

**Schnellbaukasten**  
Quickie-Kit / Boîte de construction rapide

Bestell-Nr. / Ident.-No. / Réf. No. **9405**

Bogen / Sheet / Feuille **1**

Ident.-No. **0059002**

**GRAUPNER**

*Schnellbau-Plan*

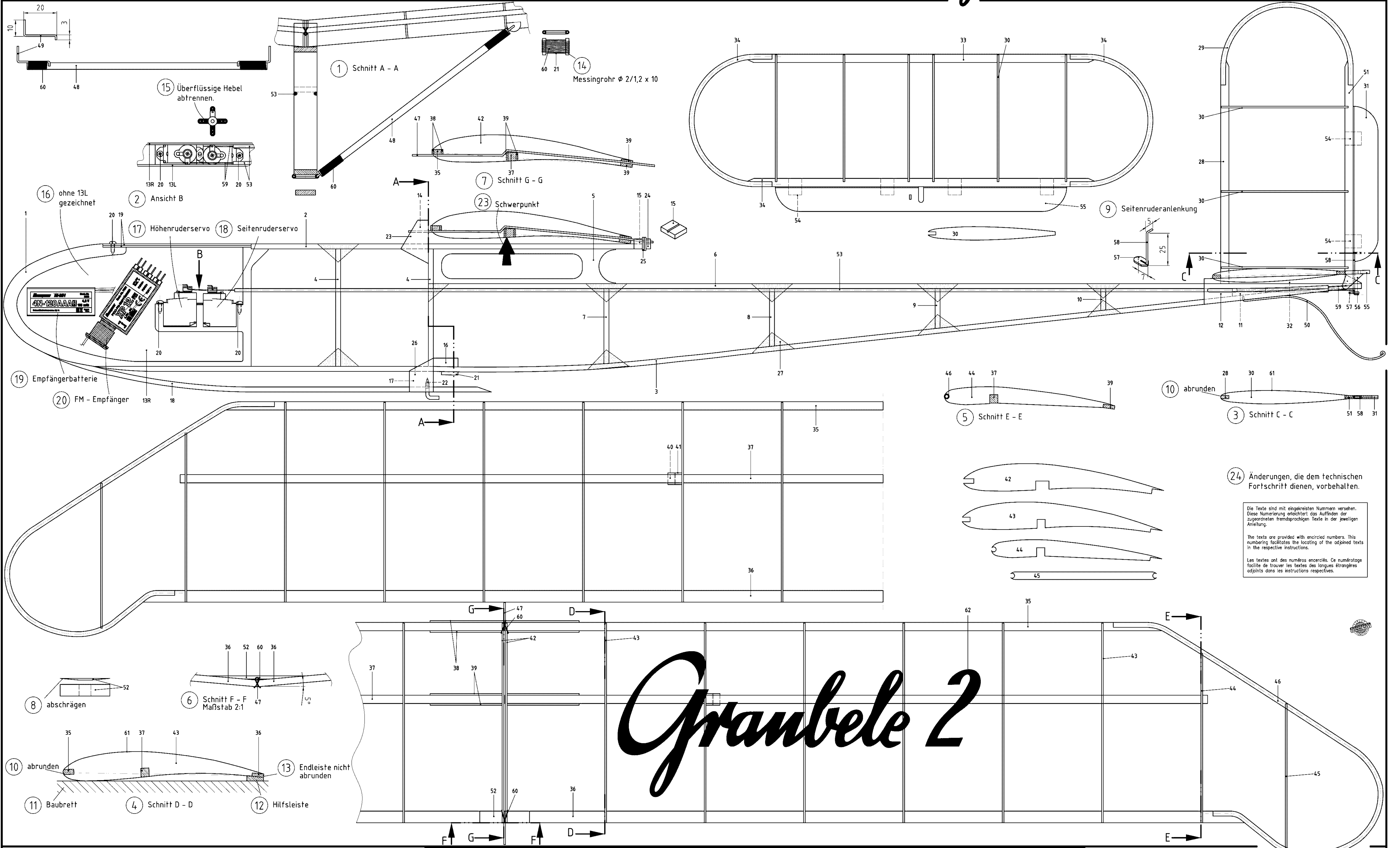
*Granbele 2*

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*Granbele 2*

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| Ident.-No.  | <b>0059003</b> |

# GRAUPNER

# Schnellbau-Plan

# Graubele 2

|   |                |
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| <b>Schnellbaukasten</b><br>Quickie-Kit / Boîte de construction rapide |                |
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| Ident.-No.  | <b>0059003</b> |

Bitte unbedingt die folgenden Sicherheitshinweise beachten. Sofern das Modell an eine andere Person weitergegeben wird, müssen diese Sicherheitshinweise, bzw. die komplette Bauanleitung zur Beachtung weitergegeben werden.

**Sicherheitshinweise**  
Für den Betrieb Ihres Flugmodells benötigen Sie eine gültige Haftpflichtversicherung, dies ist vom Gesetzgeber so vorgeschrieben.  
Vor dem Versuch der ersten Inbetriebnahme muss die gesamte Betriebs- bzw. Bauanleitung sorgfältig gelesen werden. Sie alleine sind verantwortlich für den sicheren Betrieb Ihres RC-Flugmodells. Bei Jugendlichen muss der Bau und Betrieb von einem Erwachsenen, der mit den Gegebenheiten und möglichen Gefahren eines RC-Flugmodells vertraut ist, verantwortlich überwacht werden.

Rechtlich gesehen, ist ein Flugmodell ein Luftfahrzeug und unterliegt entsprechenden Gesetzen, die unbedingt eingehalten werden müssen. Die Broschüre »Modellflugrecht, Paragrafen und mehr«, Best.-Nr. 8034.02 stellt eine Zusammenfassung dieser Gesetze dar; sie kann auch beim Fachhandel eingesehen werden. Ferner müssen postalische Auflagen für die Fernlenkanlage beachtet werden. Entsprechende Hinweise finden Sie in der Bedienungsanleitung Ihrer Fernsteueranlage.

Es dürfen nur die in dem Bausatz enthaltenen Teile, sowie die ausdrücklich von uns empfohlenen Original-Graupner-Zubehör- und Ersatzteile verwendet werden. Wird eine Komponente der Antriebseinheit geändert, ist ein sicherer Betrieb nicht mehr gewährleistet und es erlischt jeglicher Garantieanspruch.

**Kurzschlüsse und Falschpolungen vermeiden.**  
Durch die hohe Energie der Batterien besteht Explosions- und Brandgefahr.

Ein RC-Flugmodell kann nur funktionsfähig sein und den Erwartungen entsprechen, wenn es im Sinne der Bauanleitung sorgfältigst gebaut wurde. Nur ein vorsichtiger Umgang beim Betrieb schützt vor Personen- und Sachschäden. Niemand würde sich in ein Segelflugzeug setzen und - ohne vorausgehende Schulung - versuchen, damit zu fliegen. Erfolgreiches Modellfliegen erfordert ebenso eine Ausbildungs- bzw. Übungsphase.  
Der Hersteller hat jedoch keine Möglichkeit, den Bau und den Betrieb eines RC-Flugmodells zu beeinflussen. Deshalb wird hiermit auf die Gefahren nachdrücklich hingewiesen und jede Haftung dafür abgelehnt.

Bitte wenden Sie sich dazu an erfahrene Modellflieger, an Vereine oder Modellflugschulen. Ferner sei auf den Fachhandel und die einschlägige Fachpresse verwiesen. Am besten als Club-Mitglied auf zugewiesenen Modellflugplatz fliegen.

