colorless or pale pink, such as No. It's Skylight filters, or one of the few pale yellow density (No, 2B and 2E, for example). This filter is not compact enough to require additional exposure. In the bright, obvious days when the haze is minimal and you take vertical or low bevel from the altitude below 2,000 feet, a good color result can be obtained without using a filter. However, when the haze is clear or when you take a high barracks, the use of UV 16, or the IA Skylight filter is recommended. From higher altitudes or when the haze becomes a problem, consider filter No. 2B and No. 2E. Keep in mind that different types of color films may require different filters. Filter requirements are listed with each movie package. NOTES: Haze should not be confused with fog or fog, which affects the film as a white or grey area. Haze penetration filter no effects fog or fog. The atmospheric haze is always there, but it is very noticeable in scenes away and from high altitudes. DETERMINING DISCLOSURE Determines the correct exposure for aerial photography can be more complicated than determining exposure to soil photography. You can read exposure with your meter before leaving the ground to determine the correct exposure for soil photography. (Make sure you allow filter factor correction.) In most cases, for low air-to-ground photography and for air-to-air photography, you need to use the same exposure in the air as you use on the ground. Once you're in the air and before taking aerial pictures to land, taking a light meter reading of the ground from about the same altitude you plan to work When you're at a relatively low altitude with little or no visible haze, exposure readings should be very similar to ground exposure. So set the camera about halfway between the two readings. However, if you have a significant haze or if you work from a high altitude or if the air-to-air subject is far away, your airborne meter readings may be much higher than ground readings. This is because your meter is affected by large sky areas and the amount of light reflected by the haze. In this case, the camera settings should be determined by the replacement method. Replacement methods are also an effective way to determine exposure. Suitable aircraft gray wings or substitutes can be used to determine basic exposure. Under no circumstances will your exposure bracket be at least one f/stop as far as possible. It is more economical to take various exposure than to re-explain the mission. High altitude, sky in high bevel, and high levels of haze reduce subject contrast and increase exposure latitude. These factors often cause overexposure. SELECTION OF THE BEST 20-Camera Page cameras for hand-held aerial photography are probably the most common. This does not mean that you need to ignore the excellent 70mm-handed air camera. If you have access to any of these air cameras, by all means give them a try. You may find them very much according to your liking. These aerial cameras are over the line and are capable of producing the highest quality pictures. What kind of pictures would you take? What will they use? These factors have a huge influence on what camera you choose-35mm to slide or Figure 120mm 4-13.-Photographer shoots from a helicopter. or 70mm for 16 x 20 inches or larger prints. There are many experienced air photographers, and because of the various experiences, they may have very different opinions. Most favorable camera formats if mold is required. Simple format cameras are easy to control in the confined-seat space behind a jet plane, for example. They are rather small and easy to use. With careful processing and printing, almost all print size can be made from generated by a medium format camera. Excellent results can be obtained using 35mm cameras; Assumptions, of course, you handle movies carefully during processing and printing. Because various exchangeable lenses, small sizes, handling facilities, and a large number of exposures, the 35mm camera is prioritised by many Navy Photographer Partners. SELECTION OF Aerial Film FILMS is designed for high altitude photography and does not produce better results than conventional films at low altitudes. Remember that most hand-held air photography is done at low altitude. There are a number of factors that you should consider before choosing a specific type of movie. The first, of course, is the final use of the (purpose) picture. Do you need black and white or color; print or slide? Other important factors are as follows: Weather conditions and Flash haze special purpose movie conditions (color, impersonation detection, and special filtering processing requirements (CDIR) or Panchromatic Black-and-White Film capabilities For air tasks that require black and white print only, you should consider black-and-white films, such as the Pan Technical Code (Tech. This and other similar types of films are fast enough for most air work when the weather is good and