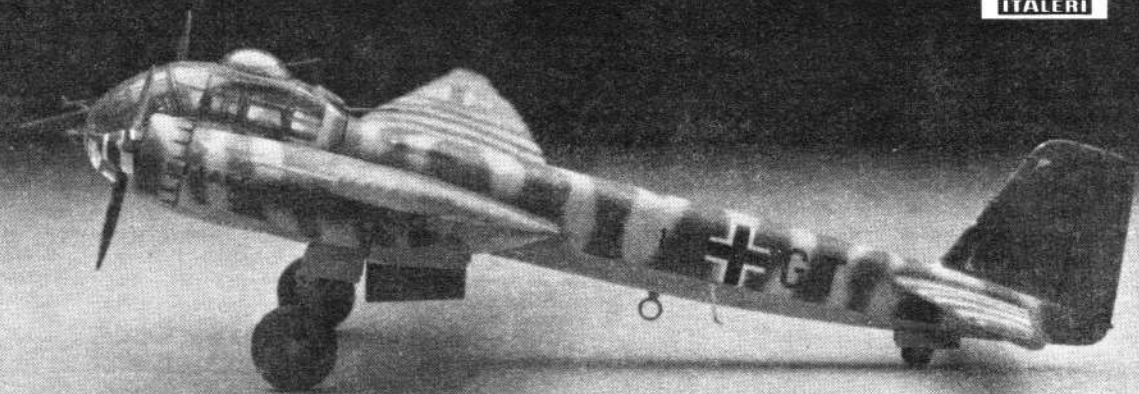


# JUNKERS JU-188

No. 878

TESTORS



## HISTORY

The *Ju-188* was designed as a successor to the earlier *Ju-88* series. The *Ju-88* had enjoyed much success and popularity as the standard medium bomber of the Luftwaffe. Shortly after the introduction of the *Ju-88*, the Germans had instituted the "Bomber B" program, mainly to develop the highly advanced Junkers *Ju-288* as an eventual replacement for the *Ju-88*. Features of the "Bomber B" program included special high-power engines, a pressurized cabin for the crew and remotely controlled machine gun armament.

However, by the autumn of 1942 the *Ju-288* was still having development problems and it became apparent to the Luftwaffe that this airplane could not be delivered when hoped for. Eventually the entire "Bomber B" program was abandoned, the Luftwaffe opting for a more advanced version of the existing *Ju-88*. The new plane was designated *Ju-188* and had the advantage of being able to be produced on the original *Ju-88* production lines without seriously interrupting delivery schedules.

The *Ju-188* featured a new glazed nose section which improved streamlining and enhanced viewing for the crew members. The wing span was extended and new enlarged tail surfaces were added. An interesting feature of the design was its capability of accepting either Jumo 213 inline or BMW radial engines interchangeably, so that availability problems with either of these engines would not hamper production. In fact, airplanes with both types of engine left production lines simultaneously. The bomber version with Jumo 213 engines was designated *Ju-188 A-2* and the version with BMW 801's was designated *Ju-188 E-1*. The *Ju-188* never actually replaced the *Ju-88* completely but it performed well and was popular with its crews.

## SPECIFICATIONS (*Ju-188 A-2*)

Power Plants	Two Junkers Jumo 213 A-1 twelve cylinder inverted V water- cooled engines
Wing Span	72'2"
Length	49'0½"
Height	14'7"

Wing Area	602.78 sq. ft.
Weight	21,825 lbs. (empty) 31,967 lbs. (loaded)
Maximum Speed	323 mph @ 19,685'
Cruise Speed	248 mph @ 19,685'
Range	1490 miles with 3,307 lb. bomb load
Max. Bomb Load	6,614 lbs.

## Reference Sources

**Warplanes of the Third Reich**, William Green (Doubleday)  
**Warplanes of the Second World War, Bombers and Reconnaissance Aircraft Vol. 10**, William Green (Doubleday)  
**The Modeller's Luftwaffe Painting Guide**, J. Smith, G. Pentland & R. Lutz (Kookaburra Technical Publications)

## BEFORE STARTING

1. Study the illustrations and sequence of assembly before beginning.
2. Decide how much detail you wish to add to your model and whether or not you intend to modify or "convert" the basic model in any way. Study carefully all available reference material before beginning to ensure an authentic model.
3. Due to the amount of parts in this kit, do not detach the parts from the runners (sprue) until you need them. This helps avoid confusion and lost parts.
4. When cementing the parts together, check the way in which one part fits together with another. This ensures a neat job.
5. Always remember, when working with plastic model cement and paint, make sure your work is well-ventilated. The fumes from plastic modeling products can be harmful if inhaled.

## PREPARATION OF PARTS

1. Never tear parts off the runners (sprue). Use a Testor Hobby Knife, nail clippers, or small wire cutters.
2. It is possible some parts may require a little attention with a file or sandpaper to ensure a proper fit and neat appearance. Hobby files and Testor Hobby Sandpaper appropriate for model-building are available in most good hobby shops.

3. If you desire, you may fill any seams (where parts go together) or imperfections with Testor Contour Putty for Plastic Models which is also available at good hobby shops.

## PAINTING

You can obtain an excellent finish on your model using Testor enamels. Parts of the model are painted individually, and then the entire model is oversprayed when you have finished construction.

First of all, be sure your brushes are soft, clean and flexible. (Keep them that way by cleaning them thoroughly with Testor Paint thinner.) Never use inexpensive brushes! A selection of Testor Shed-Proof Brushes will serve you well.

Wash plastic parts before detaching them from the sprue. Warm water and liquid detergent remove the oils left from the manufacturing process. Let the parts dry and avoid excessive handling. Immediately before painting, wipe the parts with a "tac rag" (available at automotive centers) to remove dust and lint.

Most parts are best painted while still attached to the sprue or they may be detached and held with tweezers or "magic" type transparent tape. Paint in one direction only. If your paint is the correct consistency, brush strokes will disappear as the color dries. If the paint seems too thick, thin it with Testor Paint Thinner. Wheels may be detached from the sprue and fit onto toothpicks or matchsticks for painting. Then just hold the paintbrush against the edge of the wheel and rotate the wheel to obtain a neat clean finish.

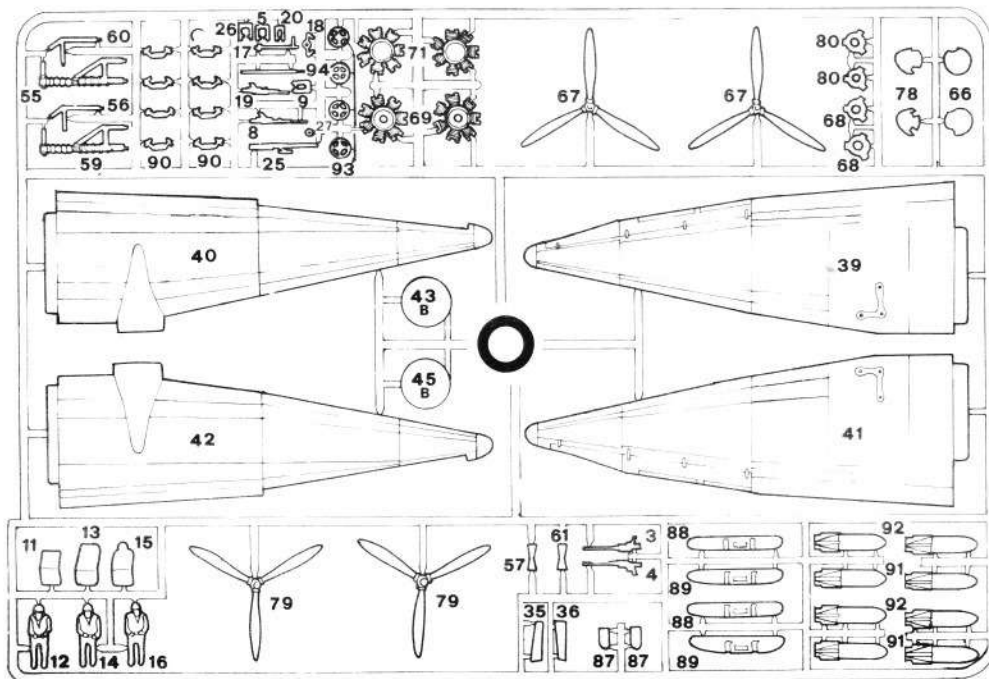
Let the paint dry completely before handling. When the parts are dry, assemble the model, following the directions closely. Remember cement will not stick to painted surfaces. Using your Testor Hobby Knife, carefully remove paint from all surfaces to be cemented. After you have assembled your model you may touch up areas where cement has marred the finish.