**Klebstoffe enthalten Inhaltsstoffe, die unter Umständen gesundheitsschädlich sein können. Beachten Sie daher unbedingt auch die entsprechenden Hinweise und Warnungen der Hersteller.**

Der Betreiber muss im Besitz seiner vollen körperlichen und geistigen Fähigkeiten sein. Wie beim Autofahren, ist der Betrieb des Flugmodells unter Alkohol oder Drogeneinwirkung nicht erlaubt.

Informieren Sie Passanten und Zuschauer vor der Inbetriebnahme über Gefahren, die von Ihrem Modell ausgehen und ermahnen Sie diese, sich in ausreichendem Schutzabstand aufzuhalten.

Stets mit dem notwendigen Sicherheitsabstand zu Personen oder Hindernissen fliegen, nie Personen überfliegen oder auf sie zuliegen!  
Modellflug darf nur bei Außentemperaturen von -5°C bis +35°C betrieben werden. Extreme Temperaturen können zu Veränderungen der Batteriekapazität, der Werkstoffeigenschaften sowie z. B. zu mangelhaften Klebeverbindungen u.s.w. führen.

Jeder Modellflieger hat sich so zu verhalten, dass die öffentliche Sicherheit, insbesondere andere Personen und Sachen, sowie der Ablauf des Modellflugbetriebs nicht gefährdet oder gestört wird.  
Das Flugmodell niemals in der Nähe von Hochspannungsleitungen, Industriegebäuden, in Wohngebieten, öffentlichen Straßen, Schulhöfen oder Spielplätzen usw. fliegen lassen.

Überprüfung vor dem Start  
Vor jedem Einsatz korrekte Funktion überprüfen. Dazu den Sender einschalten, ebenso den Empfänger. Senderantenne ausziehen, kontrollieren ob alle Ruder in Neutrallage stehen, einwandfrei funktionieren und selbstständig ausschlagen. Diese Überprüfung bei laufendem Motor wiederholen, während ein Helfer das Modell festhält.

Beim erstmaligen Steuern eines Flugmodells ist es von Vorteil, wenn ein erfahrener Helfer bei der Überprüfung und den ersten Flügen zur Seite steht.

Warnungen müssen unbedingt beachtet werden. Sie beziehen sich auf Dinge und Vorgänge, die bei einer Nichtbeachtung zu schweren - in Extremfällen tödlichen Verletzungen oder bleibenden Schäden führen können.

Luftschrauben die durch einen Motor angetrieben werden, stellen eine ständige Verletzungsgefahr dar. Sie dürfen mit keinem Körperteil berührt werden! Eine schnell drehende Luftschraube kann z. B. einen Finger einschneiden!

Sich niemals in oder vor der Drehebene von Luftschrauben aufhalten! Es könnte sich doch einmal ein Teil davon oder die komplette Luftschraube lösen und mit hoher Geschwindigkeit und viel Energie wegfliegen und Sie oder Dritte treffen. Dies kann u. U. zu schweren Verletzungen führen - Darauf achten, dass kein sonstiger Gegenstand mit einer laufenden Luftschraube in Berührung kommt!

Die Blockierung der Luftschraube, durch irgendwelche Teile, muss ausgeschlossen sein.

Überprüfen Sie vor jeder Inbetriebnahme das Modell und alle an ihm gekoppelten Teile (z. B. Luftschrauben, RC-Teile usw.) auf festen Sitz und mögliche Beschädigungen. Das Modell darf erst nach Beseitigung aller Mängel in Betrieb genommen werden.

Vergewissern Sie sich, dass die verwendete Sender-Frequenz frei ist. Erst dann den Sender einschalten! Funkstörungen, verursacht durch Unbekanntes, können stets ohne Vorwarnung auftreten! Das Modell ist dann steuerlos und unberechenbar! Fernlenkanlage nicht unbeaufsichtigt lassen, um ein Betätigen durch Dritte zu verhindern.

Elektromotor nur einschalten, wenn nichts im Drehbereich der Luftschraube ist. Nicht versuchen, die laufende Luftschraube anzuhalten. Elektromotor mit Luftschraube nur im eingebauten Zustand betreiben.

Die Fluglage des Modells muss während des gesamten Fluges immer eindeutig erkennbar sein, um immer ein sicheres Steuern und Ausweichen zu gewährleisten. Machen sich während des Fluges Funktionsbeeinträchtigungen/Störungen bemerkbar, muss aus Sicherheitsgründen sofort die Landung eingeleitet werden. Sie haben anderen Luftfahrzeugen stets auszuweichen. Start- und Landeflächen müssen frei von Personen und sonstigen Hindernissen sein.

Immer auf vollgeladene Batterien achten, da sonst keine einwandfreie Funktion

der RC-Anlage gewährleistet ist. Niemals mit defekten, defekten oder beschädigten Batterien verwenden. Es sind stets die Gebrauchsvorschriften des Batterieherstellers zu beachten.

Vor jedem Flug eine Überprüfung der kompletten RC-Anlage, sowie des Flugmodells, auf volle Funktionstüchtigkeit und Reichweite durchführen. Dabei ist zu beachten, dass bei der Inbetriebnahme die Motorsteuerfunktion am Sender immer zuerst in AUS-Stellung gebracht wird. Danach Sender und dann erst Empfangsanlage einschalten, um ein unkontrolliertes Anlaufen des Elektromotors zu vermeiden. Gleichfalls gilt immer zuerst Empfangsanlage ausschalten, danach erst den Sender. Überprüfen Sie, dass die Ruder sich entsprechend der Steuerknüppelbetätigung bewegen.

Nach Gebrauch die Batterie aus dem Modell nehmen und nur im entladenen Zustand für Kinder unzugänglich, bei ca. +5° bis +25° C aufbewahren.

Mit diesen Hinweisen soll auf die vielfältigen Gefahren hingewiesen werden, die durch unsachgemäße und verantwortungslose Handhabung entstehen können. Richtig und gewissenhaft betrieben ist Modellflug eine kreative, lehrreiche und erholsame Freizeitgestaltung.

**Herstellereklärung:**  
Sollten sich Mängel an Material oder Verarbeitung an einem von uns in der Bundesrepublik Deutschland verteilten, durch einen Verbraucher (§ 13 BGB) erworbenen Gegenstand zeigen, übernehmen wir, die Fa. Graupner GmbH & Co KG, D-73230 Kirchheim/Teck im nachstehenden Umfang die Mängelbeseitigung für den Gegenstand.  
Rechte aus dieser Herstellereklärung kann der Verbraucher nicht geltend machen, wenn die Beeinträchtigung der Brauchbarkeit des Gegenstandes auf natürlicher Abnutzung, Einsatz unter Wettbewerbsbedingungen, unsachgemäßer Verwendung (einschließlich Einbau) oder Einwirkung von Luftverunreinigung (einschließlich Regen) zurückzuführen ist.  
Diese Herstellereklärung lässt die gesetzlichen oder vertraglich eingeräumten Mängelansprüche und -rechte des Verbrauchers aus dem Kaufvertrag gegenüber seinem Verkäufer (Händler) unberührt.

**Umfang der Garantieleistung**  
Im Garantiefall leisten wir nach unserer Wahl Reparatur oder Ersatz der mangelbehafteten Ware. Weitergehende Ansprüche, insbesondere Ansprüche auf Erstattung von Kosten im Zusammenhang mit dem Mangel (z.B. Ein-/Ausbaukosten) und der Ersatz von Folgekosten sind - soweit gesetzlich zugelassen - ausgeschlossen. Ansprüche aus gesetzlichen Regelungen, insbesondere nach dem Produkthaftungsgesetz, werden hierdurch nicht berührt.

