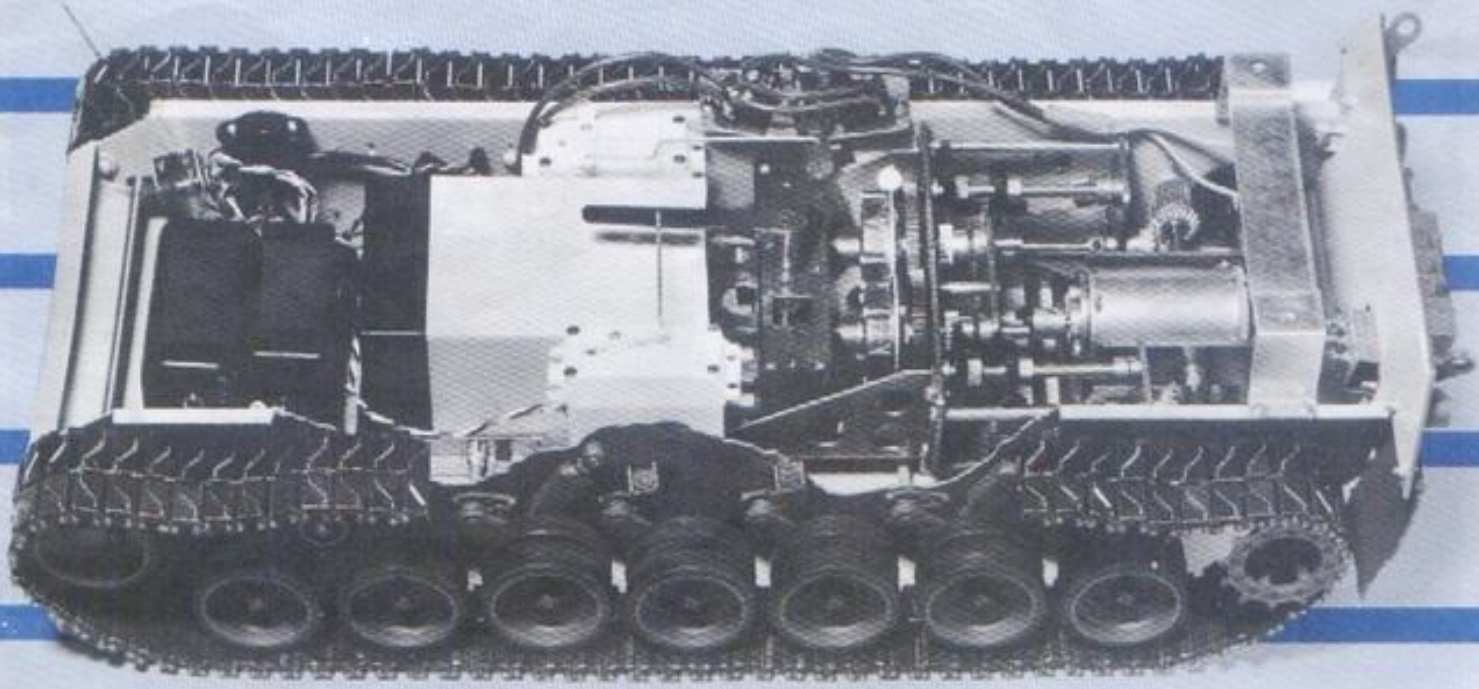
1:16th SCALE TANK SUITABLE FOR RADIO CONTROL

WEST GERMAN TANK

LEOPARD A4

KIT NO. RT-1002



7805

TAMIYA PLASTIC MODEL CO. 628 OSHIKA, SHIZUOKA-CITY, JAPAN

RTレオパルト A4 (英語) 改

RADIO CONTROL TANK

Construction of the LEOPARD TANK

(1) Radio Control Mechanism

Tamiya's Leopard Tank is designed to use a 2 channel 2 servo Digital Proportional type of radio control. This tank is powered by an electric motor. Batteries are necessary for the motor, the transmitter, receiver and servos.

Der Tamiya Leopard RC ist zum Einbau einer Funkfernsteueranlage (2 Kanal, 2 Servo, Digital Proportional) geeignet. Der Antrieb erfolgt durch Elektromotor. Batterien oder Akku's werden benötigt für Sender, Empfänger, Servos und Motor.

(2) Power Source

Use a 6 volt 3.8 amp rechargeable storage battery which is designed for use in models. The storage battery should be of the totally enclosed type which does not leak electroyte. When you operate this tank by means of the digital proportional type, a large amount of electric current is needed. The storage battery can be repeatedly charged by means of a charger and, therefore, is the most economical. Inquire at your model shop.

Wir empfehlen nur mit Akku's die aufladbar sind das Fahrzeug anszustatten. Fragen Sie den Fachhändler! Der Akku soll 6 Volt 3.8 Amp. haben pun nicht auslaufbar sein.

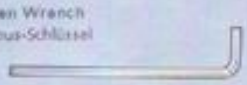
(3) Tools

An Allen Key and double faced adhesive tape with sponge are contained in the kit. Pliers, long nose radio type pliers, screw drivers, side cutters, a file, adhesive tape, a gimlet, an oil can, rapid cure adhesive, grease and box spanners for 3mm and 4mm nuts will aid construction.
Before use, be sure to oil the gear box and shaft of the motor to ensure high performance and long life. Tracks should be constructed using for them adhesive to prevent connector of track shedding. But the cement and adhesive must be handled with care.

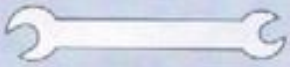
Die Kettenverbindungen sollten mit Schnellkleber abgesichert werden. Schnellkleber aber ausserst vorsichtig verwenden - nicht in Augen bringen!!

Tool in Kit
Werkzeug im Kasten enthalten:

Allen Wrench
Imbus-Schlüssel



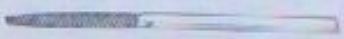
Wrench
Schlüssel



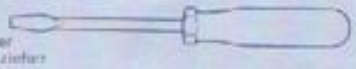
Double faced adhesive tape
Doppelklebeband

Following tools will aid construction
Folgende Werkzeuge erleichtern die Arbeit:

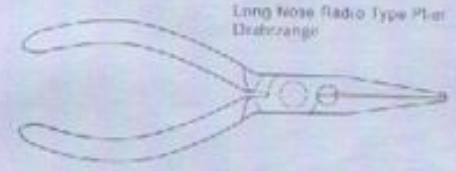
File
Feile



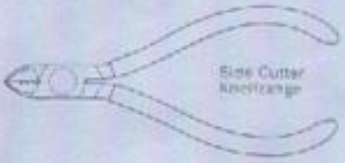
Screwdriver
Schraubenzieher



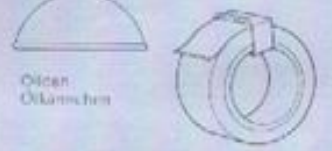
Long Nose Radio Type Plier
Drahtzange



Side Cutter
Kneifzange

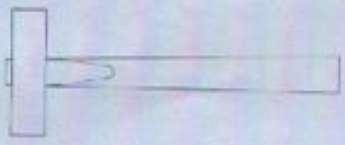


Oiler
Ölkännchen

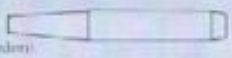


Adhesive Tape
Tesafilm

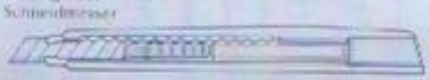
Hammer
Hammer



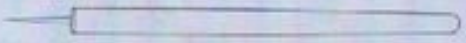
Rapid Cure Adhesive
Schnellkleber
(aber sparsam verwenden)

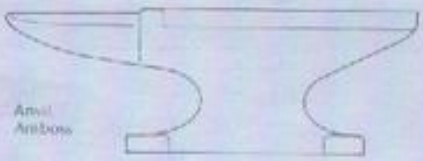


Cutting Tool
Schneidmesser



Gimlet
Bohrer



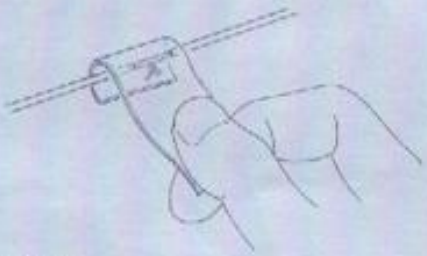


Anvil
Ambos

(4) Vinyl Tape

It is recommended to insulate cord with vinyl tape or the like to prevent short circuit.

Wir empfehlen Drahtverbindungen mit Vinylschläuche oder Isolierband gegen Kurzschlüsse umwickeln.



(4) Painting

The painting is most important finishing process. Be careful to use paints intended for styrene plastics. Damages incurred due to use of wrong paints cannot be replaced. If there are any questions regarding the proper paint please ask at your hobby dealer.

Wir bitten für die Plastikbemalung keine Farben auf Nitrobasis zu verwenden. Schäden, die durch falsche Farben verursacht werden, können nicht ersetzt werden. Fragen Sie den Fachhändler nach Kunstharzfarben bezw. Spray's.

Wir sind nur Hersteller des Baukasten's, in welchen eine Funkfernsteueranlage eingebaut werden kann. Fur Schäden, die durch Inbetriebnahme des Modells entsehen, übernehmen wir keine Haftung jeglicher Art.

SPECIFICATIONS

Overall length : 443 mm

Overall width : 216 mm

Overall height : 167 mm

Weight : approx. 4 Kg (Weight varies according to radio control mechanism mounted)

Radio control mechanism to be used : 2-channel 2 servo digital Proportional

Control system : Clutch control system

Power plant : Mabuchi RS-540S

Maximum speed : approx. 3 km/h

Maximum gradient : approx. 40°

Länge über alles: 443mm

Breite über alles: 216mm

Höhe über alles: 167mm

Gesamtgewicht etwa 4kg (abhängig vom Gewicht der R/C Anlage)

Radio Control Anlage: 2 Kanal, 2 Servo Digital-Proportional

Controlsystem: Kupplung

Motorenantrieb: Mabuchi RS-540S

Max. Geschwindigkeit: 3Km/h

Max. Steigung: 40 degree

Leopard Tank
Panzer LEOPARD

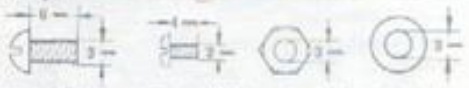
The prototype of this Leopard tank appeared first in 1961 in West Germany and was formally adopted in 1963 by the Western European Alliance, NATO. It has a crew of four and a L7A 1 105mm gun made in Britain. Its chassis and body is watertight so it can cross rivers at a depth of 4 meters under water. It has a maximum high speed of 65km/h. This is a modern tank with excellent maneuverability.