the subjects are well lighted. The extended red sensitivity of Tech. Pan. also helped penetrate the haze. The film is available and easy to process. Tech. Pan. has excellent resolution and extreme fine grains needed to make high-quality enlargement. A special type of film designed for reconnaulation is also available. These films are usually only available in rolls, and they range from 70mm to 12 inches wide. These films are characterized by their sensitivity, kind of foundation and thickness, speed, resolution, and granularity. The films also have extended red sensitivity to help in greater haze penetration. Although black-and-white prints can be made from color negatives, it is better to use black and white movies. Black-and-white movies are superior to color emulsions in their ability to record image details. Haze control and contrast are easier to achieve with black and white films than color films (fig 4-14). Black-and-White Inframared Film (IR) In aerial photography, black-and-white infidelity films (IR) offer some advantage over panchromatic films. Especially it provides higher contrast and a unique ability to record details through haze. Therefore black-and-white IR movies should be considered when the air view must be taken under those conditions. This type of film can record more detail through the haze than can be seen with the human eye. IR film sensitivity covers about 900nm with maximum ir sensitivity from about to 880nm. It is very useful when extreme distances must be protected, such as high altitude photography, or when a high point of view is required for high barricads. Before choosing a black and white, white IR movie, Having to check with the person you do the Prints job made of negative IR black and white appears quite different because the blue skies and water are reproduced almost black floors. Growing crops and deciduous trees appear white in pictures and most evergreens record darker. If such a print meets the needs of the rejector and IR movies are the best option, by all means use it. However, keep in mind that when a black-and-white IR movie is used, you must filter blue and ultraviolet rays with red filters, such as Kodak Wratten No. 25 or equivalent, for the best results. Negative Film Color films negative films, such as Kodak Vericolor III Type S, can be used to provide color and print black and white. When available, however, movies, such as Kodak Vericolor HC, are better options. Kodak Vericolor HC gave better results because of a 4-14.-Aerial Diagram taken with a black and white film without a filter. increased inherent contrast and the saturated color of the film. When a high level of enlargement is required, the film Kodak Ektar can deliver excellent results. Color negative films have better and more versatile exposure latitudes than color reversal films. Color negative movies are often an excellent option for aerial photography, especially when you are not aware of some possible uses for photography, or there is more than one type of finished product. Black-and-white printing paper, designed to be processed through a color-chemical process, can provide excellent results, and color slides can be made easily by copying color prints. Color Reversal Movie When only a color slide is required, you need to choose a color reversal movie, such as one of kodak Ektachrome movies. This type of movie comes in some ISO speed and is excellent for making an aerial slide. High-speed color reversal films are useful for photography in the late afternoon or at dusk when the light levels are low. When you must take a picture of a color in a heavy haze or from high altitudes, the opposite can be fixed somewhat by having an internegative made of a color slide. Color printing can also be made directly from the color slide. Aerial photography of Infrramah Color Inframerah Inframerah is useful for obtaining photographic information that is not available through conventional photography. The usual color film has three layers of emulsion that are sensitive to blue, green, and red light; IR color films are sensitive to blue, green, red, and inframerous radiation. The result is transparency that reproduces the color of different original scenes for most natural features. IR radiation appears red, reproducing green as blue, red reproducing Figure 4-15.-Picture air taken with black and white IR fihn Filter. as green, and reproduce blue as black (as the film is exposed through a deep yellow filter). Many other colors also form, depending on the proportions of green, red, and infurated infurates from the original scene. Inferential color films are for camouflage detection, and it shows the difference in inflammatory reflections between living, healthy vegetables and similar areas visually, such as pseudo leaves and camouflage nets. Color IR movies should be revealed through blue push filters (deep yellow), such as Kodak Wratten No. 12 or equivalent. WARNING Codecode Infrestation Inframerah film cannot be processed in Process E-6. It must be processed in the ME-4 Process, EA-5 Process, or E-4 Process. Do not attempt to process kodak Ektachrome Inframerah films through any type of E-6 processor. This can affect the processor and damage the chemicals. Inversion of WeatherTemperature pages in the atmosphere tends to concentrate and trap particles in the air, causing haze. The usual type of temperature inversion can be characterized by smoke rising to a certain height, Fig. 4-11.