**Voraussetzung der Garantieleistung**  
Der Käufer hat den Garantieanspruch schriftlich unter Beifügung des Originals des Kaufbelegs (z.B. Rechnung, Quittung, Lieferschein) und dieser Garantiekarte geltend zu machen. Er hat zudem die defekte Ware auf seine Kosten an die o.g. Adresse einzusenden.  
Der Käufer soll dabei den Material- oder Verarbeitungsfehler oder die Symptome des Fehlers so konkret benennen, dass eine Überprüfung unserer Garantiefähigkeit möglich wird.  
Der Transport des Gegenstandes vom Verbraucher zu uns als auch der Rücktransport erfolgen auf Gefahr des Verbrauchers.

**Gültigkeitsdauer**  
Diese Erklärung ist nur für während der Anspruchsfrist bei uns geltend gemachten Ansprüche aus dieser Erklärung gültig. Die Anspruchsfrist beträgt 24 Monate ab Kauf des Gerätes durch den Verbraucher bei einem Händler in der Bundesrepublik Deutschland (Kaufdatum). Werden Mängel nach Ablauf der Anspruchsfrist angezeigt oder die zur Geltendmachung von Mängeln nach dieser Erklärung geforderten Nachweise oder Dokumente erst nach Ablauf der Anspruchsfrist vorgelegt, so stehen dem Käufer keine Rechte oder Ansprüche aus dieser Erklärung zu.

**Verjährung**  
Soweit wir einen innerhalb der Anspruchsfrist ordnungsgemäß geltend gemachten Anspruch aus dieser Erklärung nicht anerkennen, verjähren sämtliche Ansprüche aus dieser Erklärung in 6 Monaten vom Zeitpunkt der Geltendmachung an, jedoch nicht vor Ende der Anspruchsfrist.

**Anwendbares Recht**  
Auf diese Erklärung und die sich daraus ergebenden Ansprüche, Rechte und Pflichten findet ausschließlich das materielle deutsche Recht ohne die Normen des Internationalen Privatrechts sowie unter Ausschluss des UN-Kaufrechts Anwendung.

**Allgemeines**  
Das Modell GRAUBELE 2 ist ein Antik-RC-Flugmodell, das an die Anfangszeit des Flugmodellbaus erinnert. Das Originalmodell Graubele 2 war eines der ersten Flugmodelle im Lieferprogramm der Firma Graupner. Der Bausatz darf erscheinend bereits 1936, zu dieser Zeit wurde noch kein Balsaholz als Werkstoff eingesetzt und Flugmodelle waren nahezu ausnahmslos als Freiflugmodelle ausgelegt.  
Die Neuauflage des GRAUBELE 2 kann mit handelsüblichen Fernsteuerkomponenten als RC-Modell ausgestattet werden. Die Konstruktion des Originalmodells ist kaum geändert, lediglich die Rumpfbreite musste um einige Millimeter vergrößert werden, damit die RC-Komponenten Platz finden. Die Ruderfunktionen sind für geringfügige Kurskorrekturen vorgesehen. Größere Ruderflächen mit großer Rudereffektivität würden den Freiflugcharakter des Modells verfehlen. Zur Information liegt ein Nachdruck des Originalbauplanes von 1936 bei.  
RC-Zubehör (nicht enthalten)  
Zur Steuerung des Modells sind FM-Fernsteueranlagen ab X-306 bis MC-24 geeignet. Weitere Informationen über RC-Zubehöreile sind dem GRAUPNER Hauptkatalog FS zu entnehmen.

|  |                |
|--|----------------|
| FM Fernlenkset X-306 FM 35*  | Best.-Nr. 4708 |
| *Frequenzband 35 MHz in Deutschland ausschließlich für Flugmodelle reserviert. |                |
| Senderladekabel  | Best.-Nr. 3022 |
| Empfängerladekabel   | Best.-Nr. 3021 |
| Ladegerät MULTILADER 7E  | Best.-Nr. 6455 |
| Servo C131 (2 Stück erforderlich)  | Best.-Nr. 7121 |
| Empfänger XP 12 FM   | Best.-Nr. 7012 |
| Empfängerbatterie 4N-120 AAA 4,8 V/120 mAh                                     | Best.-Nr. 2583 |

|   |                   |
|---|-------------------|
| Zubehör (nicht enthalten)   |                   |
| Trimmgewichte   | Best.-Nr. 536     |
| Gummi-Hochstarteinrichtung  | Best.-Nr. 235     |
| Erforderliche Werkzeuge, Klebstoffe und Lacke (nicht enthalten)   |                   |
| System Baubret  | Best.-Nr. 645     |
| Balsamesser   | Best.-Nr. 990     |
| Laubsägegarnitur  | Best.-Nr. 823     |
| Stoßnadeln  | Best.-Nr. 717     |
| Lackierpinsel   | Best.-Nr. 208     |
| UHU hart  | Best.-Nr. 534 10  |
| Sekundenkleber  | Best.-Nr. 5821    |
| Aktivator für Sekundenkleber  | Best.-Nr. 953.150 |
| Spannfix-Lack   | Best.-Nr. 1408.1A |
| Spannfix-Verdünnung   | Best.-Nr. 1408    |
| Wetterhin wird benötigt: Seitenschneider, Flachzange, Schraubendreher, Papierschere, Bleistift, Lineal, Klebband, Klarsichtfolie, Wassersprühflasche. |                   |

**Bauanleitung**  
Auf das zu bespannende Teil aufliegen und faltenfrei glatt ziehen. Sofort in feuchtem Zustand mit dem Pinsel verdünnten Balsam nur auf die mit dem Holz in Kontakt befindlichen Stellen auftragen. Das noch feuchte, überstehende Bespannpapier über die Außenkante des jeweiligen Teiles vorsichtig und immer in Richtung Außenkante mit dem Schleifklotz abtrennen. Durch diese Methode sind später keine Schnittkanten sichtbar und das Papier spannt sich bereits schon jetzt faltenfrei. Das Bespannpapier oberhalb von überstehenden Teilen, wie z. B. die Strebenklötzchen (40) exakt mit einem scharfen Balsamesser austrennen. An den Innenrippen (30) des Leitwerkes muss das Bespannpapier vor dem Aufbringen exakt zugeschnitten werden. Durch das Auftragen des Spannlacks wird durch das Bespannpapier und dem zuvor aufgetragenen Spannlack eine Klebeverbindung erreicht. Hinweis: Durch das Auftragen des Spannlacks auf das feuchte Papier werden diese Stellen nach dem Trocknen auffällig weiß, diese Stellen verschwinden wieder, wenn das Modell mehrfach mit verdünntem Spannlack gestrichen wird.

**Das Schiebbild**  
Die Schriftzüge (62) ausschneiden und einige Minuten in lauwarmes Wasser legen, dann auf die gewünschte Stelle des Modells legen und den unteren Trägerkarton vorsichtig wegziehen.

**Der RC-Einbau**  
Die Sender- und Empfängerbatterie vollladen, den Empfänger und die Empfängerbatterie gemäß Bauplan im Rumpfkopf platzieren. Das Einschalten erfolgt durch Einstecken der Empfängerbatterie in die Anschlussbuchse B16 des Empfängers. Die Empfängerantenne möglichst unauffällig verlegen.