1961 erschien der erste Prototype des Kampfpanzers Leopard und wurde 1963 bei der Nato in Dienst gestellt. Die Wanne ist wasserdicht und kann bis 4 meter tauchen und Flüsse durchfahren. Mit der L7A 1 105 mm Kanone ist der Leopard ein sehr starker Kampfpanzer. Max. Höchstgeschwindigkeit ist 65 km/h. Die Crew besteht aus 4 Mann.

★ Blue parts in the figures are to be cemented. Two types of cement are necessary. Metal Cement which is suitable for use with metal parts. This, of course, should be apllied to parts indicated with "Metal Cement". ABS Cement should be used on other parts.

Blaue Stellen in der englischen Anleitung sind Klebestellen.
a - Metallkleber für Metall-
b - Plastikkleber ABS für Pflastik (oder der "Rote" von Heinz Behringer)

Measurement
Grössenangabe
Example:

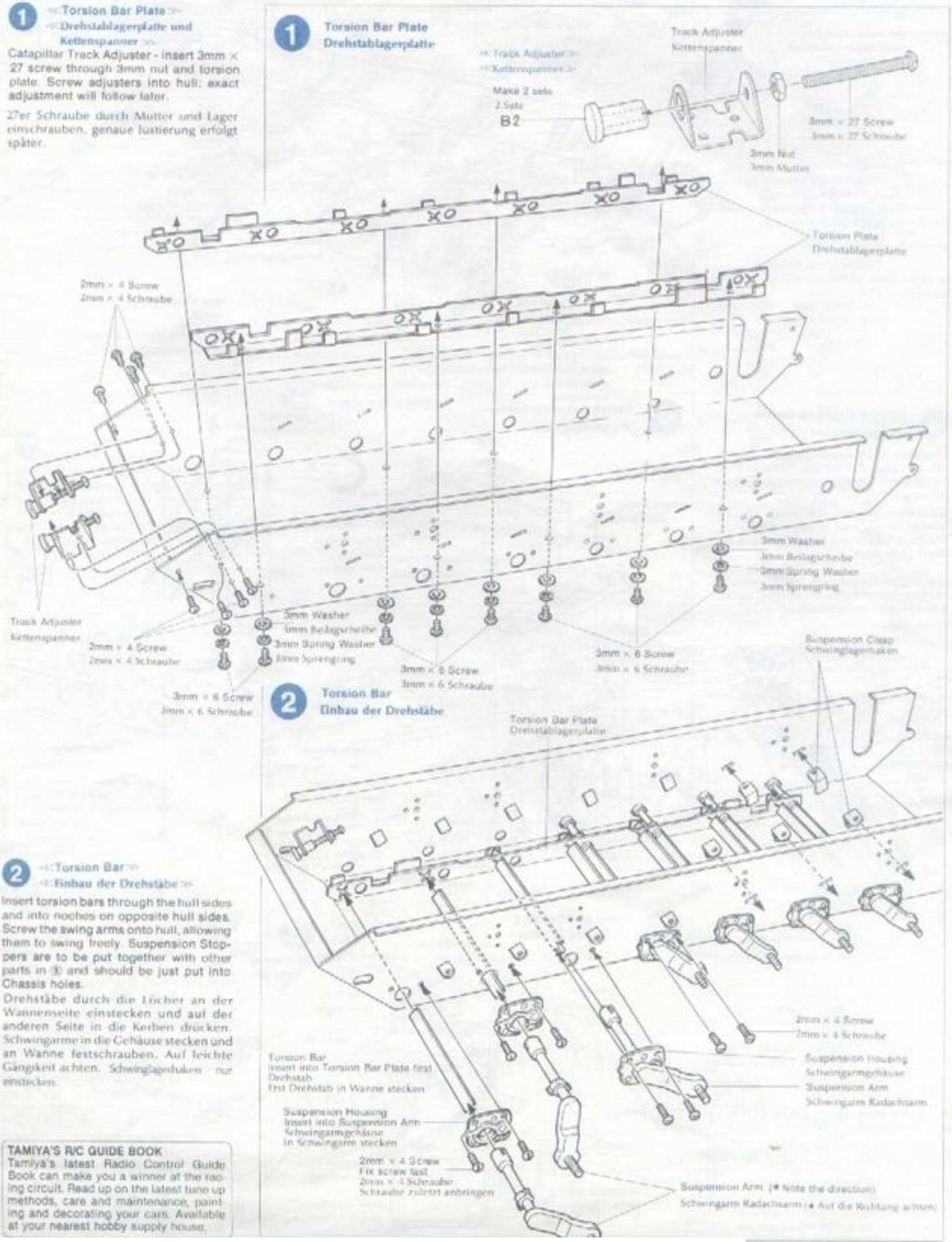


3mm × 6 Screw / 3mm × 6 Schraube — 3mm × 4 Screw / 3mm × 4 Schraube — 3mm Nut / 3mm Mutter — 3mm Washer / 3mm Beilagscheibe

1 «Torsion Bar Plate» «Drehstablagerplatte und Kettenspanner»

Catapillar Track Adjuster - insert 3mm × 27 screw through 3mm nut and torsion plate. Screw adjusters into hull; exact adjustment will follow later.

27er Schraube durch Mutter und Lager einschrauben, genaue Justierung erfolgt später.



2 «Torsion Bar» «Einbau der Drehstäbe»

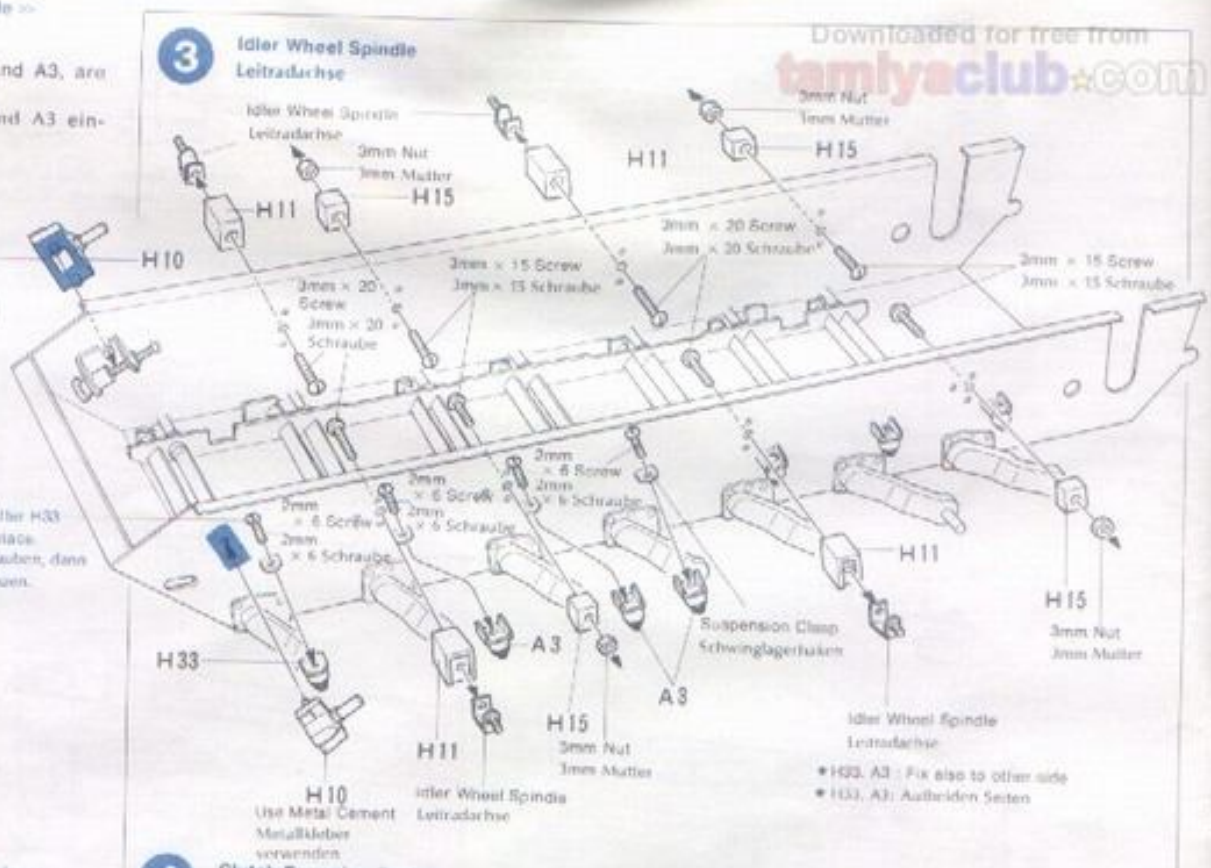
Insert torsion bars through the hull sides and into noches on opposite hull sides. Screw the swing arms onto hull, allowing them to swing freely. Suspension Stoppers are to be put together with other parts in ③ and should be just put into Chassis holes.

Drehstäbe durch die Löcher an der Wannenseite einstecken und auf der anderen Seite in die Kerben drücken. Schwingarme in die Gehäuse stecken und an Wanne festschrauben. Auf leichte Gängikeit achten. Schwinglagerhaken nur einstecken.

3 «Idler Wheel Spindle» «Leitradachse»

Suspension Clasp. H33 and A3, are screwed in place first.

Erst schwinglager H33 und A3 einschrauben.