-Characteristics of temperature inversion. then flaten and go no higher (fig. 4-11). The situation make it difficult to picture the soil. In this situation, you can use movies with advanced red sensitivity or red filters to help cut the haze. Nothing you can use to cut smoke. Heat shimmer is another condition you have to worry about. Heat shimmer is the result of heat-heated air moving upwards. As heat shimmer occurs, remote objects appear for shimmers because light rays are being reflected by increasingly heated air. This incident can obscure minute details in high altitude photography. When heat shimmer exists, you need to take enough pictures to ensure that the subject details occur in at least one picture. Good weather conditions for aerial photography are usually considered obvious with 5 to 10 knots of wind (to help blow up smoke and smog) and visibility 7 miles or more. The minimum condition is usually considered a scattered cloud with a vision of 6 miles. When the weather conditions are poor, shoot the picture low from a relatively low altitude. This helps minimize the effects of smoke and haze. PLANE After you get some experience in taking aerial photographs of your hands, you may have preferences for certain types or models of aircraft. Hand-held aerial photos can be made of almost any plane. However, there are some commonly accepted priorities, such as high-wing aircraft or relatively slow flying aircraft. Most slow flying aircraft have windows, doors, or hatches that can be removed or opened to facilitate unobstructed photography. High-wing aircraft are better for low-wing aircraft because the wings are running out of view areas of the camera. Helicopters provide photographers more freedom to work at lower altitudes, but there are certain misconceptions about fig. 4-12. One of these misconceptions is that the platform can be suspended Figure 4-12.-Helicopter used aerial photography assignments. anywhere in a non-moving situation. Most helicopter pilots prefer to maintain some forward speed enough to make a safe landing in the event of an engine failure. The added advantage of maintaining some forward speed is that it reduces the vibration. While the helicopter hovers, it contradicts excessively and the engine exhaust often washes in front of you and the camera. These two factors contribute to unclear pictures. There are two different advantages of using helicopters for hand-held aerial photography. First, they have the ability to take advantage of entry and exit from places that are inaccessible to fixed wing aircraft. Secondly, they have the ability to fly at low altitudes safer than fixed-wing aircraft. If you have an aerial photography platform option, consider which aircraft can fly with windows or doors removed or open. By removing or opening windows or doors, you eliminate the need to shoot through glass or plastic windows. This prevents reflection problems, such as glare, which can result in clear image details. Of course, you can't open windows in high-team jet aircraft. Naval helicopters have doors that can be removed completely or opened during flight. With doors opened or removed from helicopters, you have fewer obstacles to obscure the view of the camera than in a fixed-wing aircraft. You can generally sit with your feet hanging out of helicopter mold. This is simple and comfortable to shoot your air picture. In addition, sitting on the floor with your feet out of the helicopter gives you a stable body position. It also allows you to lean and see the target as you approach it. PAGE 22 OF THE HAND-HANDED Aerial photography mission involves planning, preparation, coordination of pilots and thorough photographers, and photographs. Planning begins with a request for pictures and includes determining the type and number of pictures, camera type, movie type, camera accessories, exposure sequences, flight times, and flight routes. To succeed, both pilots and photographers must know and understand the objectives of the mission. The questions that need to be answered during mission planning are as follows: What pictures will it use? What to show in the picture? What types of pictures are required (slides, prints, videos, vertical, beveled, air-to-air, or other)? When is the picture required? Where are the targets located? What is the target (subject)? At what time is the best lighting? From what direction should photographs be taken? From about what altitude