When your model is completed, apply a coat of Testor Dullcote #1260 to the entire model. This will give it an authentic, dull finish and protect the surface of the model.

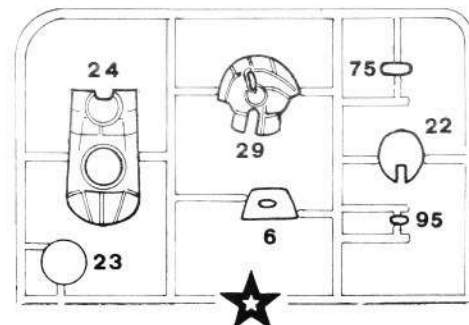
Remove this page from the instruction sheet by cutting along indicated line. Use the drawings of the complete sprue as a part-locating reference when building the model.

Tweezers will be useful in assembling the many small parts in this kit. The type used by postage stamp collectors is recommended.

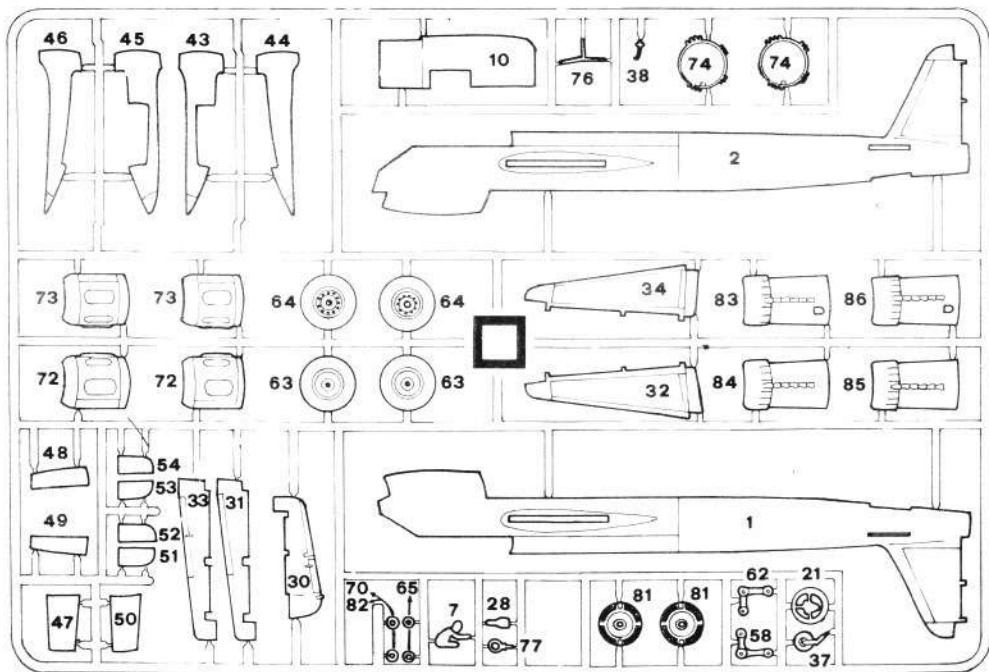
Liquid cement, Testor #3502, is recommended for construction since it can produce the neatest, quickest, and strongest glue joints. Apply small amounts of cement, using the tip of a 00 brush, to the surfaces to be joined while holding the parts in place. Do **not** use large amounts of cement.



Parts from this section are identified with this symbol: ○



Parts from this section are identified with this symbol: ☆



Parts from this section are identified with this symbol: □

Cut and remove this sheet.

The *Ju-188* kit offers the modeler several options. Parts are included to assemble either a *Ju-188 A* or a *JU-188 E*. Optional decal markings and color schemes are included to build any one of four different models. Some *Ju-188*'s had the upper turret removed from the canopy to lighten the plane and improve streamlining. An optional blank-out panel is included if you prefer to build a model without the turret. The modeler should refer to pages 6 and 7 and the insert page and decide which of these options he prefers before proceeding.

# 1 PARTS 1-38

## Preliminary Painting

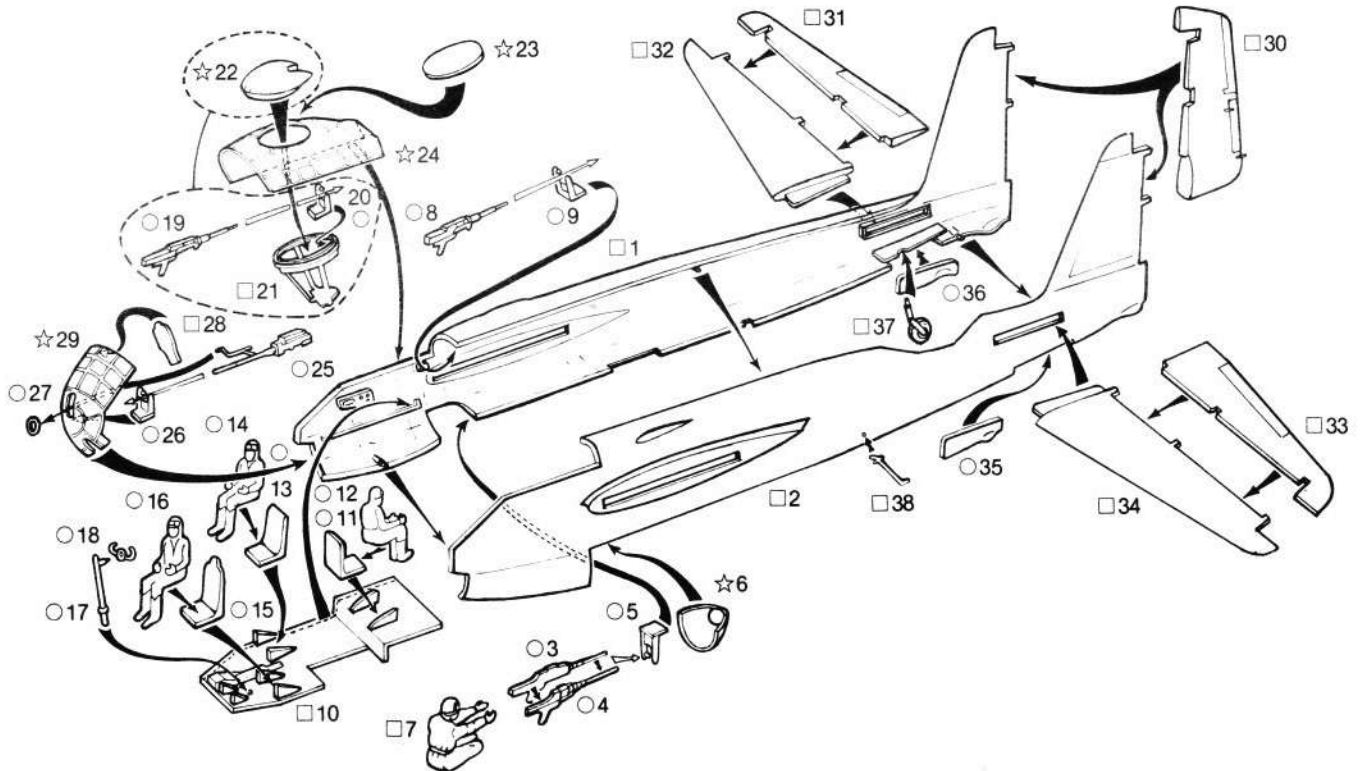
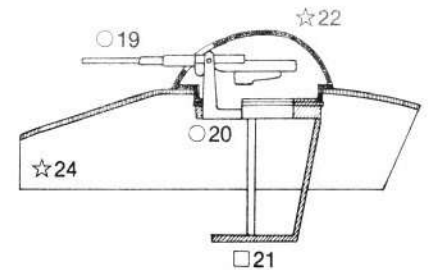
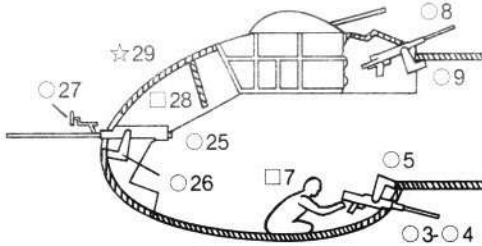
- 5, ○9, □10, ○11, ○13, ○15, ○17, ○18, ○20, □21, ○26, □28; □1, □2 inner walls of cockpit area; ○35, ○36 inner side only:
- 3, ○4, ○8, ○19, ○25: "Gun Metal" (mix 5 parts #1149 Flat Black, 5 parts #1172 Flat Sea Blue and 1 part #1146 Silver)
- 37: #1180 Steel with #1149 Flat Black tire
- 7, ○12, ○14, ○16 crew figures: #1166 Flat Military Brown suits with #1149 Flat Black boots, #1183 Rubber helmets and #1170 Flat Light Tan face and hands