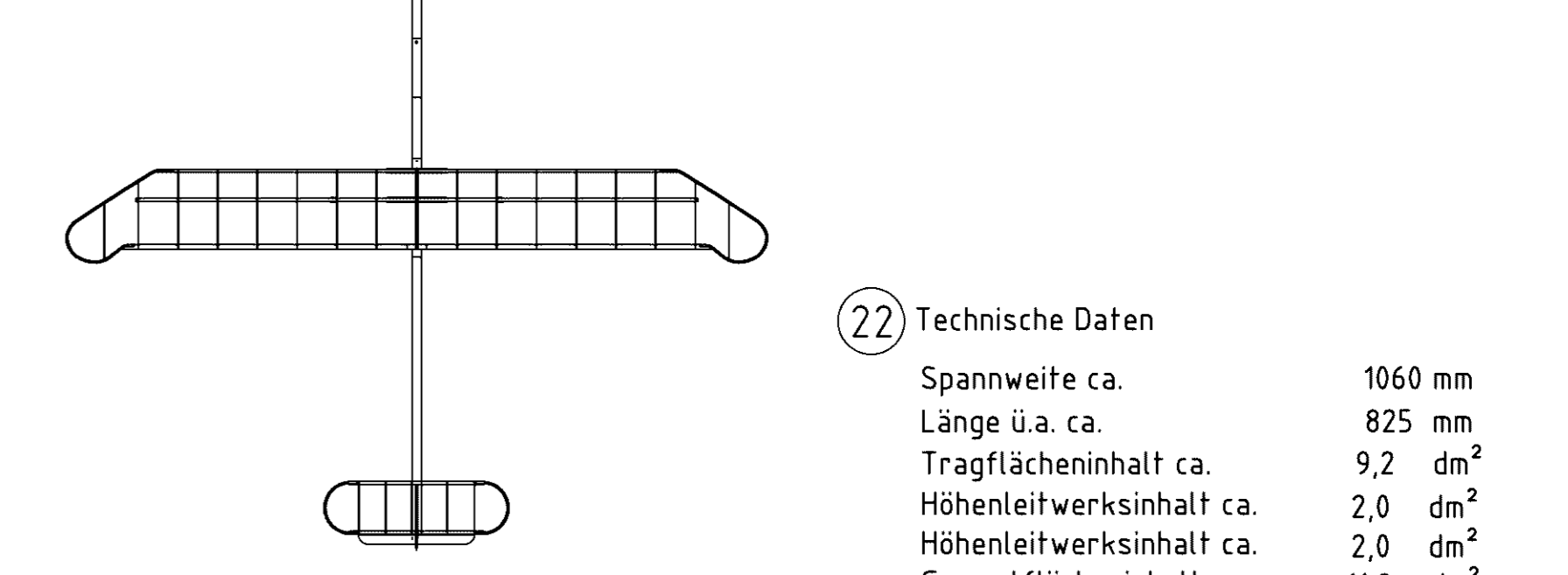
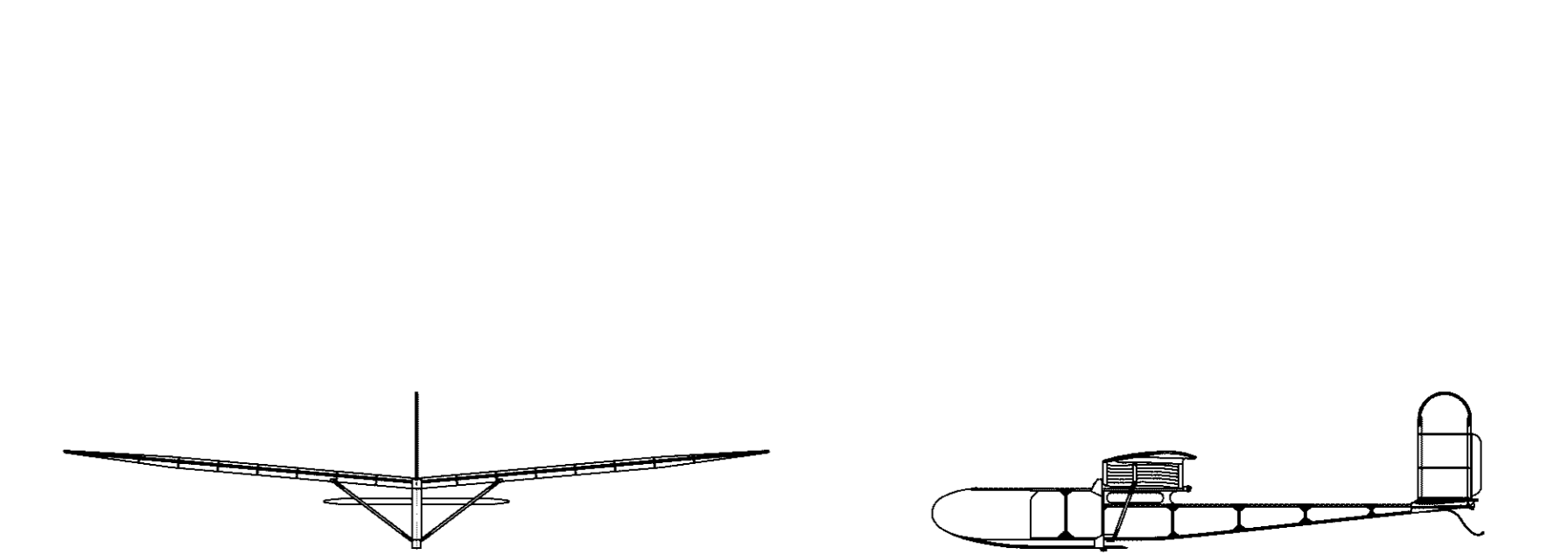
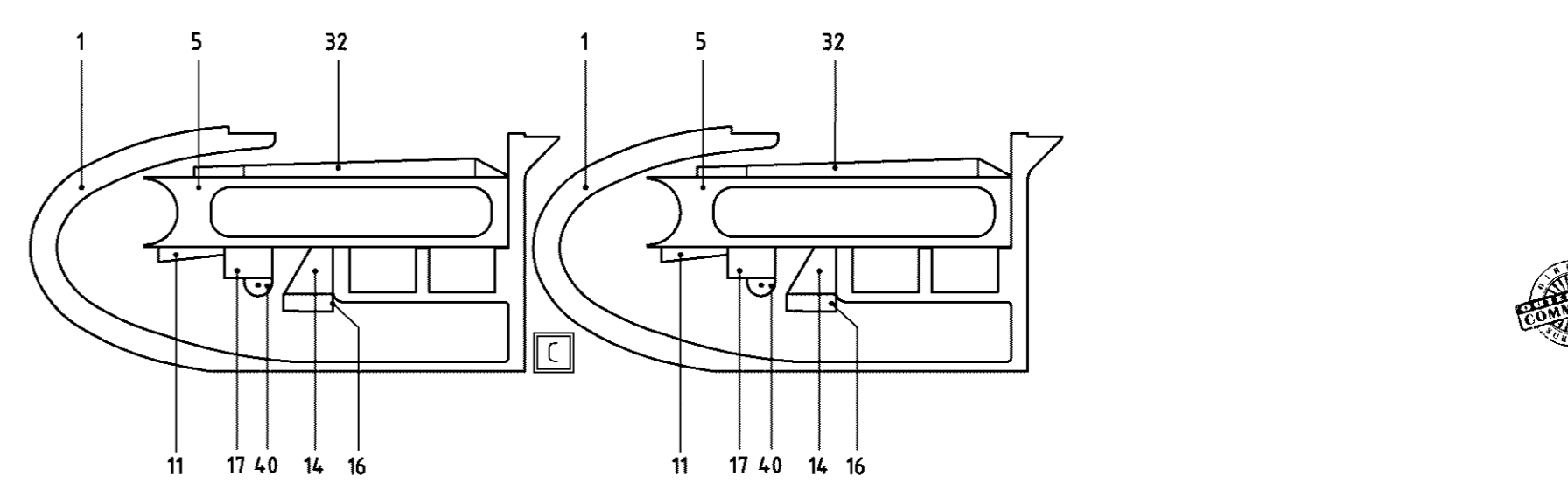
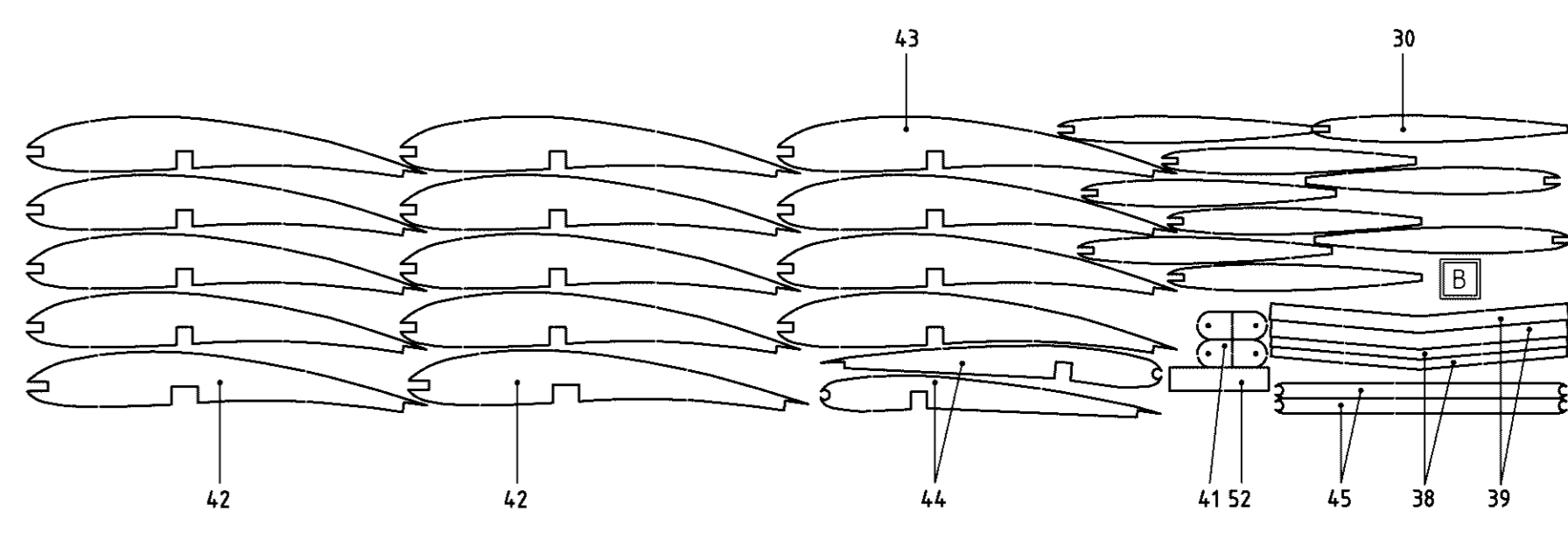
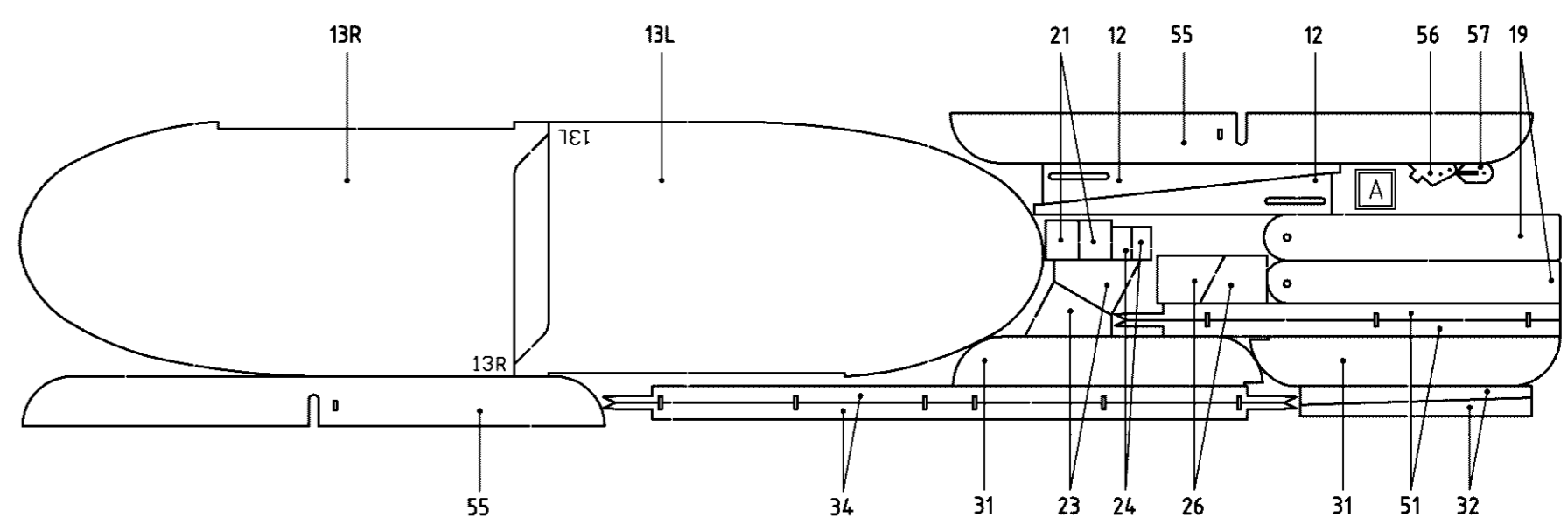
**Das Auswiegen**  
Das Auswiegen erfolgt in flugfertigen Zustand, also mit kompletter RC-Ausstattung. Der Schwerpunktbereich liegt zwischen 40 und 50 mm von Tragflächenvorderkante aus gemessen. Zur Einstellung benötigen Sie Trimmgewichte ( von Best.-Nr. 536 ) in die Rumpfnase einkleben. Die Schwerpunkte sind jeweils mit 2 Fingern unterstützt. Das Modell soll nach dem Start einen flachen Gleitflug ausführen, bäumt es sich auf, so muss der Schwerpunkt durch Einkleben von Trimmgewicht noch weiter nach vorn gelegt werden.