should pictures be taken? What are the dangers for safe flights available in the target area? When photographers and pilots have answers to these questions and understand the objectives of the mission, both are in a position to produce pictures that meets the needs of the grief. To allow photographers to take pictures, pilots must know specific details about the mission. When taking pictures on the ground, you can choose to either object or yourself to get the right composition for your pictures. However, in the air, you must rely on the pilot for the desired camera angle and the camera distance to the correct subject. Pilots can't read your mind, so it's important to discuss your plans in detail before the flight. Remember, there is no time to achieve this while you are both on the flight. Other reasons for discussing the plans before the flight are as follows: the mission may require an aircraft maneuver incapable of doing or the pilot can do a different maneuver to get the same results. On the ground, photographers have a single control over the camera. In the air, the camera is, so to speak, in the hands of both the photographer and the pilot. Both must coordinate their efforts and work together as a team. MAPS AND CHARTS For some air assignments, maps or charts are critical to the success of achieving aerial photography missions. You should familiarize yourself with the different types of maps and charts available. Maps are primarily used for soil navigation, while charts are primarily used for water navigation. Represented on a map or chart is an important topographical feature, such as water depth, roads, railways, rivers, lakes, towns, towns, airfields, and other man-made objects. The scale of the map or chart depends on the choice and availability of the personality. Large-scale maps provide more detail, while small-scale maps cover larger areas. The scale of the map you use should be large enough to clearly determine the target but small enough to include large areas around the target. Reading the map is easier when the top of the map forward, so the map is located in front of you, just like the ground. You may find the map easier to use during the flight when you write on it, so the top is in the main direction of the flight. Once you've detected the target on the map, you should mark it up. Specify the types of photographs and any other information that may be helpful in your photographic mission, such as height, scale, and angle. Northern geometry should also be marked on the map. Page 23 of the AIR CAMERA camera, with some exceptions, has the same basic design. They have fasteners, lenses, focus aircraft, drive mechanisms, movie holders (magazines), and assemblies to hold aligned component parts. Air cameras are designed for permanent installation or hand use. Regular installation cameras are specifically designed for use in photo-configured aircraft. Hand-held aerial cameras are designed for PH use and by non-photographic airplane staff. A joint military designer system has been developed to provide introduction to all air cameras. this allocates type designers for air cameras listed in the Military Standard, MIL-STD-155A. Each category is given its own character settings to show the main items, accessories, attachments or components, and a mission letter to demonstrate the mission function of each item. Each combination of two letters is provided with a model number allocated in order and, when necessary, with uppercase letters in alphabetical order to indicate various changes to the base model. Categories and mission letters for aerial cameras are as follows: Shooting Equipment: Letter Category: K-Camera L-Accessories, Attachments, or Components for The Camera Mission Letter: A-Reconnaissance B-Strike Rakaman Rajah 4-10.-The interpreter loads the film on TARPS. C-Aerial Mapping D-Scope Recording E-Still Images (not otherwise classified) F-Motion Images (not otherwise classified) G-Special Purpose (including instrumentation) M-Miscellaneous S-Set or System Examples: (KS-87B): Camera, set or system, model 87, second production task. (KA-99A): Camera, review, model 99, first production assignment. TACTICAL AIR REVIEW POD System (TARPS) With the construction of the F-14 Tomcats equipped with a Tactical Air Review Pod System (TARPS), the Navy continues to improve its photographic review ability. TARPS, when fully configured for tactical review functions, contains two photographic sensors (cameras): a set of infrared (IRRS)-electronic reviewers required to control the camera and IRRS-and additional equipment to support the system (gamb 4-8). TARPS can be used in a variety of tactical photo review situations, such as target takeover, prestrike target recognition, poststrike target assessment, targetjeje, maritime surveillance, and map surveillance. TARPS is designed to provide a review of day and night and low to high levels. TARPS operations are escorted by naval aviation officers/radar-passing officers (NFO/RIO). In addition, the flying attendant is provided with the ability of the ON-OFF camera. Tomcat equipped with TARPS maintains a significant offensive ability, even during the role of photography. The aircraft can be returned to the Rajah 4-7-F-14 Tomcat equipped with TARPS. Fiiure 4-S.