**NOTE:** Clear parts are best glued in place with white glue which results in a better appearance than conventional cement.

## Assembly

- 1. Cement fuselage halves □1 and □2 together. Cement machine gun halves ○3 and ○4 together, then snap (*do not cement*) them into mount ○5. Glue mount ○5 into lower fuselage using cutaway diagram as a reference for positioning. Cement gunner □7 into fuselage. Snap (*do not cement*) machine gun ○8 into mount ○9, then cement ○9 to rear of cockpit as shown in cutaway.
- 2. Cement seats ○11, ○13 and ○15 onto floorboard □10 in positions shown in drawing. Cement crew figures ○12, ○14 and ○16 to seats if desired. Glue control wheel ○18 to control column ○17, then cement column to floor. Cement floor □10 into fuselage. Decide now whether you wish to build model with or without turret; for a model without turret, glue blanking disc ☆23 into canopy ☆24.

- 3. For a model with turret, snap (*do not cement*) machine gun ○19 into mount ○20, then cement ○20 to turret bucket □21, using cutaway drawing as a guide. Place (*do not cement*) turret bucket □21 into underside of canopy ☆24, then carefully glue turret ☆22 to □21. Do not get glue on canopy ☆24, or turret will not rotate.
- 4. Snap (*do not cement*) machine gun ○25 into mount ○26. Glue mount ○26 into nose glazing ☆29, using cutaway as a guide for positioning. Cement sight ring ○27 to machine gun ○25 as shown. Glue instrument panel □28 to underside of nose glazing ☆29. Glue ventral window ☆6, canopy ☆24 and nose glazing ☆29 to fuselage at positions shown on drawing.
- 5. Cement rudder □30 to rear end of fuselage. Cement right stabilizer □32 and right elevator □31 together, then cement to right side of fuselage. Cement left stabilizer □34 and left elevator □33 together, then glue to fuselage. Cement tail wheel doors ○35 and ○36 in place as shown. Glue tail wheel □37 inside wheel well, then cement antenna □38 to side of fuselage.



## 2 PARTS 39-87

### Preliminary Painting

- 39, ○41 interior of wheel well, □43, □44, □45, □46, □47, □48, □49, □50, □51, □52, □53, □54 inner sides only, □58, □62:
- “Black Gray 66” (mix 3 parts #1149 Flat Black and 2 parts #1163 Flat Battle Gray)
- 66, ○67, ○68, ○78, ○79, ○80:
- “Black Green 70” (mix 1 part #1149 Flat Black and 1 part #1171 Flat Beret Green)
- 55, ○56, ○57, ○59, ○60, ○61, □65, ○69, ○71; □74 exhaust stubs only:
- #1180 Steel
- 64, □63, □81:
- #1149 Flat Black

### Assembly

- 1. Cement wing halves ○39 and ○40 together, then cement wing halves ○41 and ○42 together and cement wings to fuselage as shown. Glue engine nacelle halves □43 and □44 together, then cement spacer disc ○43 B into nacelle, using diagram as a guide for position. Cement nacelle under right wing. Repeat procedure for left nacelle, using parts □45, ○45 B and □46.

- 2. Cement landing gear doors □47, □48, □49 and □50 into closed position on engine nacelles as shown in drawing. Cement doors □51, □52, □53 and □54 in open position at locations shown. Glue support strut ○56 to left landing gear strut ○55. Cement oleo scissor ○57 to front of strut as shown. Cement finished landing gear strut to gear support □58, then glue assembly to locator inside wheel well as shown. Repeat procedure for right landing gear, using parts ○59, ○60, ○61 and □62.
- 3. Cement main wheel halves □63 and □64 together, making one pair. Slip one wheel over each main gear axle and carefully cement one retainer hub □65 to the tip of each axle. Do not get cement on wheels, or wheels will not roll. Glue bomb aimer window ☆75 to underside of nose, then glue cable fender □76 to front of nose glazing. Cement loop antenna □77 to hole on underside of fuselage.

- 4. **Ju-188 E-1 ONLY:** Cement spinner ○66 to propeller ○67, then glue backing plate ○68 in place as shown. Slip (*do not cement*) the propeller shaft through front cylinder bank ○69, then glue retainer hub □70 to end of propeller shaft. Do not get cement on engine, or propeller will not spin. Cement ○69 to rear cylinder bank ○71. Place engine in cowling □73 as shown, then cement cowling halves □72 and □73 together. Glue finished engine to firewall □74. Build two engine assemblies, then glue to front of engine nacelles.

- 5. **Ju-188 A-2 ONLY:** Cement spinner ○78 to propeller ○79, then glue backing plate ○80 in place as shown. Slip (*do not cement*) the propeller shaft through radiator □81, then carefully cement retainer hub □82 to end of shaft. Do not get cement on radiator, or propeller will not spin. Cement radiator into cowling □83, then cement cowling halves □83 and □84 together. Glue intake scoop ○87 to hole in side of cowling, then cement engine to front of right engine nacelle. Repeat procedure for left engine, using parts ○78, ○79, ○80, □81, □82, □85, □86 and ○87.