**Das Einfliegen**  
Das fertig gebaute Modell mit neutral eingestellten Rudern bei Windstille oder schwachem Wind einfliegen. Eine leicht gegen die Windrichtung abfallende Wiese ist als Gelände optimal geeignet.  
**Das Modell per Handstart gegen die Windrichtung in die Luft schieben. Die richtige Startgeschwindigkeit wird durch einige Laufschräge erreicht.** Das Modell soll nach dem Start einen flachen Gleitflug ausführen, bäumt es sich auf, so muss der Schwerpunkt durch Einkleben von Trimmgewicht noch weiter nach vorn gelegt werden.  
Das Modell durch minimale Seiten- und Höhenrunderkorrekturen steuern. Die Feintrimmung erfolgt über die Trimmrädchen unterhalb, bzw. neben dem Steuerknüppel. Die Landung exakt gegen die Windrichtung durchführen. Vor dem Aufsetzen die Fluggeschwindigkeit des Modells durch dosierte Höhenrunderauschläge reduzieren. Die Landung immer gegen die Windrichtung ausführen. Ist das Modell eingeflogen kann es per Hochstart gestartet werden. Wichtig ist besonders bei dieser Startart, dass exakt gegen die Windrichtung gestartet wird. Bricht das Modell seitlich aus, mit dem Seitenruder gegensteuern.