--TARPS. configuration in a few minutes by re-selecting the outer TARPS. The main daytime photography from the horizon to the horizon is achieved using a panoramic camera. The camera is located in the central area of the pod. Panoramic cameras are used primarily for low-key reviews to simple, limited standoffs, or beach coverage. The frame camera, located at the front of the pod, has two positions. Frame cameras are used for vertical photography or daytime photography in the future. Frame cameras in front-to-face positions are useful for flight path plots, prestrike route segments, targets, and inspection center photography. In a vertical position, the frame camera provides backrest photography for bomb damage assessment (BDA), traffic area, ship photography, mapping, and some aspects of air-to-air photography. It is fully functional in a variety of aircraft speeds and Day and night reconnaissance can be achieved using an influlent reconnaissance set located at the back of the pod. Multisensor reconnaizing involves the use of two or more similar sensors; For example, two or more photographic cameras with different lengths of photography and depression angles, establish sensors with different spectrum capabilities (photographic cameras use color films and inframerah detection systems, for example), or cover target areas equal to two or more sensors during the same diagram 4-9 mission. Tactical reconnaissance requirements are received from various levels of instruction and in various forms, including the Special Intelligence Collection Requirements (SICRs), Naval Intelligence Collection Requirements (NICR), and Important Information Elements (EEI). EEI usually comes from the commander of the task force or the flag initiated; However, they may be obtained from operational orders from commanders of the task force and directed by the carrier's air wing commander (CAG). The need for any reconnairtion) missions are usually passed from the CAG to the reconnaised squadron. Squadron revival plans and implements missions that will ultimately meet the CAG's objectives. At sea, TARPS is supported by the Carrier-Based Intelligence Center (CVIC) which is an operational intelligence center designed and developed to process, analyze, and associate intelligence data from various rejuvenation platforms. The support provided by the CVIC includes film processing, image analysis and interpretation, and dissemination of intelligence information to operational commanders to plan tactical operations. Your primary responsibility as a Photographer Mate is to process aerial movies. Each squadron with a TARPS aircraft is given a photo officer and several listed Photographer Partners who work in ground support roles at the squadron level and as a film processor operator in the CVIC. Couple Photographer who completed the Fleet Aviation Maintenance Personnel (FRAMP) Figure 4-9.-Sensor coverage of TARPS. Class C School (NEC 8345) is assigned to the F-14 squadron and is responsible for the maintenance of the TARP figure. 4-10. Currently the F/A-18 Hornet has 35mm strike camera capabilities installed in the nose of the aircraft. The F/A-18 is a supersonic, twin engine jet designed as a multimission aircraft (fighters, attacks, and reconnaissance) that have served since the 1980s. STRIP PHOTOGRAPHY Band 25 is a series of overlapping exposures matched together to form a long picture. Stripes are used when your assignment calls for long photos, narrow targets, such as trains, highways, coastal, rivers, and mountain ridges. You can hold the camera on any angle to make a strip; However, the exposure made with the camera points directly from the plane joining together better and the most consistent scale. The path consisting of a serong view is called PANORAMIC. One One The continuous picture, made of several pictures, requires images to be carefully matched so that one picture ends up where next begins. Because the camera is in a different position for each exposure, a perfect match is impossible. But, with overlapping exposure and only using the central area of each picture, you can get near-perfect results. Once the strip is started, the picture is a mechanical job as the aircraft flies at constant speeds and at constant altitudes. You can't change the camera angle while revealing strips, and you have to make exposure at regular intervals. Therefore, the longer the strip, the more automated camera systems are prioritised. The distance of the camera to the scene must remain continuous when you make a strip. Paused changes in the distance resize the image and make matching adjacent exposure very