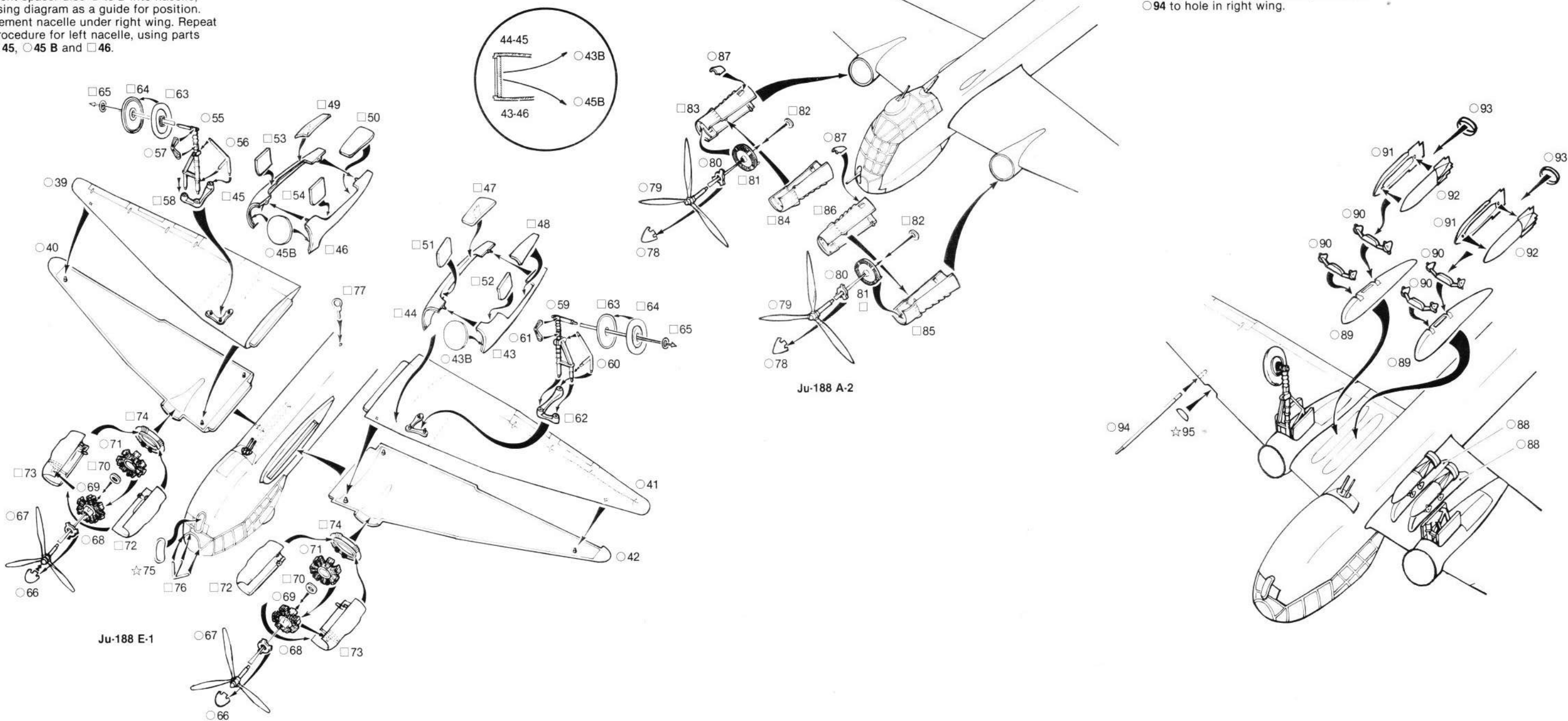
## 3 PARTS 88-95

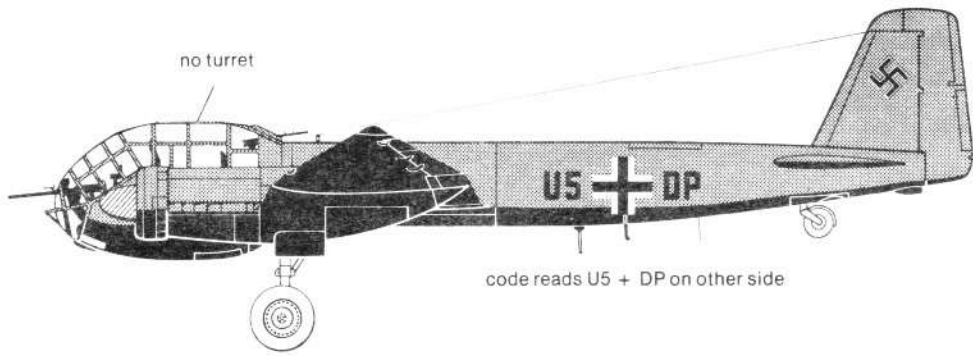
### Preliminary Painting

- 90:
- #1180 Steel
- 94 pitot tip only:
- #1146 Silver
- 91, ○92, ○93:
- Overall undersurface color or “RLM GRAY 02” (mix 3 parts #1163 Flat Battle Gray and 2 parts #1164 Flat O.D. Green)

### Assembly

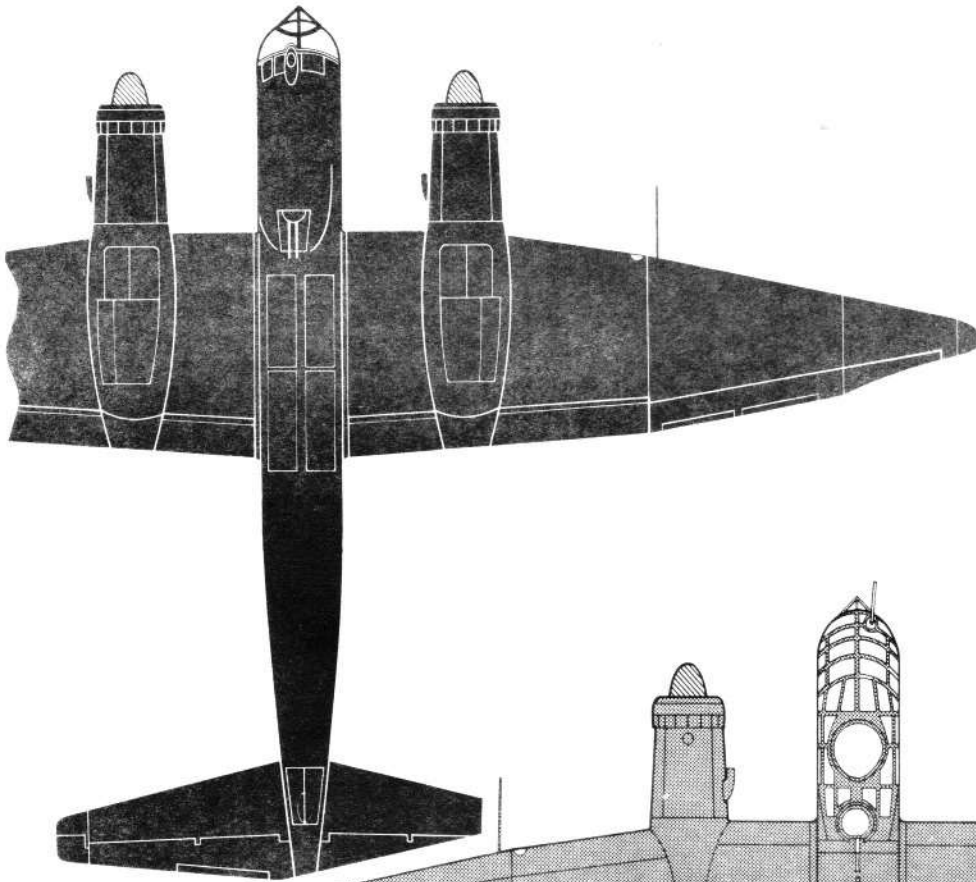
- 1. Cement left bomb racks ○89 to scribed positions under wing. Cement right bomb racks ○88 under right wing. Cement bomb release arms ○90 into notches under each bomb rack.
- 2. Cement bomb halves ○91 and ○92 together, then cement tail ring ○93 to tail fins of bomb. Make four bombs. Cement one bomb under each of the four bomb racks, or leave them off if you wish. Glue landing light ☆95 to notch in leading edge of wing. Cement pitot tube ○94 to hole in right wing.