GRAUPNER Modellbau wünscht viele schöne Flüge mit dem Antik-Flugmodell

| Nr. | Bezeichnung                    | Stück | Werkstoff        | Abmessung in mm    |
|-----|--------------------------------|-------|------------------|--------------------|
| 1   | Rumpfnase                      | 1+1   | Sperholz         | Laserteil 6        |
| 2   | Oberer Rumpfhalm               | 1     | Kiefer           | 330x12x3           |
| 3   | unterer Rumpfhalm              | 1     | Kiefer           | 70x12x3            |
| 4   | Rumpfleiste                    | 2     | Kiefer           | 71x12x3            |
| 5   | Füllklotz                      | 1+1   | Sperholz         | Laserteil 6        |
| 6   | Rumpfleiste                    | 1     | Kiefer           | 560x12x3           |
| 7   | Rumpfleiste                    | 1     | Kiefer           | 45x12x3            |
| 8   | Rumpfleiste                    | 1     | Kiefer           | 35x12x3            |
| 9   | Rumpfleiste                    | 1     | Kiefer           | 24x12x3            |
| 10  | Rumpfleiste                    | 1     | Kiefer           | 13x12x3            |
| 11  | Klötzchen                      | 1+1   | Sperholz         | Laserteil 6        |
| 12  | Beplankung                     | 2     | Sperholz         | Laserteil 1        |
| 13  | Nasenbeplankung R und L        | 2x1   | Sperholz         | Laserteil 1        |
| 14  | Vorderes Befestigungsklötzchen | 1+1   | Sperholz         | Laserteil 6        |
| 15  | Hinteres Befestigungsklötzchen | 1     | Kiefer           | 10x12x3            |
| 16  | Klötzchen                      | 1+1   | Sperholz         | Laserteil 6        |
| 17  | Kleberklötzchen                | 1+1   | Kiefer           | 330x12x3           |
| 18  | Kufe                           | 1     | Eschenholz       | 280x12x3           |
| 19  | Deckel                         | 2x1   | Sperholz         | Laserteil 1        |
| 20  | Blechschaube                   | 3     | Stahl            | 6,5x2,2            |
| 21  | Beschlagteil                   | 2+2   | Sperholz/Messing | 10x16x2            |
| 22  | Starthaken                     | 1     | Stahl            | Fertigteil Ø 2     |
| 23  | Beplankung                     | 2     | Sperholz         | Laserteil 1        |
| 24  | Beplankung                     | 2     | Sperholz         | Laserteil 1        |
| 25  | Rippen                         | 1     | Naturgummi       | Ø 1x10             |
| 26  | Beplankung                     | 2     | Sperholz         | Laserteil 1        |
| 27  | Ecken                          | 22    | Zeichenpapier    | nach Zeichn.       |
| 28  | Nasenleiste                    | 1     | Kiefer           | 135x5x2            |
| 29  | Randbogen                      | 3     | Aluminium        | Fertigteil Ø 3     |
| 30  | Rippe                          | 9     | Sperholz         | Laserteil 1        |
| 31  | Seitenruder                    | 1+1   | Sperholz         | Laserteil 1        |
| 32  | Außenleiste                    | 2+2   | Sperholz         | Laserteil 1/6      |
| 33  | Nasenleiste                    | 1     | Kiefer           | 210x5x2            |
| 34  | Endleiste                      | 1+1   | Sperholz         | Laserteil 1        |
| 35  | Nasenleiste                    | 2     | Kiefer           | 390x5x3            |
| 36  | Endleiste                      | 2     | Kiefer           | 445x7x2            |
| 37  | Hauptholm                      | 2     | Kiefer           | 425x5x5            |
| 38  | V-Verbinder                    | 2     | Sperholz         | Laserteil 1        |
| 39  | V-Verbinder                    | 2     | Sperholz         | Laserteil 1        |
| 40  | Strebenklötzchen               | 2     | Sperholz         | Laserteil 6        |
| 41  | Beplankung                     | 4     | Sperholz         | Laserteil 1        |
| 42  | Mittlerippen                   | 2     | Sperholz         | Laserteil 1        |
| 43  | Hauptrippen                    | 12    | Sperholz         | Laserteil 1        |
| 44  | Drüppchen                      | 2     | Sperholz         | Laserteil 1        |
| 45  | Rippen                         | 2     | Sperholz         | Laserteil 1        |
| 46  | Randbogen                      | 2     | Aluminium        | Fertigteil Ø 3     |
| 47  | Befestigung                    | 1     | Stahl            | Ø 1x150            |
| 48  | Strebe                         | 2     | Kiefer           | 145x4x4            |
| 49  | Strebenhacken                  | 4     | Stahl            | Ø 1x45             |
| 50  | Sporn                          | 1     | Stahl            | Fertigteil Ø1      |
| 51  | Endleiste                      | 1+1   | Sperholz         | Laserteil 1        |
| 52  | Beplankung                     | 1     | Sperholz         | Laserteil 1        |
| 53  | Bowdenzugaußenrohr             | 2     | Kunststoff       | Ø 1,9/0,9x655      |
| 54  | Ruderschirm                    | 6     | Kunststoff       | 10x8x0,1           |
| 55  | Höhenrunderhorn                | 1+1   | Sperholz         | Laserteil 1        |
| 56  | Höhenrunderhorn                | 1     | Sperholz         | Laserteil 1        |
| 57  | Seitenruderhorn                | 1     | Sperholz         | Laserteil 1        |
| 58  | Seitenruderanlenkung           | 1     | Stahl            | Ø 1x35             |
| 59  | Ruderzug                       | 2     | Stahl            | Ø 0,5x710          |
| 60  | Baumwollzwirn                  | 7     | Baumwolle        | Ø 0,3 nach Zeichn. |
| 61  | Bespannpapier                  | 2     | Japanic          | 12g/qm             |
| 62  | Schiebbild                     | 1     | Kunststoff       | 225x90x0,1         |

Weiterhin enthalten:  
Hilfsleiste aus Balsaholz, 2 Stück Messingrohr Ø 2/1,2x10, Schleifklotz, Glutfix



21 Dreiseitenansicht Graubele 2 Maßstab 1:10

22 Technische Daten

|                            |                       |
|----------------------------|-----------------------|
| Spannweite ca.             | 1060 mm               |
| Länge u.a. ca.             | 825 mm                |
| Tragflächeninhalt ca.      | 9,2 dm <sup>2</sup>   |
| Höhenleitwerksinhalt ca.   | 2,0 dm <sup>2</sup>   |
| Höhenleitwerksinhalt ca.   | 2,0 dm <sup>2</sup>   |
| Gesamtflächeninhalt ca.    | 11,2 dm <sup>2</sup>  |
| Fluggewicht ca.            | 250 g                 |
| Gesamtflächenbelastung ca. | 22,3g/dm <sup>2</sup> |

All rights reserved. Commercial use of the plan strictly prohibited.  
Any alterations in this plan showing the installation of engines, P/C equipment and mechanical gear for several functions are to be considered as non recommended. The installation instructions of each component will depend on the state of that respective development at the time of installation.  
In case that other than the recommended gear should be installed modifications in the construction of the model may be required to accommodate such equipment. Delivery of individual items subject to availability.  
Tous droits réservés. L'utilisation à usage commercial de ce plan est strictement interdite. Les instructions sur ce plan montrant l'installation de moteurs, d'équipements P/C et de dispositifs mécaniques pour le commande des différentes fonctions, etc., sont seulement considérées comme non recommandées. Les instructions d'installation de chaque composant dépendront de l'état de son développement au moment de l'installation.  
Les modifications dans la construction de modèle dues à l'utilisation d'équipements autres que ceux conseillés devront être entreprises sur initiative personnelle.  
Sans réserve de possibilité de livraison de certains articles.

**VERLAG GRAUPNER GmbH & Co. KG KIRCHHEIM/TECK**  
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Alle Rechte vorbehalten. Die gewerbliche Benützung dieser Zeichnung ist nicht gestattet.  
Eventuelle Darstellungen im Plan über Erbau von Motoren, Fernsteuerungen, mechanischen Einrichtungen für diverse Beteiligungen etc. sind lediglich Vorschläge und jeweils abhängig von dem technischen Entwicklungsstand.  
Änderungen im Aufbau des Modells bei Verwendung anderer als im Plan empfohlener Teile sind nach eigenem Ermessen durchzuführen.  
Liefermöglichkeiten einzelner Artikel vorbehalten.  
Printed in Germany  
2008

## Schnellbaukasten

Quickie-Kit / Boîte de construction rapide

|                                     |                |
|-------------------------------------|----------------|
| Bestell-Nr. / Ident.-No. / Réf. No. | <b>9405</b>    |
| Bogen / Sheet / Feuille             | <b>3</b>       |
| Ident.-No.                          | <b>0059859</b> |

Be sure to observe the following Safety Notes. If you ever dispose of the model, please pass on the safety notes and the complete building instructions to the new owner.