difficult, if not impossible. MOSAIC PhotographY The mainland area is depicted in a side-overlapping strip. The stripes are cut together to form a large composite picture, called MOSAIC. When posing for mosaic purposes, you need to keep the same distance camera from the scene throughout the evolution of photos. Mosaics are usually produced from vertical pictures made by aircraft with automated camera systems. STEREO PHOTOGRAPHY Two pictures of the same subject, pictured correctly, can have a stereoscopic or three-dimensional effect. Both pictures are called STEREO, STEREOPAIR, or STEREOGRAM. The word STEREOGRAM shows that both pictures are installed and ready for stereo viewing. The main purpose of stereo air photography is to provide measurements, such as height and depth, and detect invisible features in the usual picture. Photo interpreters (Intelligence Experts) trained in stereo techniques to detect these fine points. Stereo's picture is produced by making two pictures of the same subject from a slightly different position. When the pictures are made from the same position, both are the same and there is no stereo effect. A very small shift in camera positioning, among the exposure, produces a very shallow depth of stereoskip. As you increase the shift in the camera position between exposures, the clear depth of the stereoskip view increases. When the effects of the stereo are exaggerated-so the hills appear more steep and depression appears deeper than they really are the effects called HYPERSTEREOSCOPY. The term reverse stereo, pseudo, stereo, and reverse stereo refers to the effects of the picture position exchange, causing the hill to appear as valleys and valleys to appear as hills. PHOTOGRAPHY RENDING Another aspect of aerial photography that you need to worry about is the photography of the refrioration. Navy performs fography of enemy air rejuviation to observe enemy, military density, military movement, enemy forces, and so on. Aerial review perhaps even include taking images in friendly territory, both ours and our Allies. This is discussed further in the TARPS section of this chapter. Cartographic photography photography is achieved for the purpose of charting and map. Usually some strips are flown over known landmarks used as reference points or ground control points. Cartography photography always has a vertical view but may include compact views made simultaneously to produce coverage along flight lines. AIR PHOTOGRAPHY SYSTEM The aerial photography system can only be the same hand camera you use on the ground, or it may be a complex and pilot-controlled electronic system, such as TARPS. The following discussion is just a brief overview of the TARPS along with a brief explanation of the aircraft cameras and related equipment. The hand system is addressed later in this chapter under the heading Shoot of Hand-held Air Photography. AIR-TO-AIR 26 photography, as the name impersonates, is a photography taken from the air of the subject in the air, usually other aircraft. Aerial photography techniques into the air are discussed later in this chapter. TYPES OF AERIAL PHOTOGRAPHY The vertical aerial photography category and drawings are divided into several types of aerial photography. The type of aerial photography is set by their composition. The PINPOINT aerial picture contains a small enough target to put in a single exposure. Long, the narrow target is illustrated by making a series of overlapping exposures, called STRIP When some stripes are cut together to form a composite picture of a large area, it is called MOSAIC. Two photos posed to give a three-dimensional impression called STEREO aerial photo. However, there are a number of features that must be on all types of aerial photography. All aerial photography must be sharp, shows great detail, and properly composed, so it meets the requirements made. PINPOINT PICTURES Pinpoint aerial pictures are usually made when targets, such as buildings, weapons, or small settlements, are small enough to be included in one exposure diagram. In the case of alternant pictures, you can make more than one pinpoint target shot to show the target from different angles. For example, you Figure 4-6-Pinpoint aerial pictures. may require two, three, or four pictures to show different sides of the building; or you may make a close and distant view of the target pinpoint-one to show the details and others to show the location. You can also make more than one shot to come up with one big picture, detailed pinpoint targets. In this case, three or four shots that have a 60 percent overlap are made. For example, you may need three overlapping exposure to provide a large and detailed view ends and middle of the bridge. When the number of exposure overlaps is small, say four or less, either or the images are squealing, the number of compositions can be called pinpoint aerial images, but technically, it will be both paths or mozek. Mosaic.