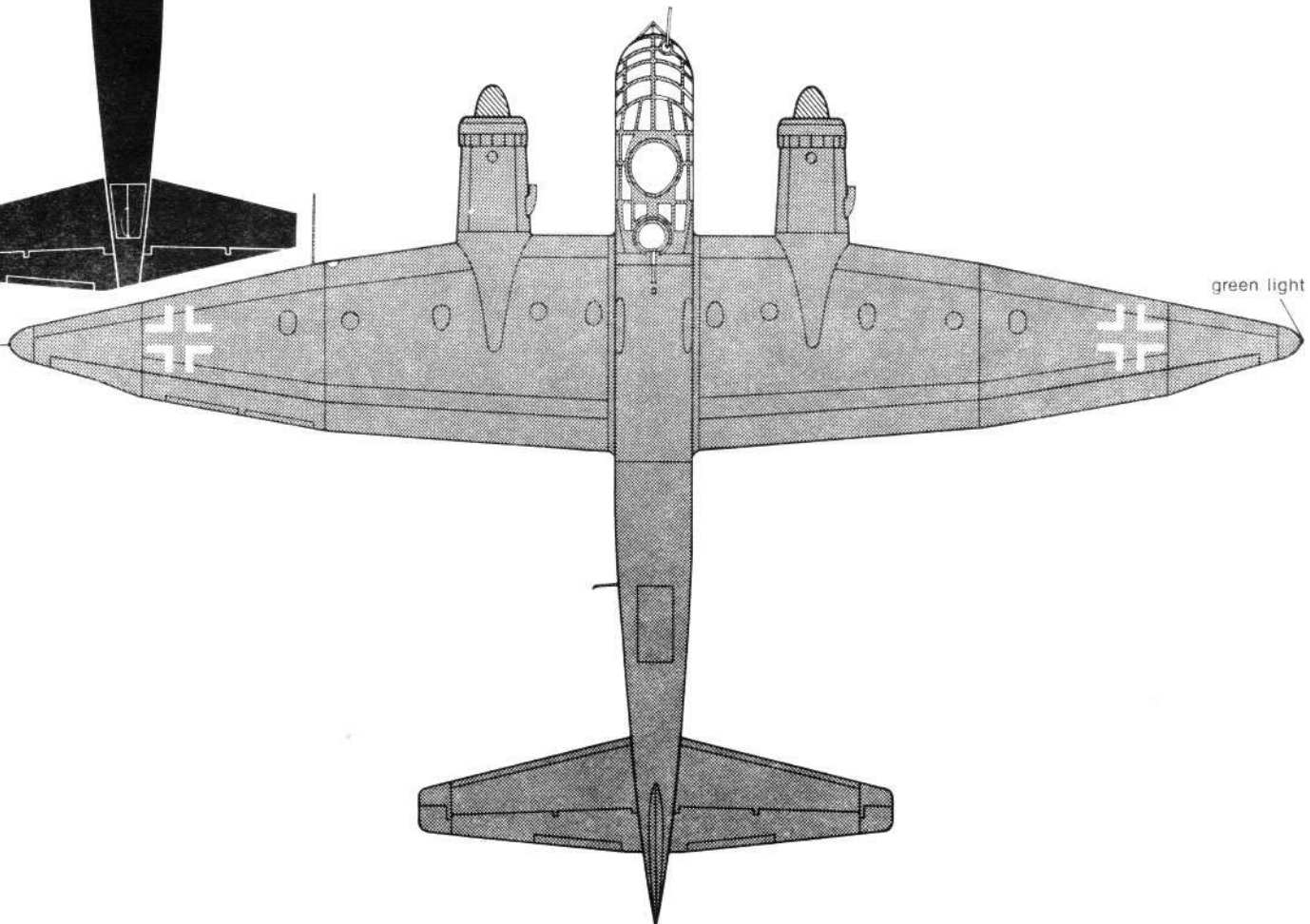


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Ju-188 A-2 KG2



red light



green light

### COLOR KEY



1. "Dark Gray 74" (mix 1 part #1163 Flat Battle Gray and 1 part #1149 Flat Black)



2. "Green 25" (mix 1 part #1171 Flat Beret Green, 1 part #1164 Flat O.D. Green and 2 parts #1168 Flat White)



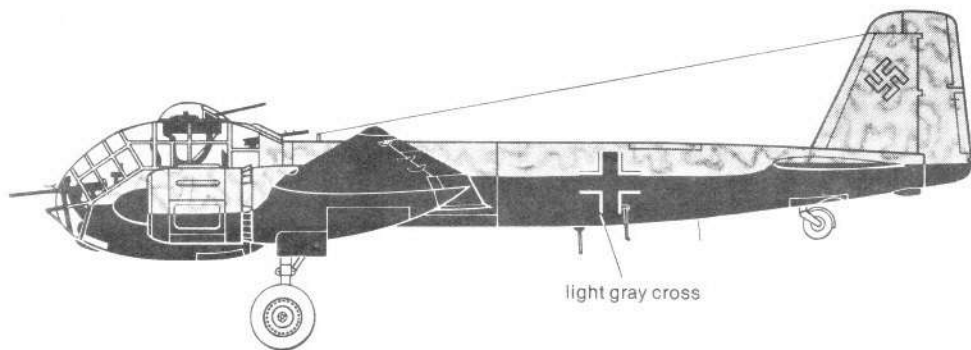
3. "Light Gray 76" with "Dark Gray 74" squiggle pattern (for "Light Gray 76") mix 35 parts #1168 Flat White, 2 parts #1162 Flat Sky Blue and 1 part #1163 Flat Battle Gray; see above for "Dark Gray 74")



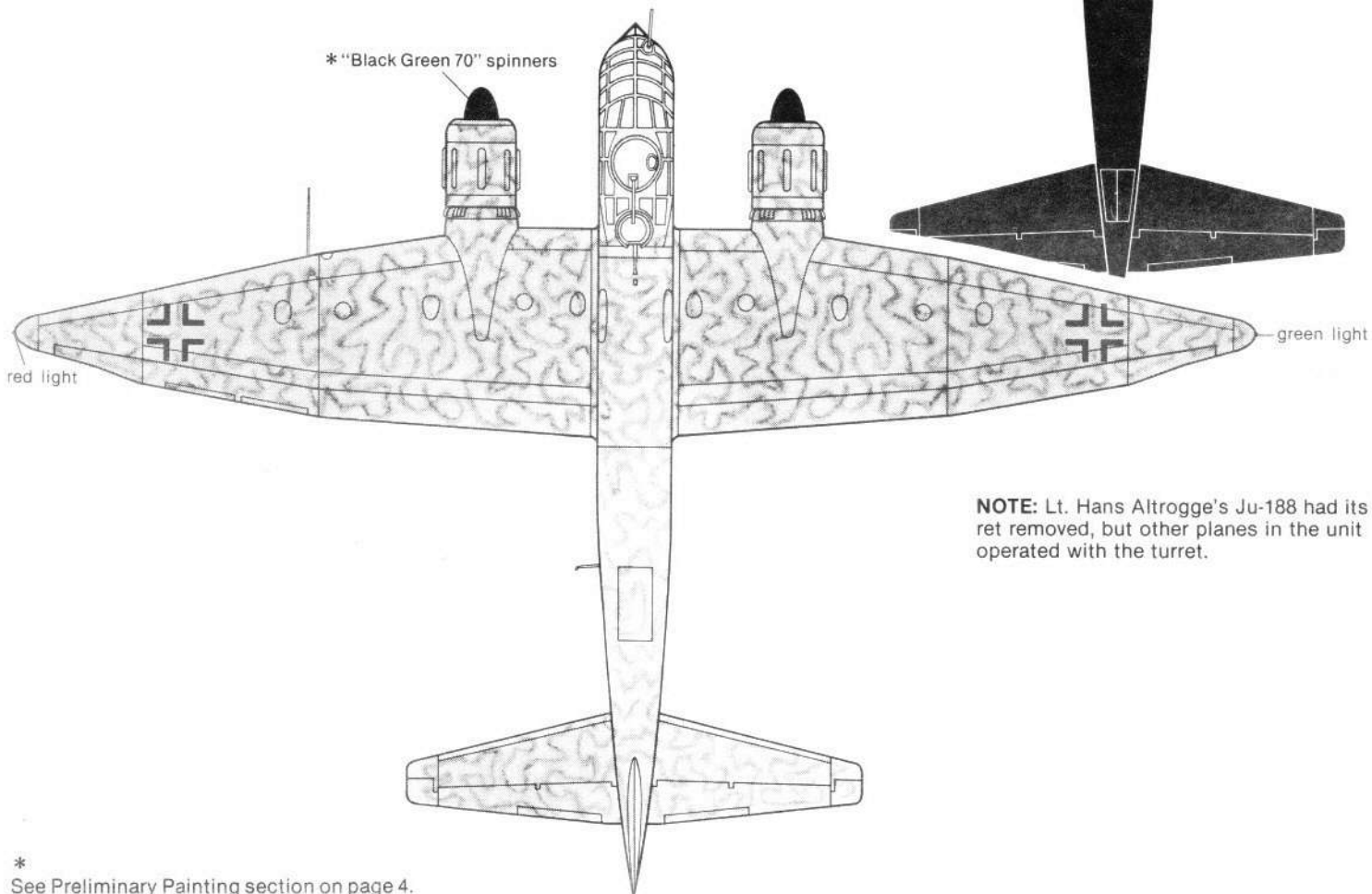
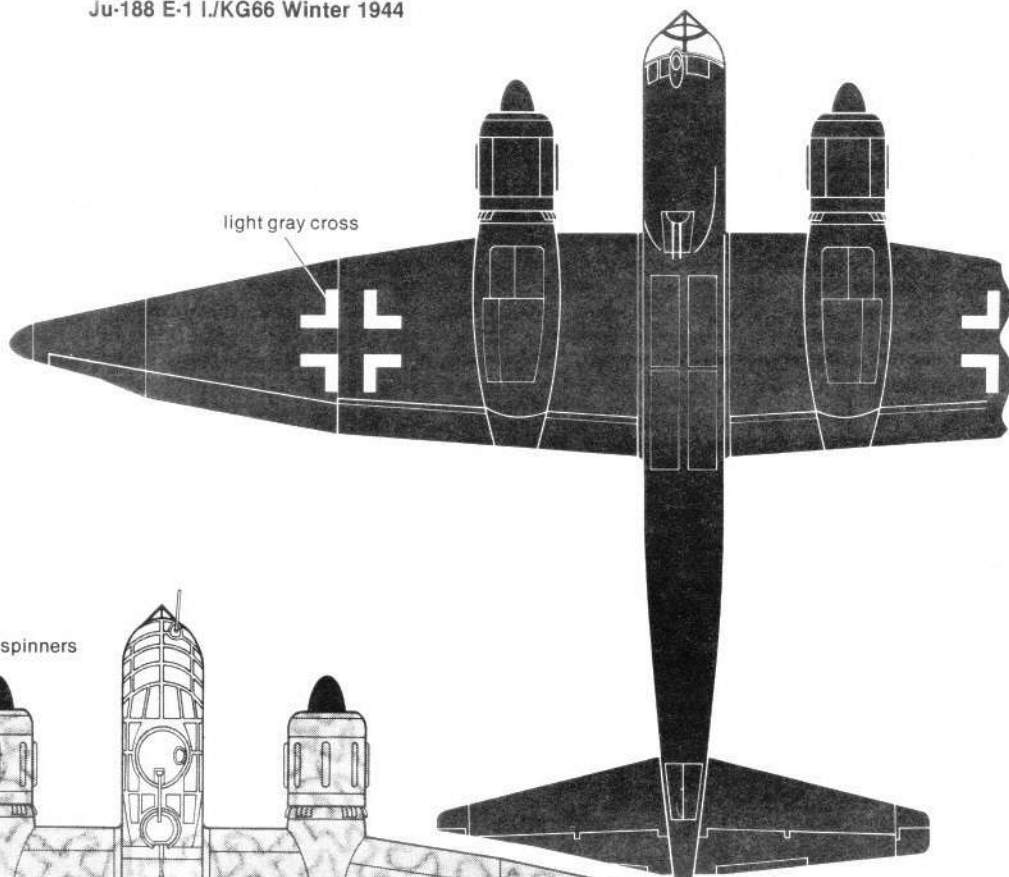
4. #1149 Flat Black