**Safety Notes**  
You require valid third-party insurance in order to operate your model aircraft; this is now a legal requirement.  
It is important to read right through the building and operating instructions before you attempt to fly the model. For this reason you alone are responsible for the safe operation of your radio-controlled model aircraft. Young persons should only be permitted to build and fly this model under the instruction and supervision of an adult who is aware of the hazards involved in this activity.

In legal terms our models are classed as aircraft, and as such are subject to legal regulations and restrictions which must be observed at all times. Our brochure "Modellflugrecht, Paragrafen und mehr" (Model Aviation Law, Legal Requirements and more) is available under Order No. 8034.02, and contains a summary of the model shop should have a copy which you can read. There are also Post Office regulations concerning your radio control system, and these must be observed. Refer to your RC system instructions for more details.  
Be sure to use only those parts included in the kit, together with other genuine Graupner accessories and replacement parts as recommended expressly by us. Even if you change a single component you can no longer be sure that the system will work reliably, and such changes also invalidate your guarantee.  
Avoid short-circuits and reversed polarity.  
The high energy density of the batteries commonly used in modelling involves a risk of fire and even explosion.  
Radio-controlled model aircraft can only work properly and fulfill your expectations if built very carefully and in accordance with the building instructions. If you wish to avoid injuring people and damaging property it is essential to be careful and painstaking at all stages of building and operating your model. Nobody would claim to be a perfect glider and try to fly it without undergoing training beforehand, and model flying is a skill which needs to be learned in just the same way.  
As manufacturers we are not in a position to influence the way you build and operate your RC model aircraft, and for this reason we deny all liability. All we can do is expressly point out the hazards involved in this activity.  
We suggest that you ask an experienced model flyer for help, or join a model club or flying training school. Your local model shop and the specialist magazines are excellent sources of information. If at all possible, it is always best to join a club and fly at the approved model flying site.  
Adhesives and paints contain solvents which may be hazardous to health under certain circumstances. Read and observe the notes and warnings supplied by the manufacturer of these materials.

The operator of the model must be in full possession of his or her bodily and mental faculties. As with car driving, operating a model aircraft under the influence of alcohol or drugs is not permitted under any circumstances. Do not drink alcohol or take drugs before flying.  
If there are passers-by or spectators at your flying site, make sure that they are aware of the dangers inherent in your activity, and insist that they keep a safe distance away.  
Always keep safe distance from other people and objects when flying; never fly low over people's heads, and never fly directly towards them.  
Radio-controlled models should only be flown in "normal" weather conditions, i.e. a temperature range of 5° to +35°C. More extreme temperatures can lead to changes in battery capacity and material characteristics, weakened electric contacts and other unwanted effects.  
All model flyers should behave in a way that minimises the danger to people and property. Never act in any manner which will disturb other flyers and jeopardise safe, orderly flying at the site.  
Never operate your model aircraft close to high-tension overhead cables, industrial sites, residential areas, public roads, school playgrounds or public parks.

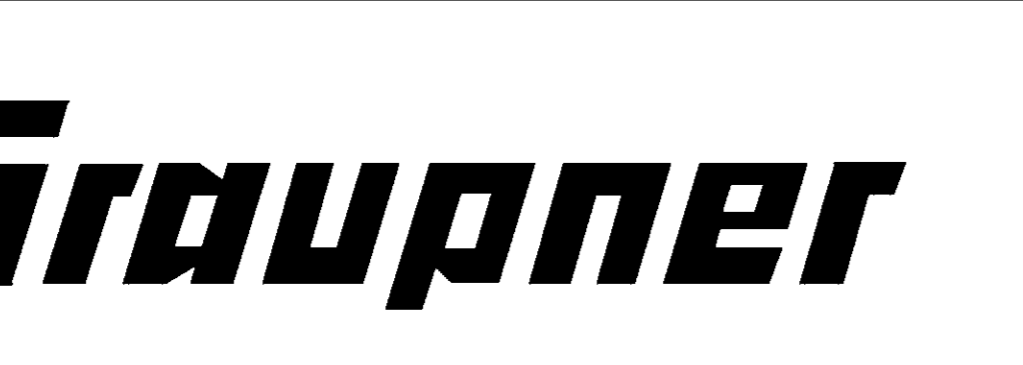
**Pre-flight checks**  
Check that the radio control system works correctly and at full range before every flight: switch on the transmitter and the receiving system. Check that all the control surfaces are at neutral (centre) position. Check the movement of the transmitter sticks, and the action of the receiver and the motor. Check the stick movements. If the model is powered, check the check with the motor running, while a friend holds the model securely.  
If you are a relative beginner to this type of model flying, we recommend that you enlist an experienced model pilot to help you check and test-fly the model.  
Don't ignore our warnings. They refer to materials and situations which, if ignored, can result in fatal injury or permanent damage.  
Proceeds from the sale of your model constitute a permanent hazard and represent a real risk of injury. Don't touch them with any part of your body. For example, a propeller spinning at high speed can easily cut your finger badly.  
Keep the rotational plane of the propeller. You never know when some part may come loose and fly off at high speed, hitting you or anybody else in the vicinity. This is potentially a very serious hazard! Never touch the revolving propeller with any object.  
Proceed with caution! Be especially careful of the propeller. It is a real danger!  
Every time you intend to operate your model check carefully that it and everything attached to it (e.g. propeller, RC components etc.) is in good condition and undamaged. If you find a fault, do not fly the model until you have repaired it and tried to use it.  
Satisfy yourself that your frequency is vacant before you switch on. Radio interference caused by unknown sources can occur at any time without warning. If this should happen, your model will be uncontrollable and completely unpredictable. Never leave your radio control system unguarded, as someone might pick it up and try to use it.  
Do not switch on the electric motor unless you are sure that there is nothing in the rotational plane of the propeller. Never attempt to stop the spinning propeller. Electric motors with the propeller attached can only be run when properly mounted.  
If you are to fly your model safely and avoid problems, it is essential that you are aware of its position and attitude throughout each flight - so don't let it fly too far away! If you detect a control problem or interference during the model's flight, land the model as quickly as possible.  
Models must always give way to full-size aircraft. Take-off and landing strips should be kept free of people and other obstacles.  
Keep RC systems only work reliable if the batteries are kept fully charged.  
Never use batteries which are hot, faulty or damaged. At all times heed the instructions provided by the battery manufacturer.  
Before each flight check that all functions on the model aircraft are working correctly, and that the radio control system is in good order and operating at full range.  
Note that the motor control (throttle) function on the transmitter must always be moved to the OFF position as the first stage in preparing for a flight. To avoid the danger of the electric motor burning into life unexpectedly always switch on the transmitter first, and only then the receiving system. The opposite applies at the end of a flight: always switch off the receiving system first, and finally the transmitter.  
Check that the control surfaces follow the movement of the transmitter sticks.  
After each flying session remove the flight battery from the model and store it in the discharged state at a temperature of about +5° to +25°C. Batteries must be kept out of the reach of children.