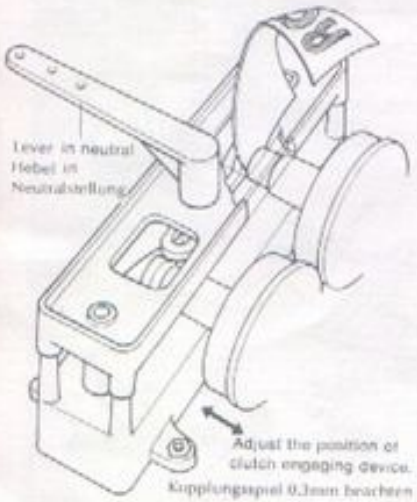
4 «Clutch Engaging Device» «Kupplungsgehäuse»

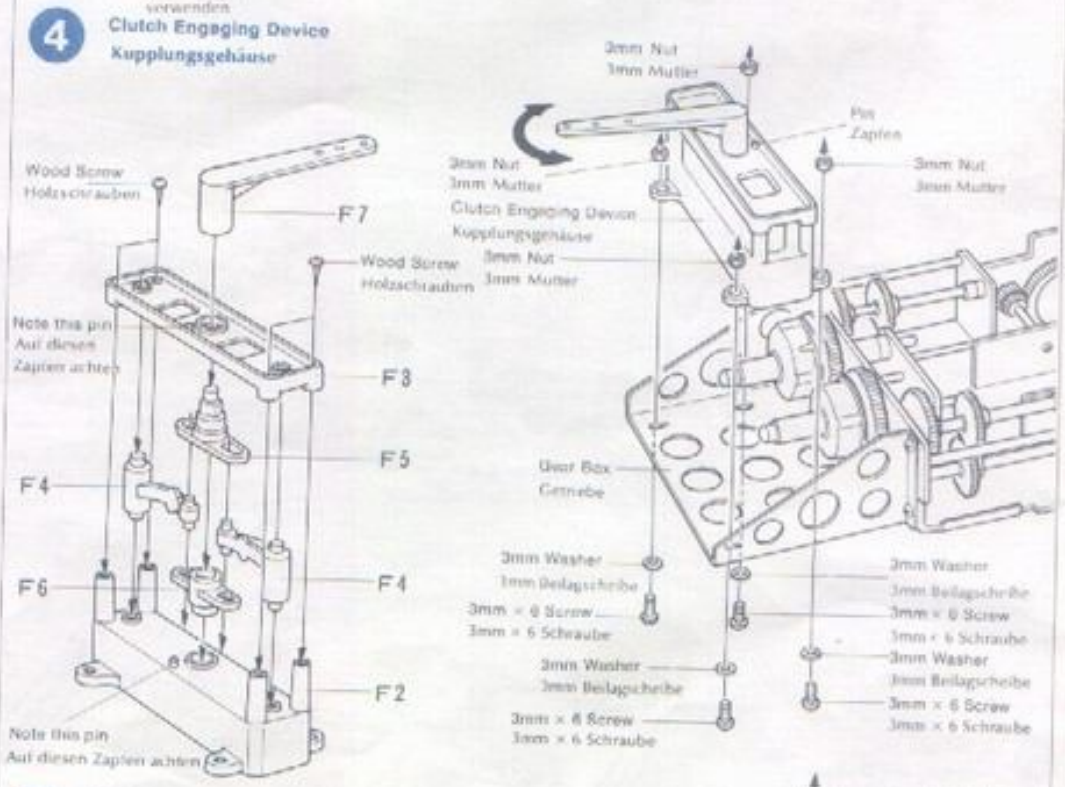
The parts of the clutch engaging device are movable. Do not use cement. They must be assembled with four wood screws.

Clearance between the clutch and F4 should be adjusted to about 0.3mm i.e. the thickness of the paper for metal fittings parts pack.

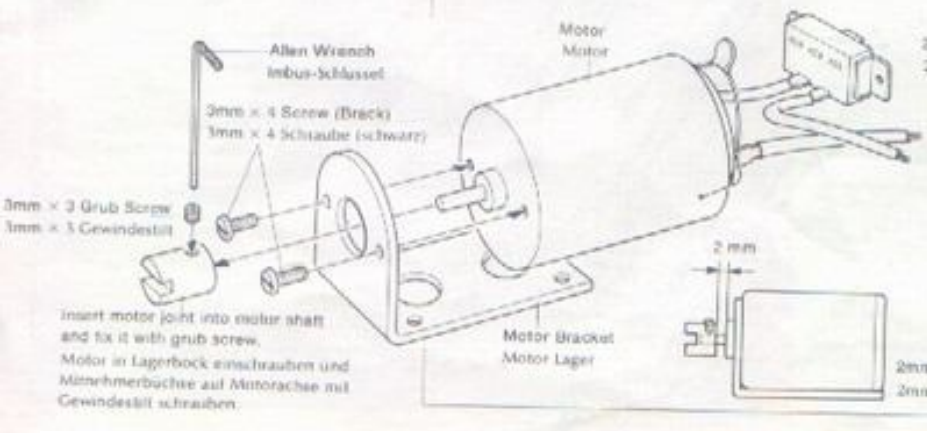
Das Kupplungsgehäuse mit 4 Holzschrauben zusammenschrauben - nichts kleben - alles muss beweglich sein.

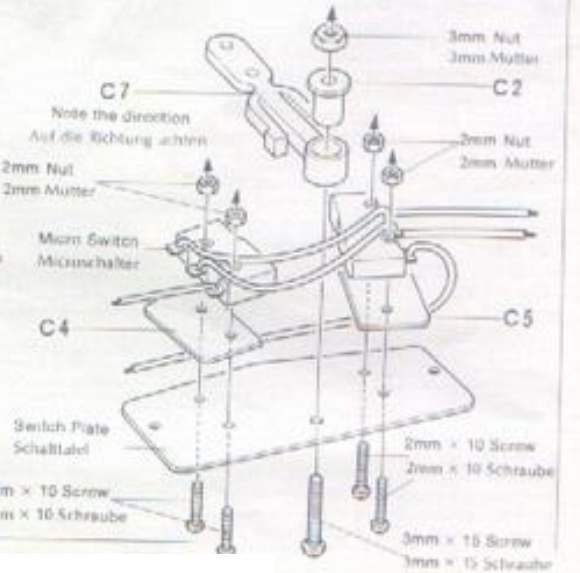
0.3mm Abstand





5 Motor and Switch 1 Motor und Schalter 1



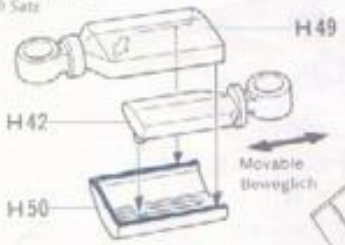


6 Gear Box / Getriebe

Fix Gear Box first
Erst Getriebe einbauen

Shock Absorber / Stossdämpfer

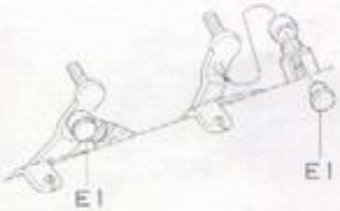
Make 10 sets
10 Satz



Fixing of Shock Absorber / Stossdämpfer

Attach Shock Absorbers to their Suspension Arms with E1. Shock Absorbers should be screwed last.

Stossdämpfer mit E1 an Schwingarm befestigen und dann erst einschrauben.



7 Motor and Switch 2 / Motor und Schalter 2

Insert Motor Coupling and fix Motor firmly onto Chassis. Pass Cords through Vinyl Pipes and connect them as shown in the writing diagram.

Motorkupplung aufsetzen und Motorblock gut in Wann einschrauben. Kabel durch Vinylschlauch stecken und zusammendrehen.

Distributing wires

A pair of connectors is not contained in this kit.

Kabel-Kupplungen im Kasten nicht enthalten

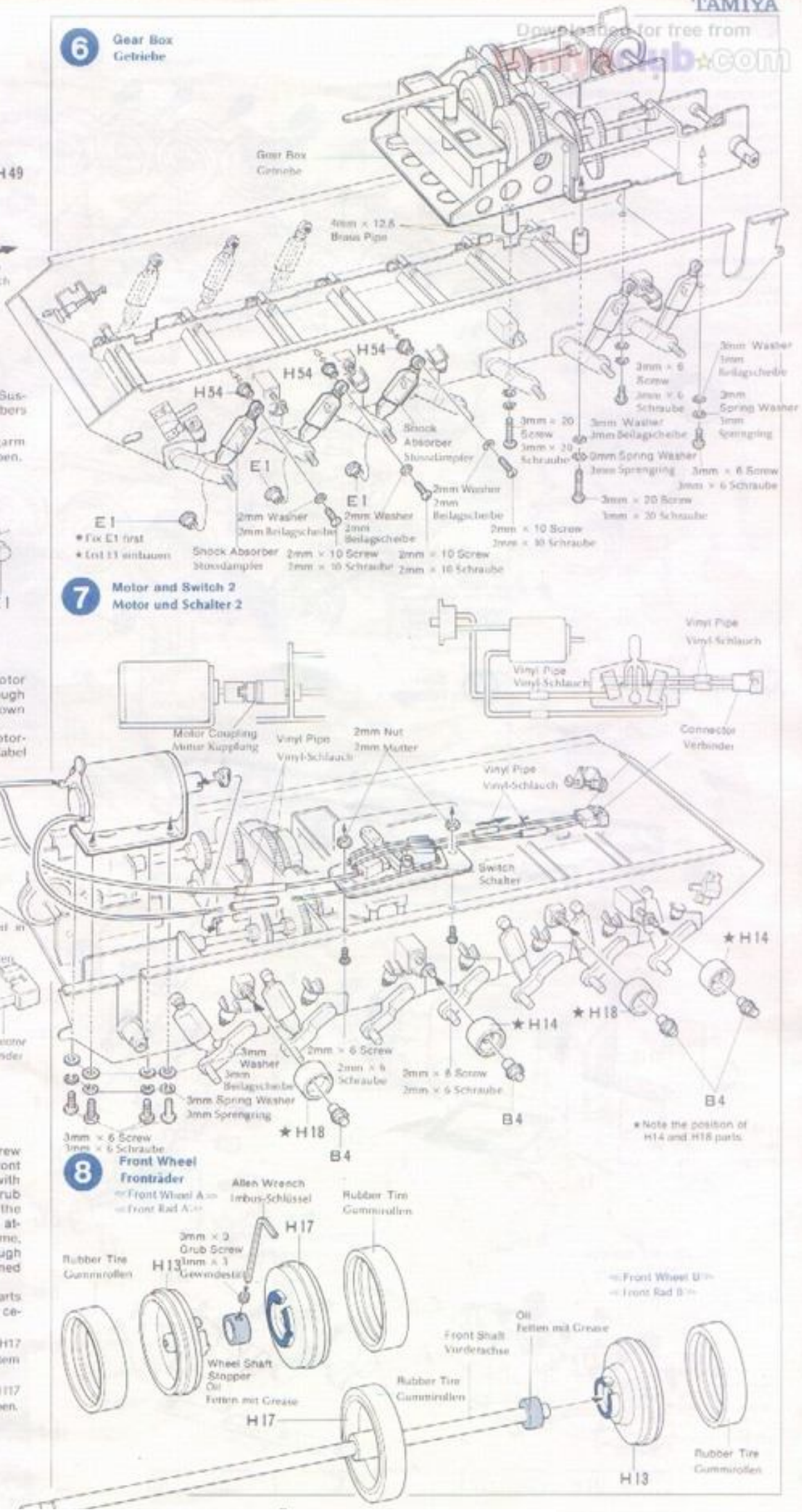
8 Front Wheel / Fronträder

Front Wheel A : Insert 3φ × Grub Screw into Wheel Stopper. Then, cement Front Wheel Parts H13 and H17 together with their notches coinciding with the Grub Screw. Allen Key should be kept on the Grub Screw until Front Wheel A is attached to Front Shaft in 9. At that time, the notches will serve as a hole through which the Grub Screw can be tightened up with the Allen Wrench.