## APPLYING DECALS

1. After carefully masking canopy and other clear areas, spray entire model with Testor Glosscote #1261. Decals adhere best to a smooth surface and the shinier the finish, the smoother it is. Allow the Glosscote to dry thoroughly before going further.
2. Select the decals you plan to use, and cut each of them out from the decal sheet with small scissors or Testor Hobby Knife.
3. Working with only one decal at a time, dip the decal in clear water for no more than five seconds, then remove it from the water and place on a dry paper towel for about one minute.
4. When the decal slides easily on the backing paper, slide it to the edge of the paper and onto the surface of the model with a soft paintbrush or tweezers. Remember: the decals are very thin and can be easily ripped if care is not taken. Work slowly and patiently.
5. Once the decal is in the desired position, apply a small amount of Testor Decal Set #8804. This will help the decal to conform to any irregularities in the surface of the model (rivets, curves, etc.). Allow the decal to dry undisturbed. Should you find the decal has moved or should you desire to purposely move it, apply a little Decal Set to a soft brush and push the decal slowly into the desired position.
6. When the decals are completely dry (usually overnight), apply a coat of Testor Dullicote #1260 to the entire model. This will give it an authentic, dull finish and protect the surface of the model. Then carefully remove masking from canopy and other clear areas.



Ju-188 E-1 I./KG66 Winter 1944



**NOTE:** Lt. Hans Altrogge's Ju-188 had its turret removed, but other planes in the unit operated with the turret.

\* See Preliminary Painting section on page 4.

## WEATHERING HINTS

Nearly all military aircraft show some signs of wear. The process by which the modeler imparts this look to the model is referred to as weathering. Many times the weathering, that is, the representing on the model of soot, oil stains, or chipped paint, etc., can really make a model stand out and give it amazing authenticity.

After you have painted your model the proper colors, you can add the decals. If you first paint your model with Testor Glosscote, the decal carrier film will seem to disappear. Apply one or two coats of Glosscote for a smooth, glossy finish. Then, after the paint dries, apply the decals. This gives them a "painted on" look. If you want your model to have a matte finish, wait 24 hours for the decals to dry. Then spray on one or two coats of Testor Dullcote. After this dries, you can begin weathering.

Always try to be logical in applying weathering techniques. For instance, you wouldn't want to put exhaust stains on a model and then apply a bright clean decal to the sooty area. Airplanes are normally well cared for, so they don't usually appear very battered. However, soot stains do tend to collect behind exhaust stacks and sometimes oil leaks onto the outside of the plane. Paint chips sometimes appear on leading edges or where crew members or maintenance men walk across the plane. However, try to remember that any well kept plane would only show minimum amounts of wear.

There are two methods of showing exhaust stains. The first is with an airbrush. This is a rather expensive item and requires practice to get the right effect. The second method is by using soft artist pastels or charcoal in shades of gray or black. Begin by grinding this material into a fine powder. Apply the powder to the model by rubbing it on with an old paint brush. Apply the color thicker and blacker near the exhaust outlet, and feather it out as it gets further away from the outlet. You should practice this on an old model or on a scrap of paper before trying it on your model. This technique is not very permanent, so it is a good idea to give your model a coat or two of Testor Dullcote to avoid rubbing off the stains.

Oil stains should be done very subtly. Oil really has very little color, so it only leaves light stains. Tint a small amount of thinner lightly with black paint. Add a small drop to the area you want to appear oily. Now with a strong breath, blow the "oil" back along the plane. Keep in mind the direction in which the plane flies, making sure you are blowing the "oil" from front to back. It is very easy to overdo this, so remember, one or two places are usually enough.

Paint chips are the simplest technique, but like the others, are easily overdone. An average military plane wouldn't have very many chips. They usually appear on the cutting edges of the propeller blades, the leading edges of wings and flying surfaces, and any areas where crew members or mechanics walk across the plane (i.e., wing roots). Use #1181 Testor Aluminum for paint chips, applying with a fine pointed brush. With a very little amount of paint on the brush, apply the chips in small dots, the smaller the better. Large amoeba shaped chips look too obtrusive. Be wary of fabric covered control surfaces though; they don't chip.

Experienced modelers do several things to aid them in their hobby. One of the most helpful is attending meetings of their local International Plastic Modeling Society chapter. Here they see and discuss modeling techniques. Your local hobby shop will help you locate your local I.P.M.S. group. Serious modelers also collect books and photographs to use as reference when they finish their models. Again, your local hobby shop can help. Last, but certainly not least, your own observation will prove helpful. Visit museums. Look at buildings and vehicles around you. Notice how rust streaks a metal roof. See the oil and dirt on a piece of road grading equipment. Study railroad boxcars and locomotives to see what the weather has done to them. Your own observation can be the best aid of all.

Remember: try not to overdo weathering — and *keep practicing*. Be patient, it takes time to discover and master all the tricks of this fascinating hobby.

## SPECIAL NOTE

In our efforts to give the modeler the most accurate model possible, we have included German swastika markings on our painting guides and decal sheet. It is not our intention to glorify Nazism or its causes, but only to present an historically accurate model. It is left up to the individual to use or discard these decals.