Please don't misunderstand the purpose of these notes. We only want to make you aware of the many dangers and hazards which can arise if you work carelessly or irresponsibly. If you take reasonable care, model flying is a highly creative, instructive, enjoyable and relaxing pastime.  
Manufacturer's declaration:  
If material defects or manufacturing faults should arise in a product distributed by us in the Federal Republic of Germany or purchased by a consumer (€ 13 BGG), we, Graupner GmbH & Co. KG, D-73230 Kirchheim-Teck, Germany, acknowledge the obligation to correct those defects within the limitations described below.  
The consumer may not be entitled to exploit this manufacturer's declaration if the failure in the usability of the product is due to natural wear, user use, competition conditions, incompetent or improper use (including incorrect installation) or external influences.  
This manufacturer's declaration does not affect the consumer's legal or contractual rights regarding defects arising from the purchase contract between the consumer and the vendor (dealer).

Extent of the guarantee  
If a claim is made under guarantee, we undertake at our discretion to repair or replace the defective goods. We will not consider supplementary claims, especially for reimbursement of costs relating to the defect (e.g. installation / removal costs) and compensation for consequential damages unless they are allowed by statute. This does not exempt claims based on legal regulations, especially according to product liability law.  
Guarantee requirements  
The purchaser is required to make the guarantee claim in writing, and must enclose original proof of purchase (e.g. invoice, receipt, delivery note) and this guarantee card. He must send the defective goods to us in their own cost, using the address stated above. If a defect arises after the end of the claim period, or if the evidence or documents required according to this declaration in order to make the claim valid are not presented until after this period, then the consumer forfeits any rights or claims from this declaration.

Limitation by lapse of time  
If we do not acknowledge the validity of a claim based on this declaration within the claim period, all claims based on this declaration are barred by the statute of limitations after six months from the time of implementation; however, this cannot occur before the end of the claim period.  
Applicable law  
This declaration, and the claims, rights and obligations arising from it, are based exclusively on the pertinent German Law, without the norms of International private law, and excluding UN retail law.

All rights reserved. Commercial use of the plan strictly inhibited.  
Any alterations to this plan show the installation of engines, R/C components and mechanical gear for models that are to be controlled in free flight. The installation instructions of such equipment vary dependent on the serial type and development of the model of installation.  
In case that other than the recommended gear should be installed modifications in the construction of the model may be required to accommodate such equipment. Delivery of individual items subject to availability.  
Les droits réservés. L'utilisation à usage commercial de ce plan est strictement interdite. Les modifications sur ce plan montrent l'installation de moteurs, d'équipements R/C, de dispositifs mécaniques pour le commande des différents fonction, etc. tout selon le développement du modèle de l'installation.  
Les modifications dans la construction de modèle dues à l'utilisation d'équipements autres que ceux conseillés doivent être accompagnées de modifications personnelles.  
Sans réserve de possibilité de livraison de certains articles.



**Introduction**  
Dans l'histoire de l'aviation, le GRAUBUE 2 est un modèle d'avion qui marque le début de l'ère des avions à moteur. C'est un modèle d'avion à moteur qui a été développé par le constructeur allemand Graupner. Ce modèle est connu pour sa simplicité et sa facilité de construction. Il est idéal pour les débutants et les amateurs de modélisme. Le GRAUBUE 2 est un modèle d'avion à moteur qui a été développé par le constructeur allemand Graupner. Ce modèle est connu pour sa simplicité et sa facilité de construction. Il est idéal pour les débutants et les amateurs de modélisme. Le GRAUBUE 2 est un modèle d'avion à moteur qui a été développé par le constructeur allemand Graupner. Ce modèle est connu pour sa simplicité et sa facilité de construction. Il est idéal pour les débutants et les amateurs de modélisme.

**RC system components (not included)**  
For this model we recommend an FM radio control system such as the X-306 to mc-24. For more information on RC components please refer to the main GRAUPNER FS catalogue.  
X-306 FM 35 MHz\* radio control set Order No. 4798  
\*In Germany the 35 MHz frequency band is reserved exclusively for model aircraft.  
Transmitter charge lead Order No. 3022  
Receiver charge lead Order No. 3022  
MULTILADER 7E battery charger Order No. 6455  
C131 servo (two required) Order No. 7121  
XP 12 FM receiver Order No. 7012  
Receiver battery 4N-120 AAA 4.8 V / 120 mAh Order No. 2583  
Accessories (not included) Order No. 5358  
Noise ballast Order No. 528  
Rubber bungie launch system Order No. 258

**Tools, adhesives and paints (not included)**  
System building board Order No. 945  
Block Order No. 380  
Fretaw and blades Order No. 923  
Modelling pins Order No. 717  
Fretaw and blades Order No. 923  
UHU+ hot adhesive Order No. 534.10  
Cyano-acrylate adhesive Order No. 582  
Cyano-acrylate activator (kickler) Order No. 583  
Spanfix (clear shrinking cellulose dope) Order No. 1409.1A  
Spanfix thinners Order No. 1409

You will also need the following items: side-cutters, flat-nose pliers, screwdriver, paper scissors, pencil. You will also need a hot glue gun, clear plastic film, water spray bottle.  
**Building instructions**  
Please read right through these building instructions before you start construction, so that you have a clear idea of the sequence of assembly. Note that certain components have to be prepared by gluing together two identical parts in order to achieve the appropriate thickness. Start each stage of construction by selecting the correct parts as necessary, preparing them as necessary, and laying out the tools and adhesives you will need. All the major components are built directly over the appropriate area of the plan. To prevent the parts becoming stuck to the paper, cover the joint with clear plastic film beforehand. Keep the building board clean and uncluttered at all times. Use cyano-acrylate (cyano) and activator (kick) for all joints. You will find it best to apply the glue to one side of the joint, then spray activator on the other face before joining the parts. Take great care to avoid excess adhesive getting onto your hands or the surfaces of the model; wipe off excess adhesive immediately using a paper towel. Cyano-acrylate glue is very strong, and this eliminates the need for wrapping joints with thread - except in the case of a small number of extremely highly stressed joints.

**The fuselage**  
Pin down the fuselage nose (1), glue the top fuselage longeron (2) to it, then add the in-fill block (5) and the spruce struts (4) and (8). Use a fretsaw to cut the longerons to the length shown on the plan, finishing them with a sanding block to bring them to the exact length. Pin down the longeron (6) on the building board, and glue the cross-braces (7) to (10) to the structure. Glue the blocks (11) and the lower fuselage strut (4) to the framework. Remove the fuselage from the building board and sand it overall before gluing the plywood panels (12) in place. Note the tension in the lower fuselage longeron (3) will cause the tail end of the fuselage to curve down by a few millimetres, but this has no adverse effects. Use a balsa knife to remove the notches on both sides for the snake-oult sleeve (5) as shown in section A-A. Cut the snake sleeves (53) to length and fit them through the notches in the sheeting panels (12) from the rear. Glue the nose sheeting panel (13B) to the right-hand side of the fuselage. Remove the standard crumfoam auto devices from the C131 servos and cut them down to the shape shown on the plan. Fix the servos in place using the retaining clips. Remove the detail drawings (view 'B') and fit them into the slots for the screws beforehand.  
Construct the pre-formed end of the pushrods (59) to the servo output arms, slip the pushrods into the snake outlets, and fit the output arms on the servos after setting them to centre from the transmitter. Caution: to avoid the risk of eye injuries, apply adhesive tape to the rear pushrod ends which now project from the end of the fuselage. The left-hand fuselage panel (13A) can now be glued in place, taking care not to allow glue to get into the pushrod sleeves. Glue the prepared plywood blocks (14) to (17) in place, together with the skids (18). Sand the fuselage overall before gluing the plywood panels (23), (24) and (26) in place. Glue the tail fin to the fuselage. The left-hand fuselage panel (13A) can now be glued in place, taking care not to allow glue to get into the pushrod sleeves. Glue the prepared plywood blocks (14) to (17) in place, together with the skids (18). Sand the fuselage overall before gluing the plywood panels (23), (24) and (26) in place. 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