Front Wheel B : Attach Front Wheel Parts H13 and H17 to Front Shaft. Then, cement them together.

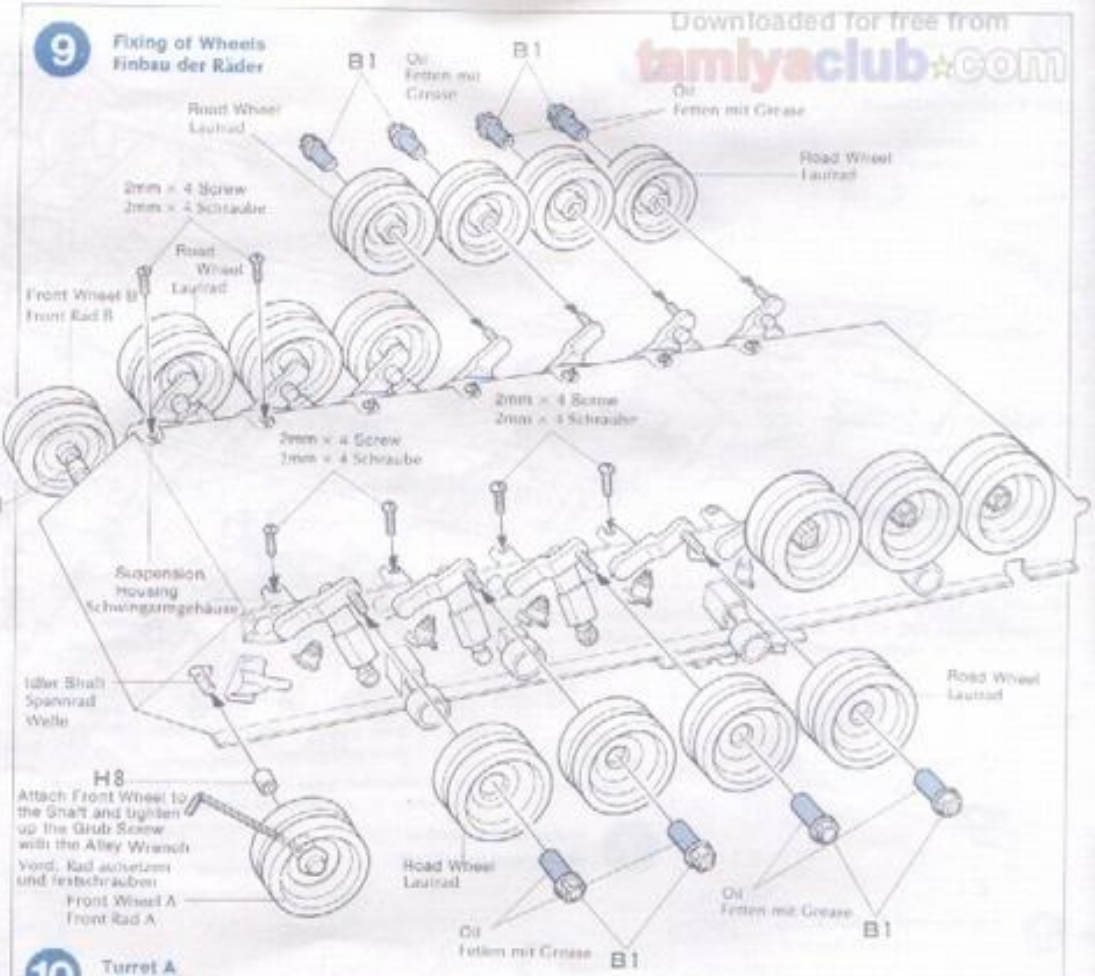
Front Rad A: Radhalten H13 und H17 über Radhalter mit eingeschraubtem Gewindestift zusammenkleben.

Front Rad B: Radhalten H13 und H17 auf Radhalter an Achse zusammenkleben.



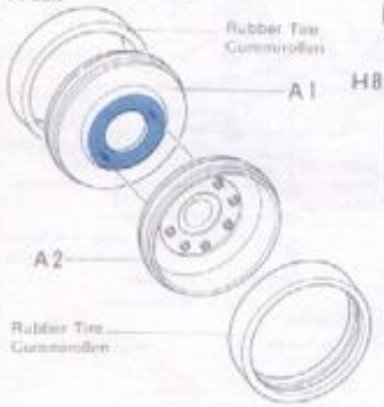
9 Fixing of Wheels / Einbau der Räder

Pass Front Shaft, to which Front Wheel B has been attached in 8, through H8. Pass the Shaft through Chassis. Then, attach Front Wheel A to the Shaft and tighten up the Grub Screw with the Allen Key.
Frontachse mit Rad B durch Wanne schieben, dann Rad A aufsetzen und festschrauben.