Those who are familiar with Luftwaffe aircraft may be surprised to find some of the colors mentioned throughout this instruction sheet. The last few years have uncovered vast amounts of hitherto unknown data on Luftwaffe painting practices. We have strived to give the modeler the most accurate guide possible. Any questions regarding these colors and their applications may be answered by the excellent Kookaburra Publication mentioned in the Reference Sources section on page 1.

## COLOR KEY



1. "Light Blue 65" (mix 20 parts #1168 Flat White, 3 parts #1162 Flat Sky Blue and 1 part #1165 Flat Army Olive)



2. "Light Gray 76" (mix 35 parts #1168 Flat White, 2 parts #1162 Flat Sky Blue and 1 part #1163 Flat Battle Gray)



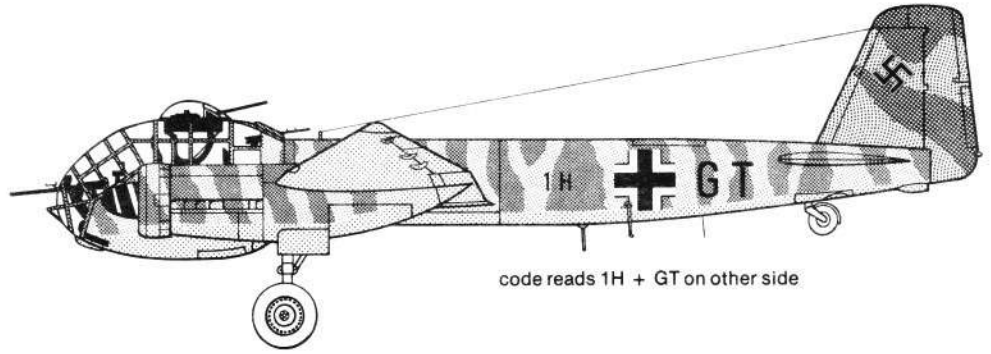
3. "Dark Gray 74" (mix 1 part #1163 Flat Battle Gray and 1 part #1149 Flat Black)



4. "Brown-Violet 81" (mix 5 parts #1183 Rubber, 3 parts #1164 Flat O.D. Green and 1 part #1166 Flat Military Brown)

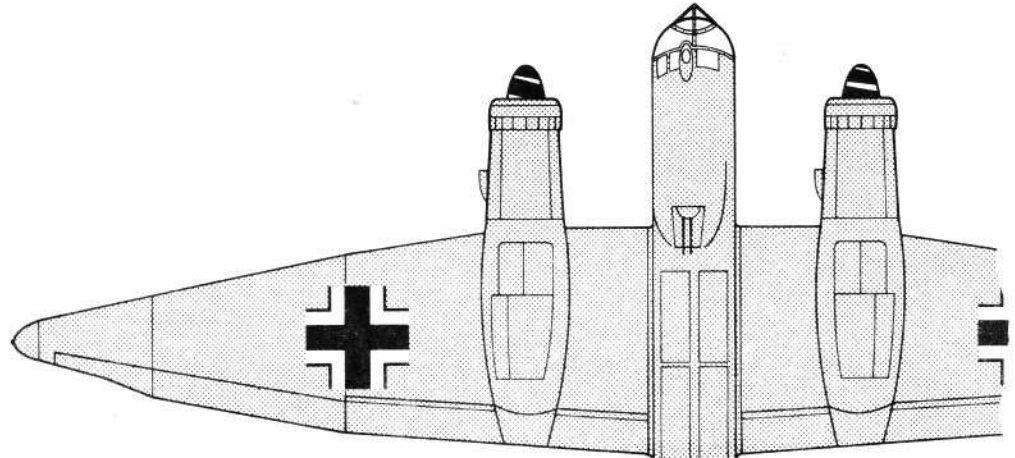


5. "Light Green 83" (#1164 Flat O.D. Green)

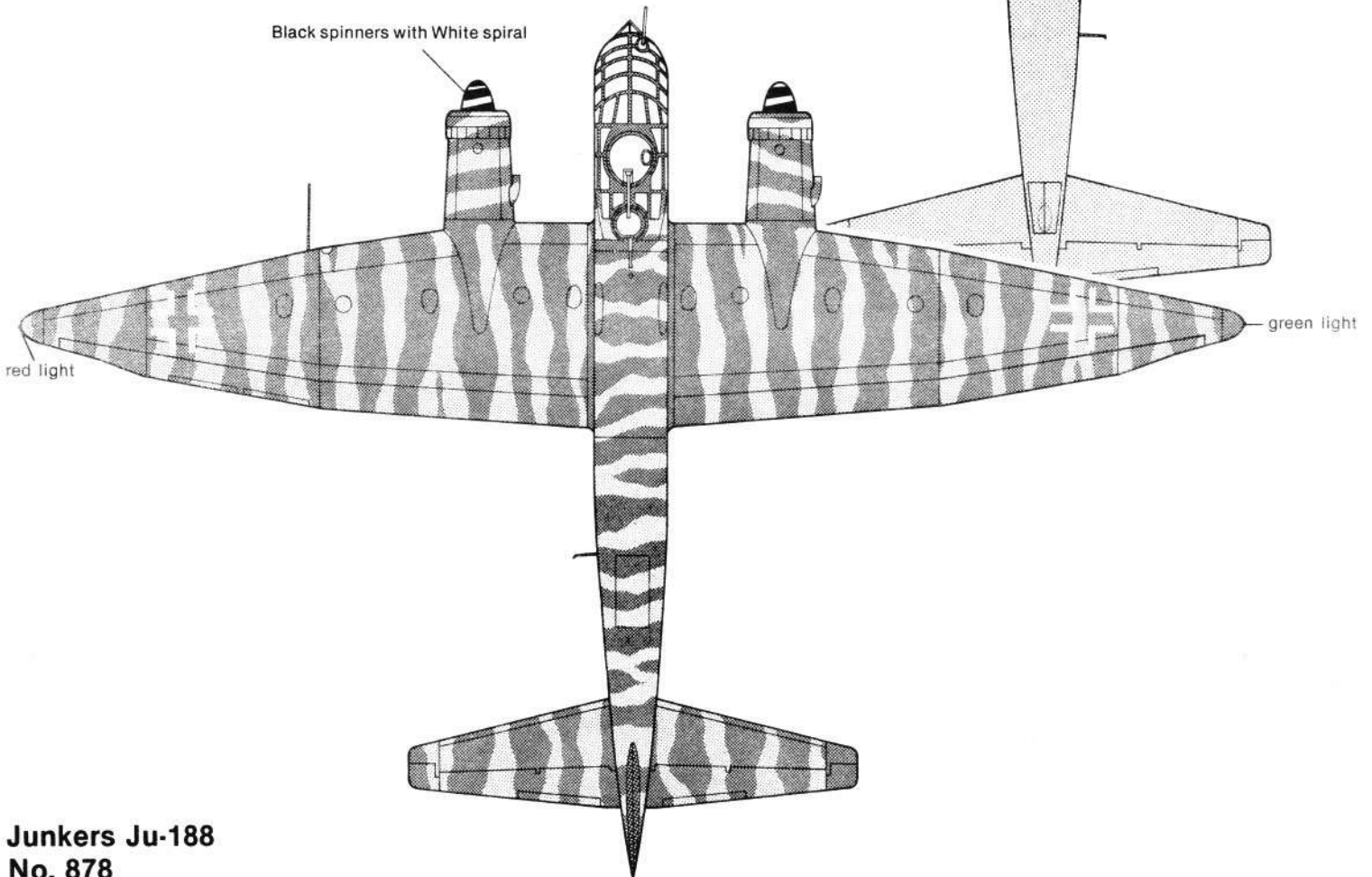


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Ju-188 A-2 9/JKG26 Fall 1944