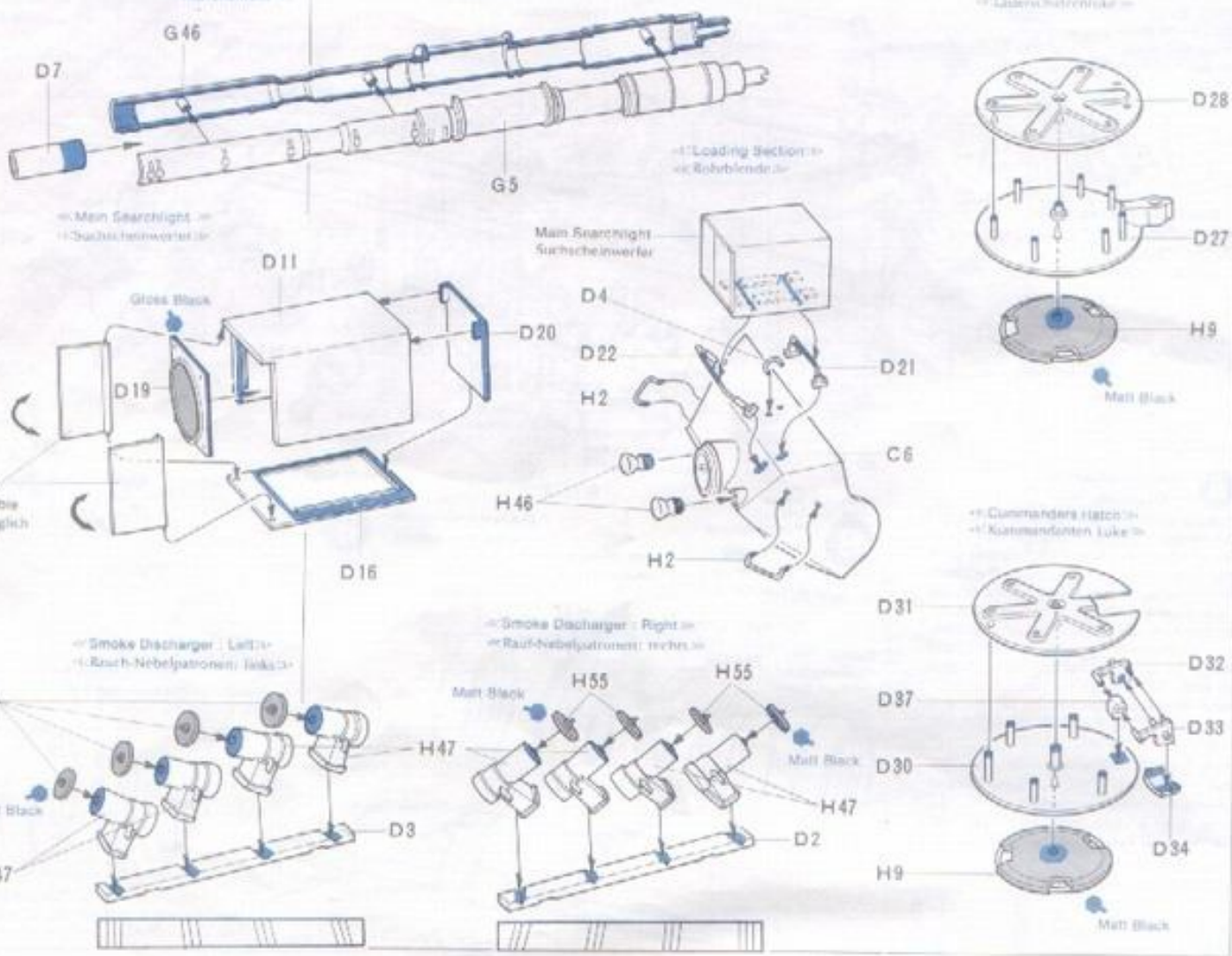


Road Wheel / Laufrad

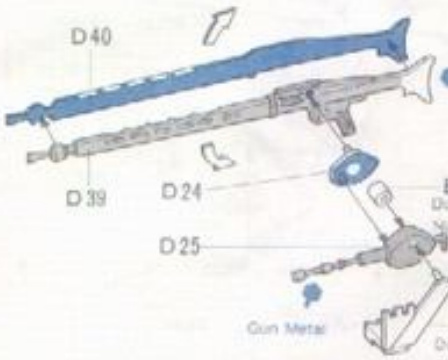
Make 14 sets
14 Satz



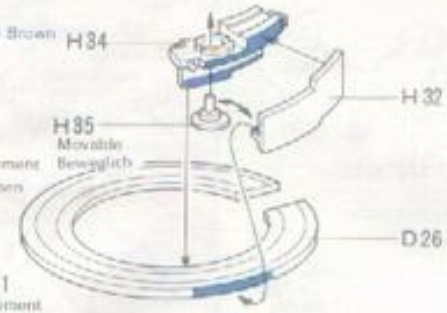
10 Turret A / Turmteile A

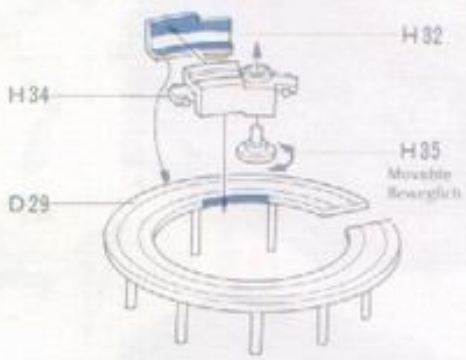


11 Machine Gun / Maschinengewehr



11 Machine Gun / Maschinengewehr





12 Turret B / Turmteile B

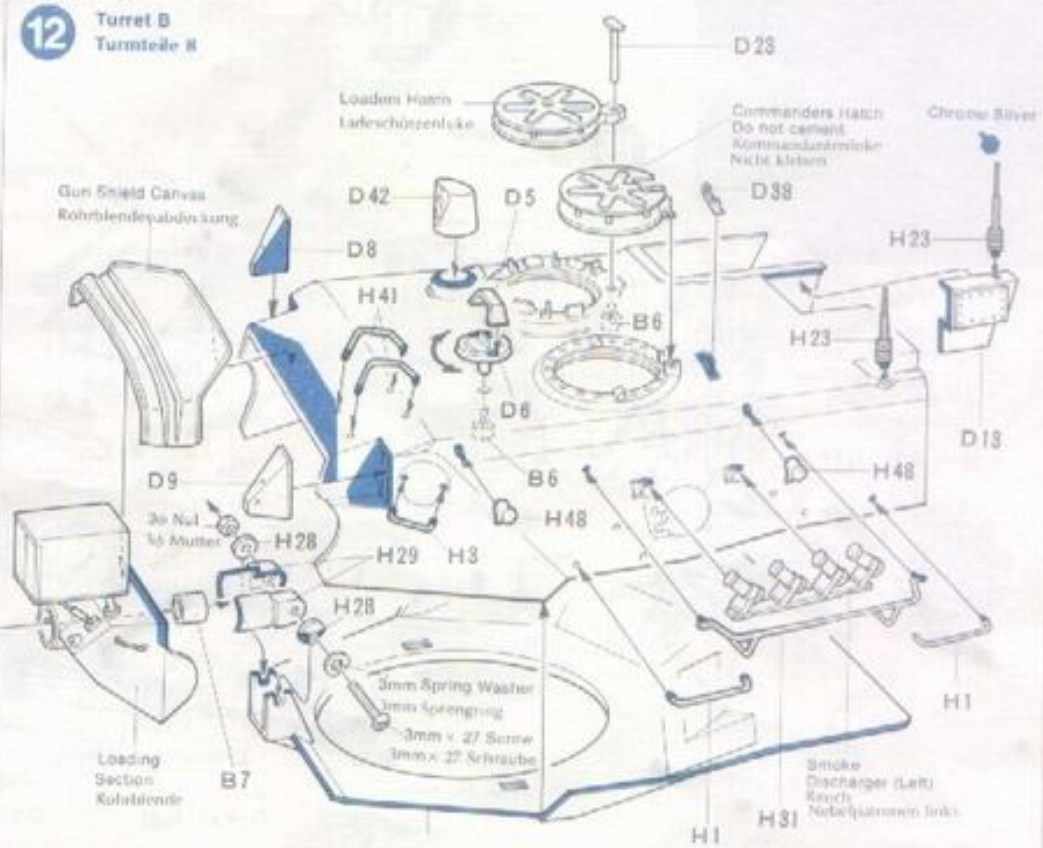
After cementing H28 to Lower Turret, H29 is screwed in place.

Erst H28 einbauen, dann H29 eingeschrauben.

Fix Gun Barrel after installation of R/C Mechanism.

Rohr erst nach Einbau der RC Anlage einstecken.

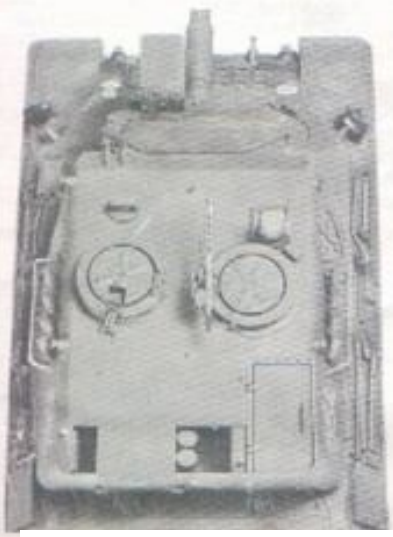
12 Turret B / Turmteile B



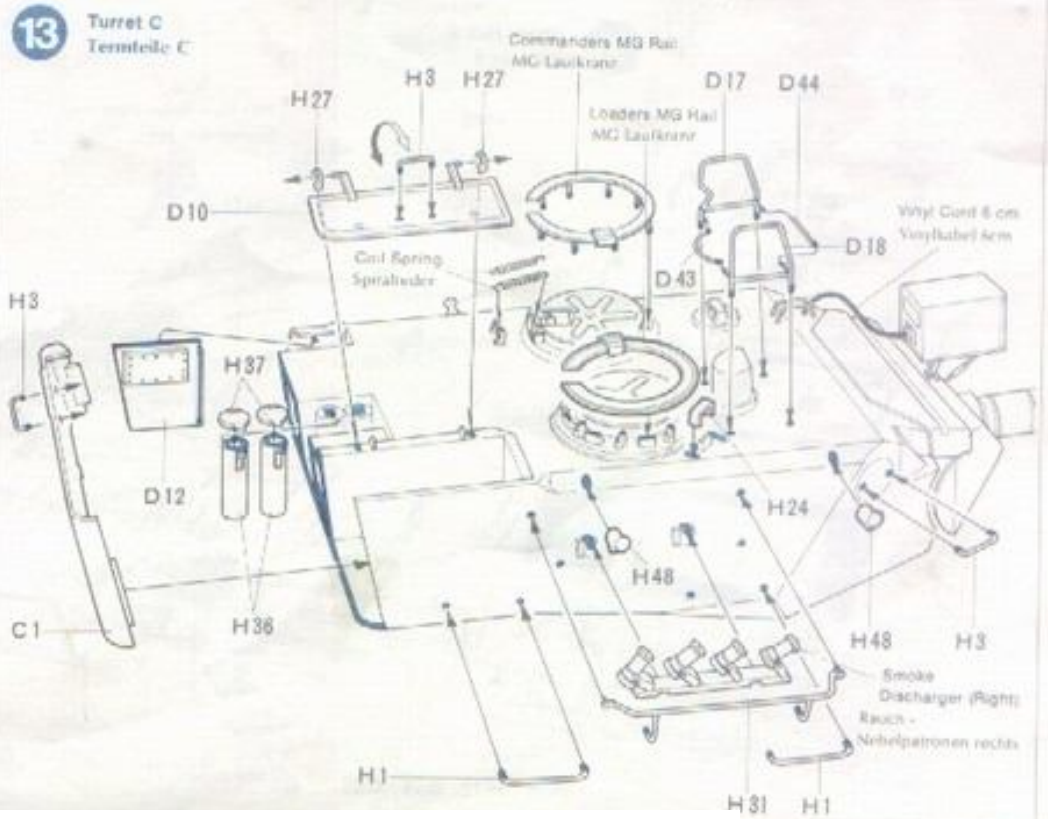
13 Turret C / Turmteile C

Pass Vinyl Cord through Main Search Light and Turret. After D38 cemented in it has become throughly dry, attach Springs between D38 and Commanders Hatch.

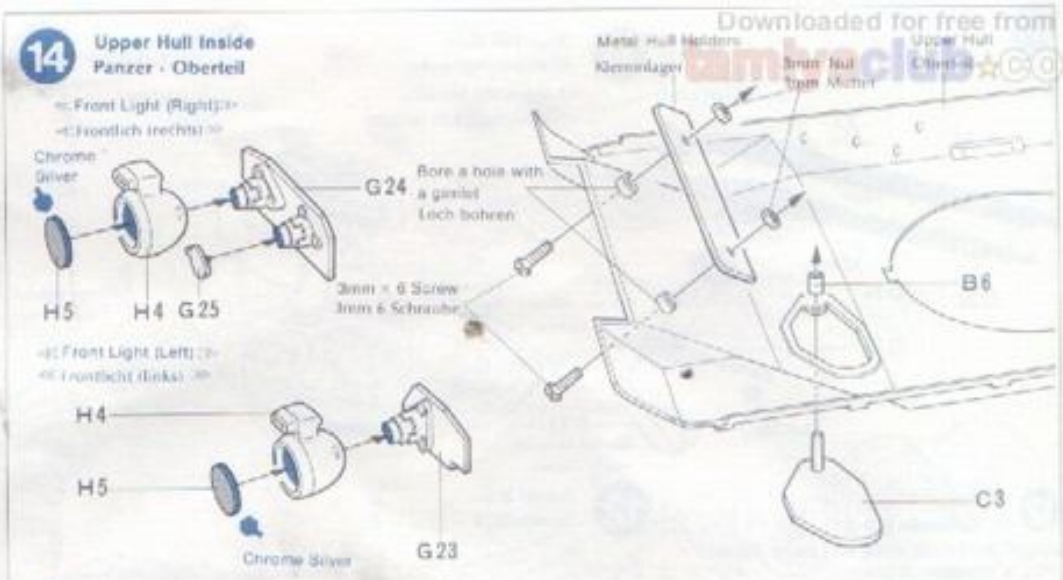
Vinylschlauch in Suchscheinwerfer und Turm einstecken.