Black spinners with White spiral





**COLOR KEY**



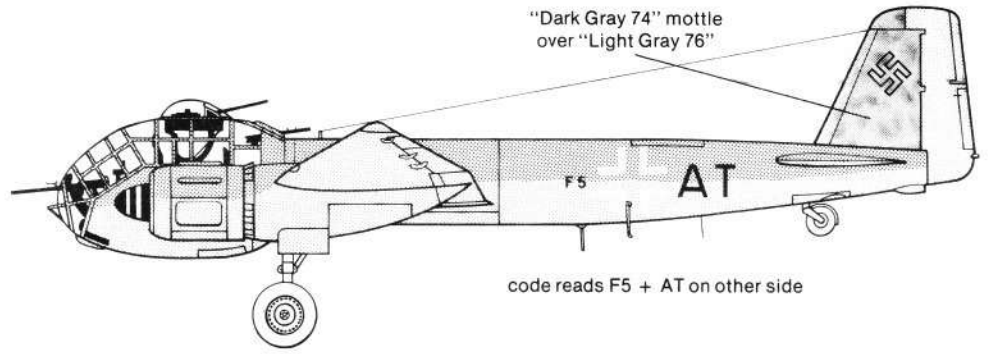
- 1. "Dark Gray 74" (mix 1 part #1163 Flat Battle Gray and -1 part #1149 Flat Black)



- 2. "Gray 75" (mix 18 parts #1163 Flat Battle Gray, 2 parts #1162 Flat Sky Blue and 1 part #1150 Flat Red)

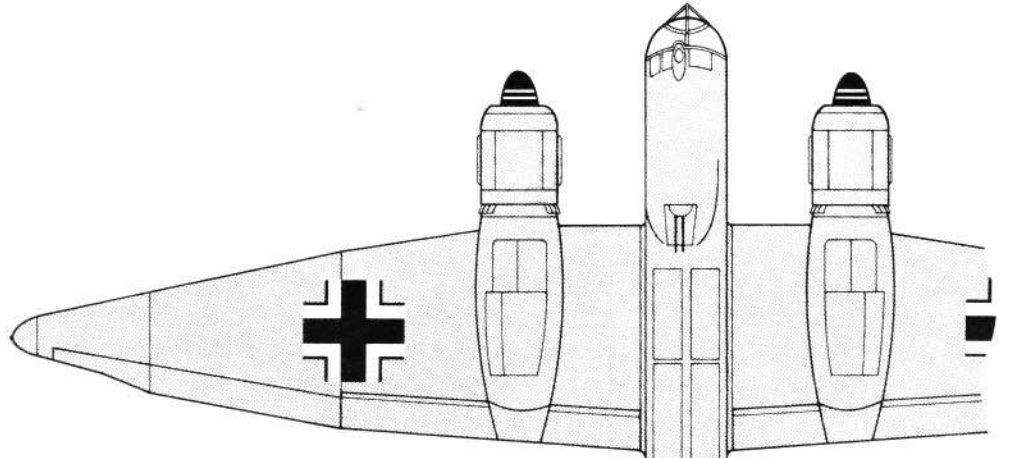


- 3. "Light Gray 76" (mix 35 parts #1168 Flat White, 2 parts #1162 Flat Sky Blue and 1 part #1163 Flat Battle Gray)

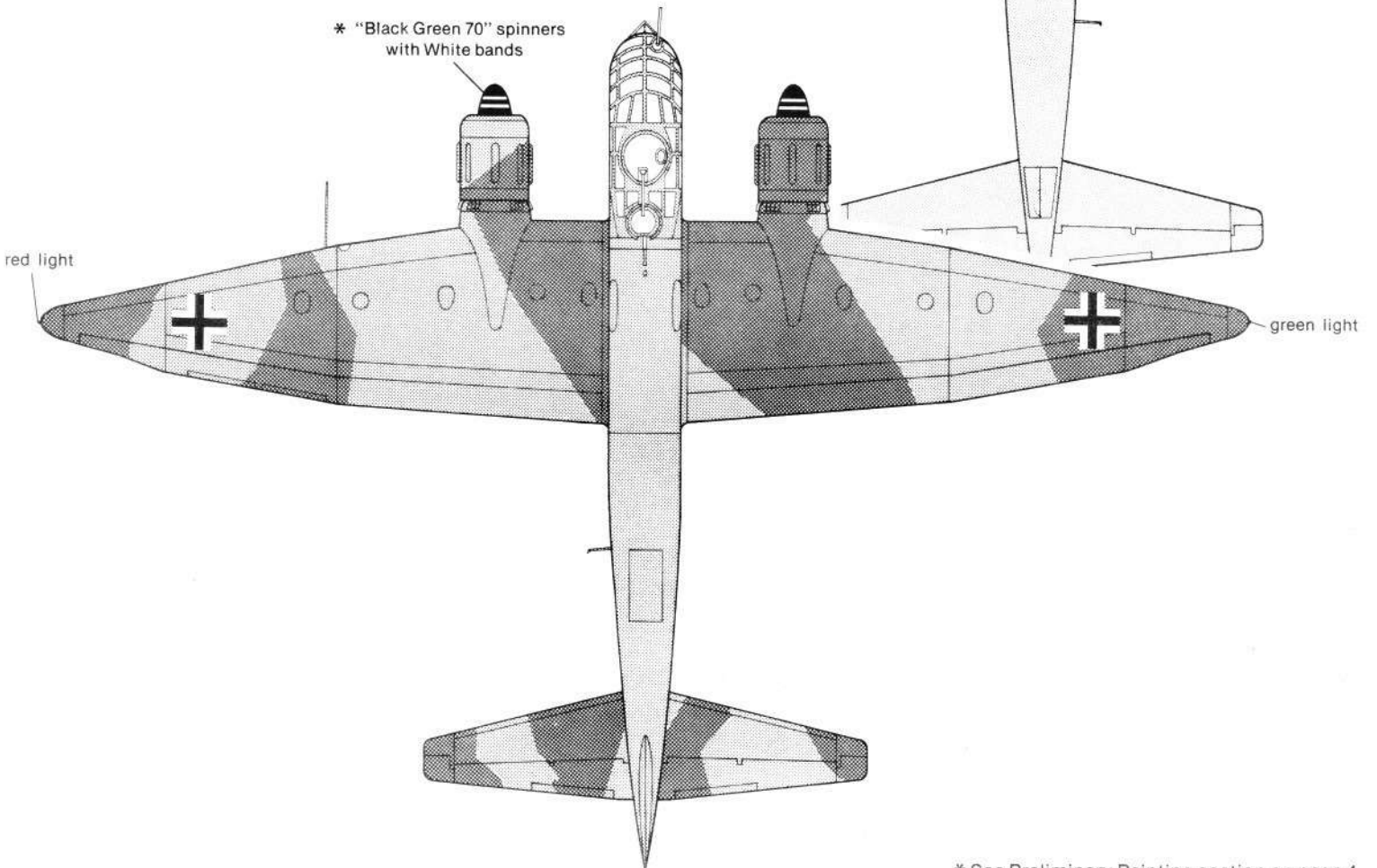


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**Ju-188 E-1 unit unknown**

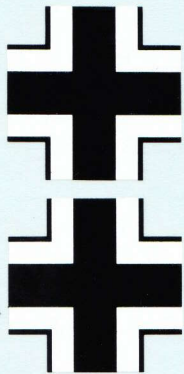


\* "Black Green 70" spinners with White bands

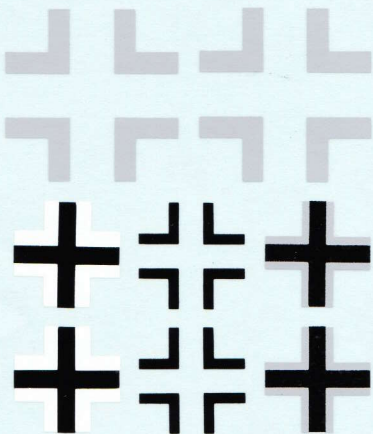


\* See Preliminary Painting section on page 4.

1H 1H



AT AT  
AT AT



F5 DP    

F5 DP U5  

GTGT

**TESTORS**  
ITALAEREI

N.878 Junkers Ju 188

MICRO SCALE DECAL