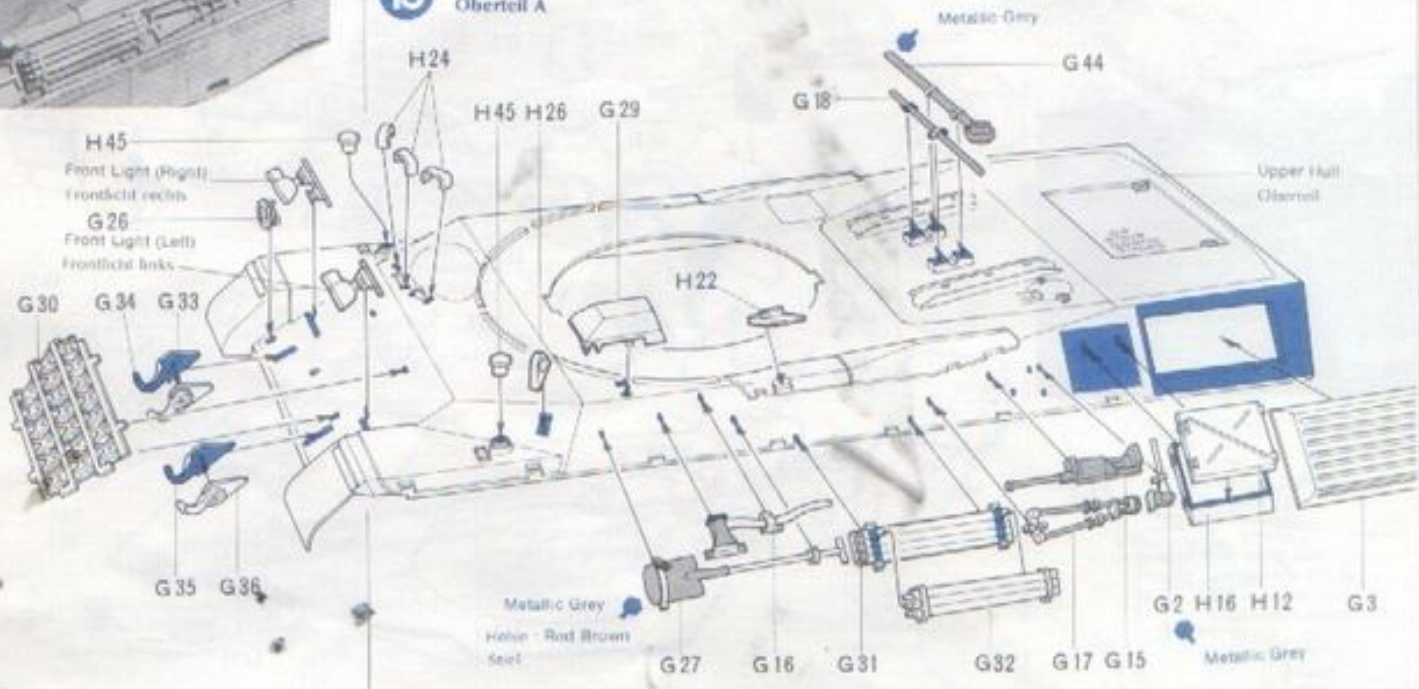
13 Turret C / Turmteile C



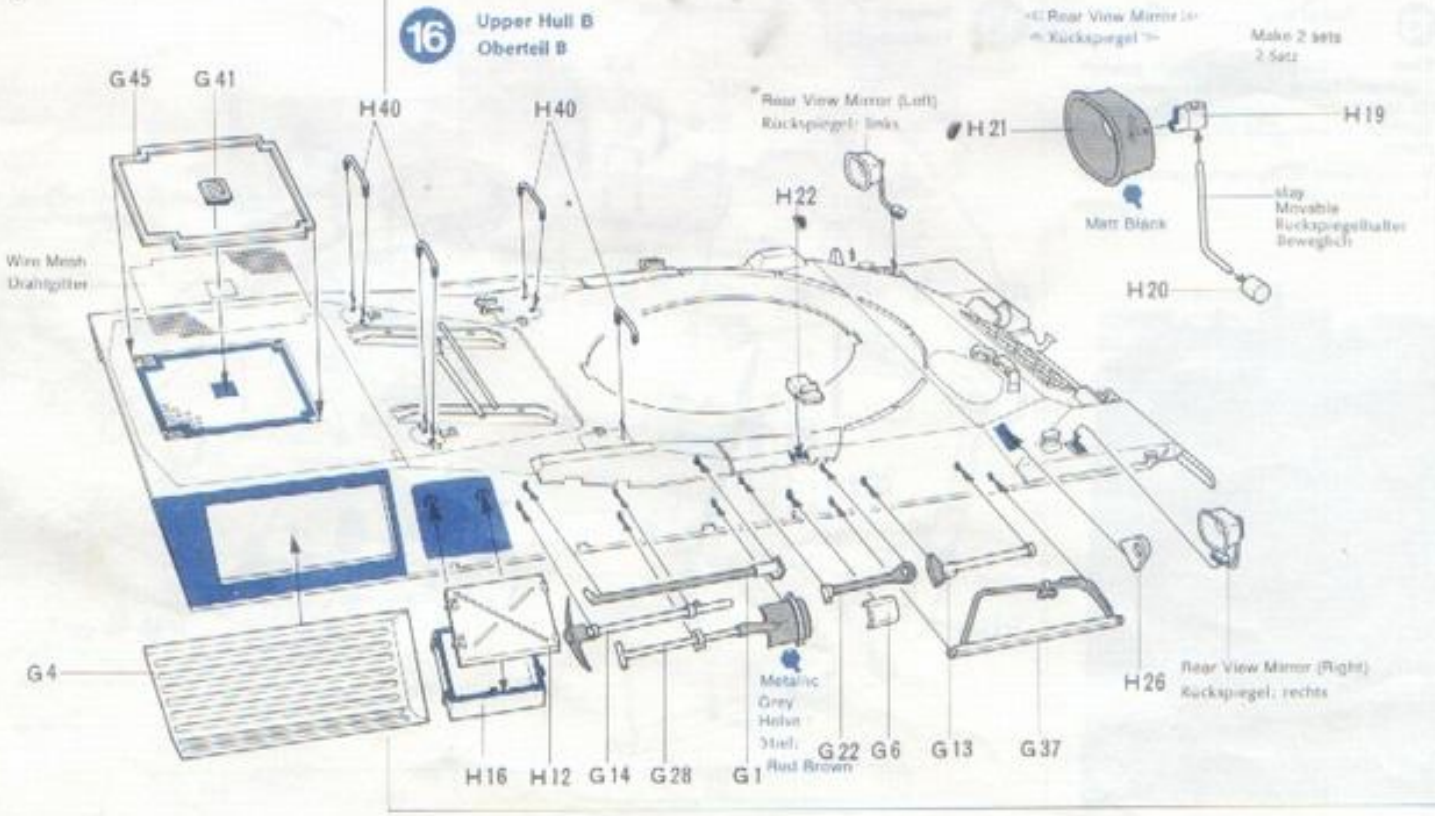
14 Upper Hull Inside
Panzer - Oberteil



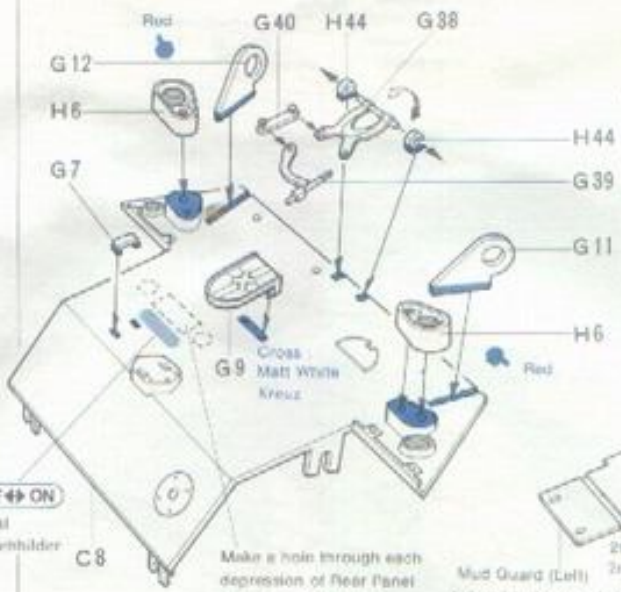
15 Upper Hull A
Oberteil A

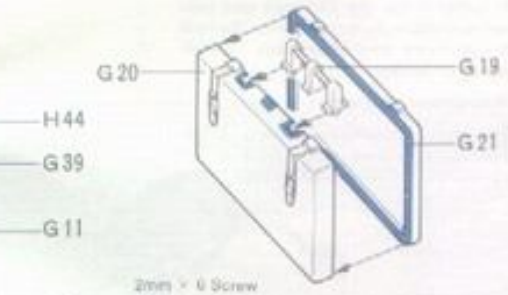


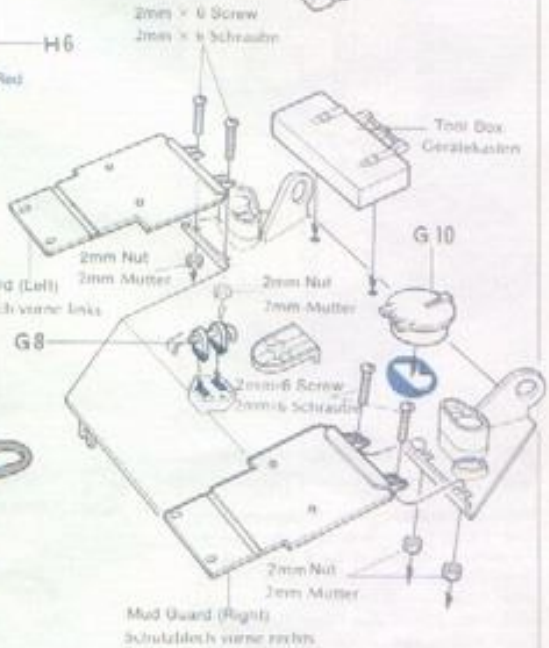
16 Upper Hull B
Oberteil B



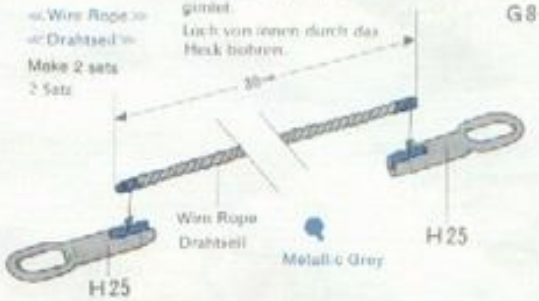
17 Rear Panel / Panzer Heck





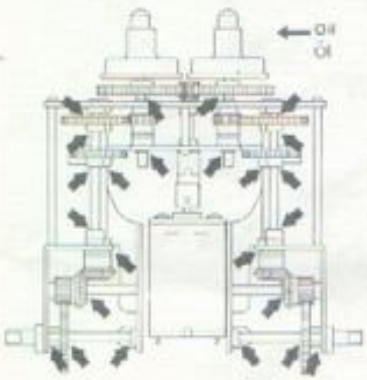


Make a hole through each depression of Rear Panel from inside by using a gimlet.
Loch von innen durch das Heck bohren.



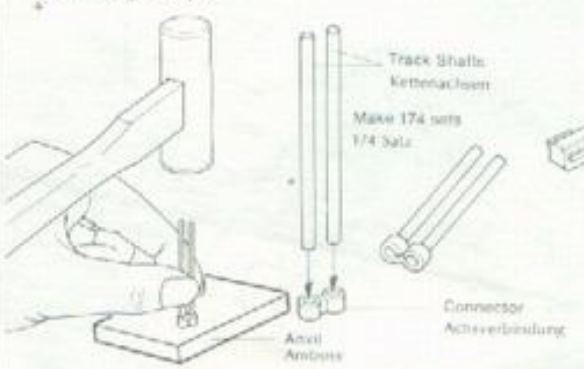
Lubricate gears and run the motors at least 5 minutes. Running gears without oil will cause trouble.

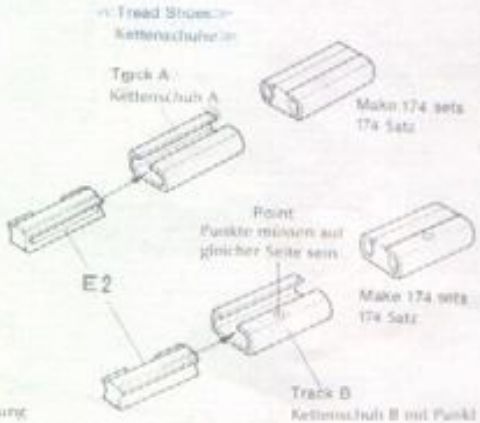
Zahnräder ölen und Motor mindestens 5 Minuten laufen lassen. Ohne Öl gibt es Schwierigkeiten.



18 Track / Kettenmontage

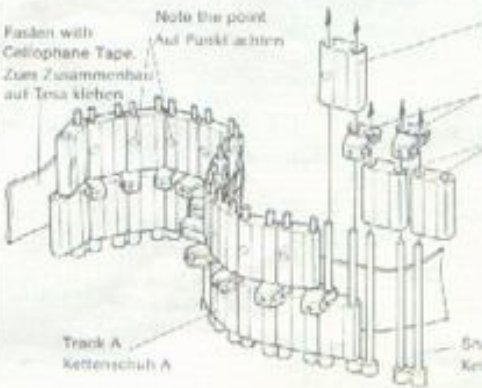
* Track B has Dots. Dots on Track B must all be on the same side.

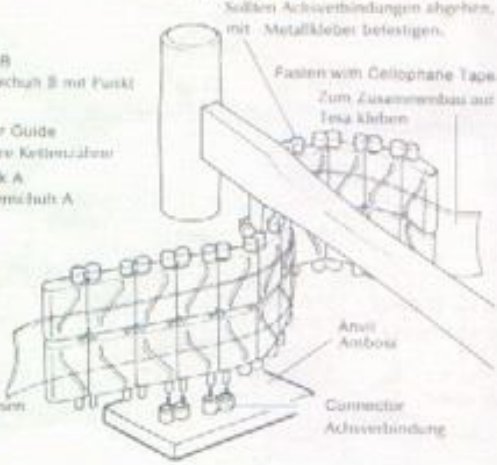




* Assemble two sets of parts to make two tracks of 87 links each.
* Es werden 2 Ketten gebaut, jede besteht aus 87 Gliedern

If by any chance connectors are easy to come off, apply rapid cure adhesives.
Sollten Achsverbindungen abgehen, mit Metallkleber befestigen.





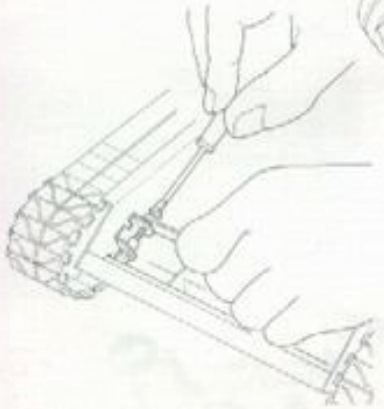
19 Installation Track / Ketteneinbau

Fix Metal Hull Holder R with screws before attaching Tracks. Running in should be made after Upper Hull is fixed.

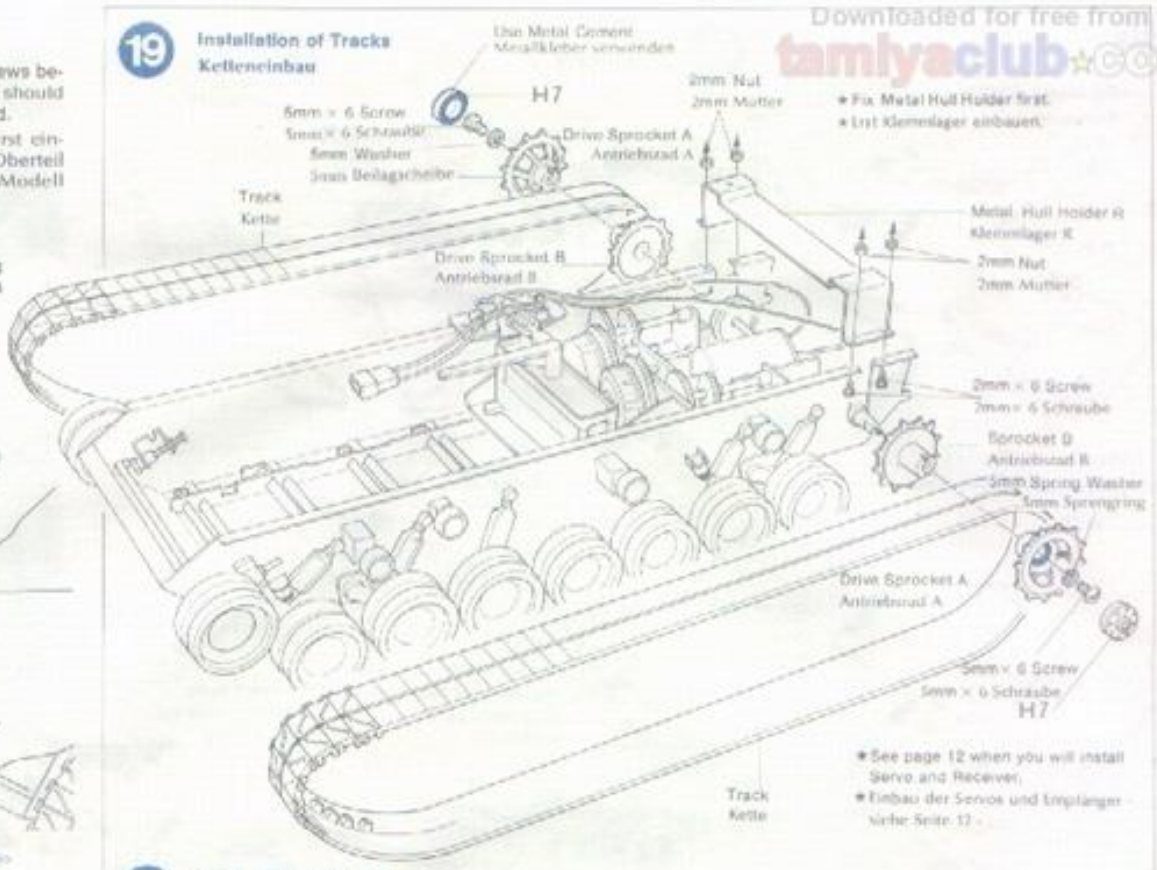
Den Halter R für das Oberteil erst einbauen und dann die Ketten. Das Oberteil erst aufsetzen und dann das Modell "einlaufen" lassen.

Adjustment of Tracks

Adjust track tension by revolving the screw of track adjuster with a screwdriver and wrench.



19 Installation of Tracks / Ketteneinbau



* Fix Metal Hull Holder first.
* Erst Klemmlager einbauen.

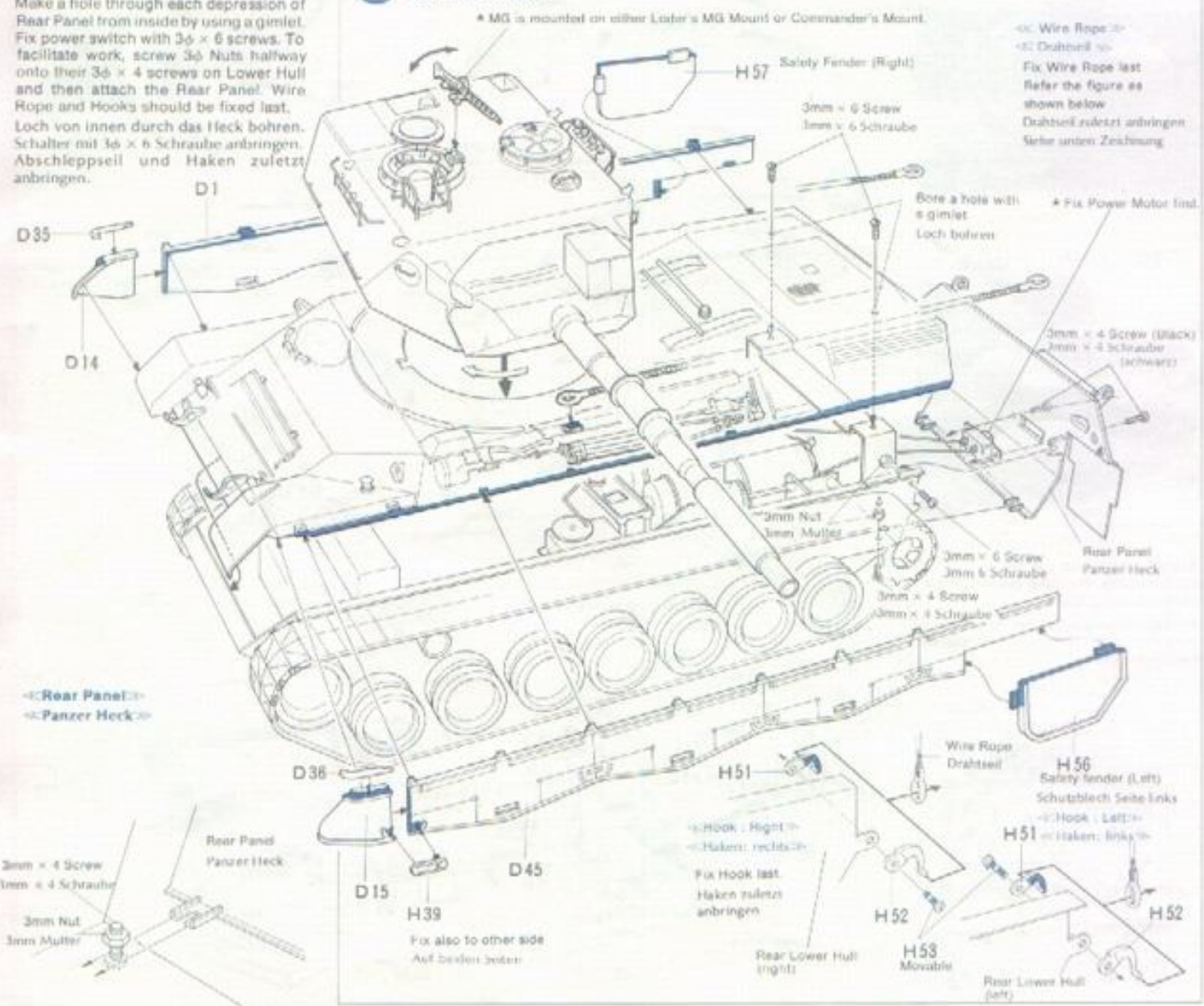
* See page 12 when you will install Servo and Receiver.
* Einbau der Servos und Empfänger siehe Seite 12.

20 Upper and Lower Hull / Ober und Unterteil

Make a hole through each depression of Rear Panel from inside by using a gimlet. Fix power switch with 3φ × 6 screws. To facilitate work, screw 3φ Nuts halfway onto their 3φ × 4 screws on Lower Hull and then attach the Rear Panel. Wire Rope and Hooks should be fixed last.

Loch von innen durch das Heck bohren. Schalter mit 3φ × 6 Schraube anbringen. Abschleppseil und Haken zuletzt anbringen.

20 Upper and Lower Hull / Ober und Unterteil



* Fix Power Motor first.

Wire Rope / Drahtseil

Fix Wire Rope last. Refer the figure as shown below.

Drahtseil zuletzt anbringen. Siehe unten Zeichnung.

Rear Panel / Panzer Heck

Servo And Transmitter

Servo and Transmitter

(1) Servo Control Horn

Servo arms are available in various shapes as shown in the figure below. The amount of movement communicated through the rod can be adjusted by changing the hole.

Servohörner gibt es in Verschiedenen Ausführungen. Das Bewegungsspiel kann mit der Schubstange durch Einsetzen in andere Löcher verändert werden.

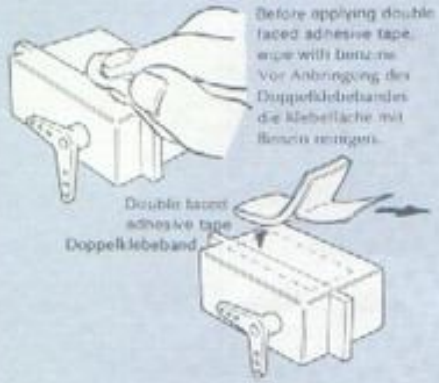
(2) "IMPORTANT" Installation of Servos.

The servos should be fixed when switches of the transmitter and receivers are "on", and stick levers and servo horns are in neutral position. Before fixing, the servo horn must be connected to the servo rod.

Bend the rod as shown in the figure at right. This will serve as a cushion should the rod receive abnormal force and afford a means for adjusting rod length.

Die Servos sollen eingebaut werden, wenn Schalter von Sender und Empfänger eingeschaltet sind und die Hebel auf neutral stehen. Die Servoschubstangen erst einbauen.

Biege die Schubstange wie im Bild gezeigt, die Biegung wirkt wie ein Stossdämpfer.



Fix each servo motor so that the clutch lever or switch lever is in neutral. Make fine adjustment with the bent part of the servo rod. During a trial run, it is possible to make fine adjustment of the neutral by means of the trim lever of the transmitter. However, it is a basic rule that the servo should be fixed in a proper position from the beginning. The fine adjustment by means of the trim lever is only a complement.

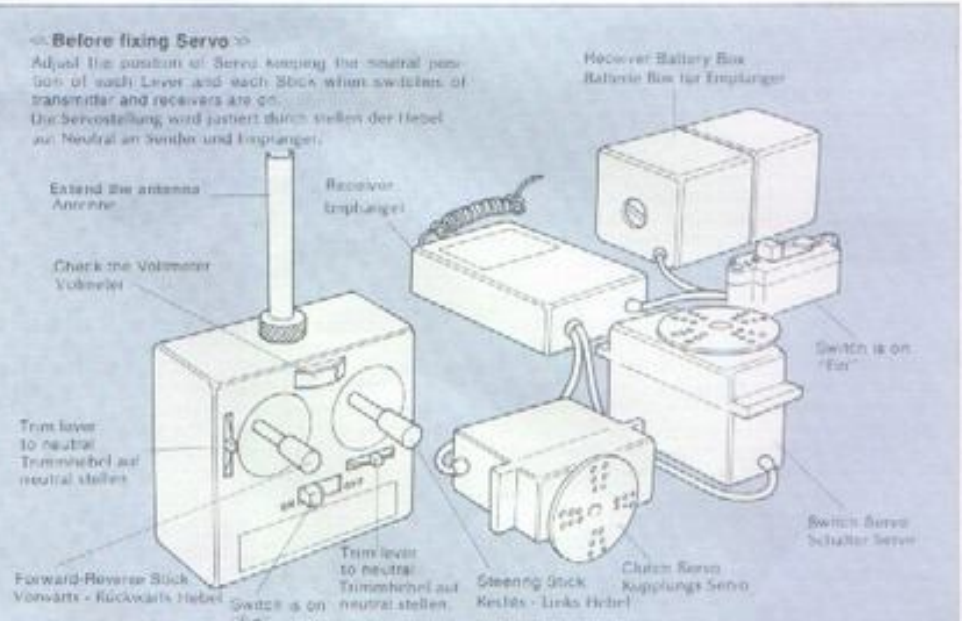
Die Servos so einbauen, dass Kupplungs- und Schalthebel auf neutral stehen. Feinjustierung erfolgt durch Biegen der Schubstange. Beim Einlaufen kann nachgetrimmt werden mit Trimmhebel auf Sender.

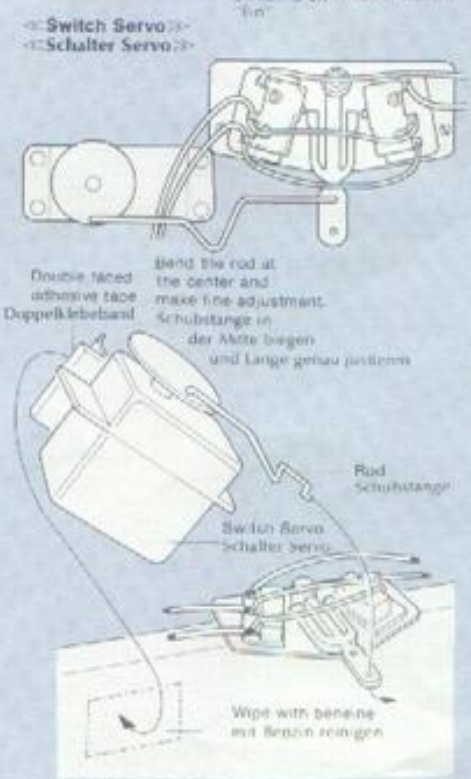
(3) Insulated Cord

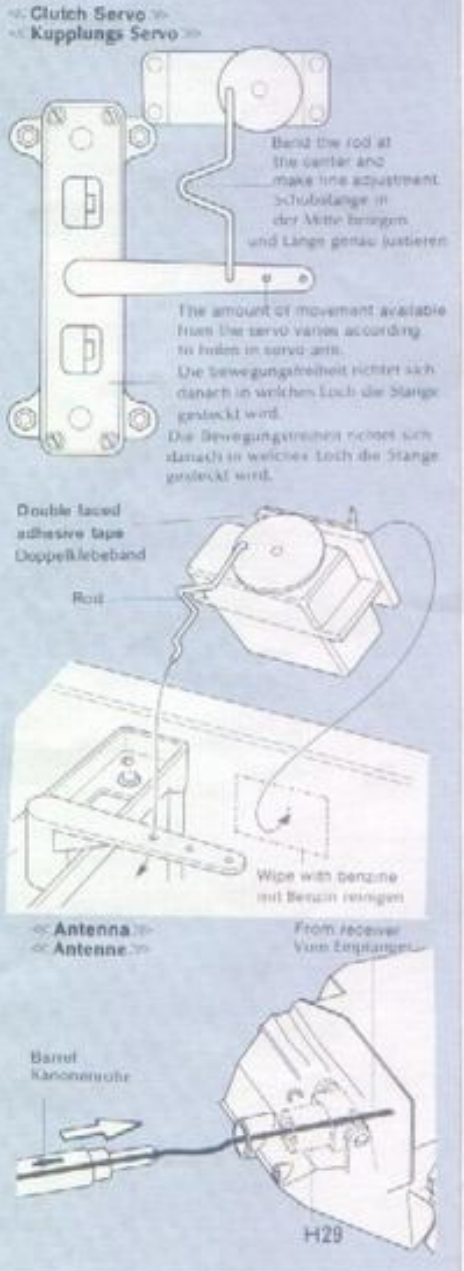
It is recommended to insulate cord with vinyl tape or the like to prevent short circuit.

Wir empfehlen Drahtverbindungen mit Vinylschläuche oder Isolierband gegec Kurzschlüsse um wickeln.

- A pair of connectors is not contained in this kit
- Kabel-Kupplungen im Kasten nicht enthalten.







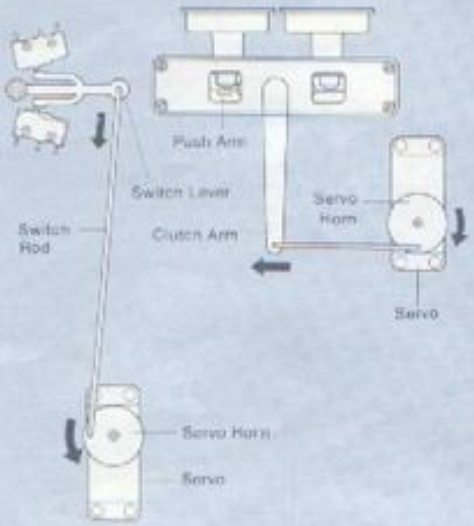
RADIO CONTROL TANK

Control

(1) Tamiya Model Tank

Power is transmitted through each clutch to the sprocket wheel on each side to drive each track. When both clutches are engaged, both tracks will receive the same power. The rotation of the caterpillar tracks can be controlled by means of the clutches. If either of the clutches is completely disengaged, the track on that side will receive no drive and the tank will quickly turn. If either of the clutches is half engaged (by controlling the clutch so that its discs slip on each other and thus power is partially transmitted), the track on that side will rotate slower and the tank will gradually turn. Thus, the direction of the tank can be changed by radio-controlling the clutches. The tank can be switched from forward to backward movement and vice versa by radio-controlling the operation of a forward-reverse changeover switch consists of two micro switches and a lever. To control the operation of both the change over switch and clutches, radio control equipment of the 2-channel 2-servo Digital Proportional type is used.

Durch 2 Kupplungen über die Antriebsräder auf die Ketten übertragen. Bei Einschalten beider Kupplungen erhalten beide Ketten die gleiche Kraft. Gelenkt wird also über die Kupplungen. Ist eine Kupplung ausgeschaltet läuft die entsprechende Kette nicht und der Panzer dreht. Lässt man eine Kupplung "schleifen", dreht die Kette auf dieser Seite langsamer und der Panzer fährt eine Kurve. Die Lenkung des Panzers erfolgt also durch Funksteuerung der Kupplungen. Vorwärts und Rückwärtslauf erfolgt durch Mikroschalter. Kupplung und Vorwärts-Rückwärts-Laufwechsel wird durch die Zwei-Kanal-Zwei-Servos-Digital-Prop-Anlage betätigt.



Running in

(1) Inspection before running

Make the following inspection with power source for the motors removed.

Track tension - tension should be adjusted so that, when the tank is lifted (put it on the small box for metal parts contained in the kit), each track naturally hangs for 5 mm at the central part shown in the figure below.

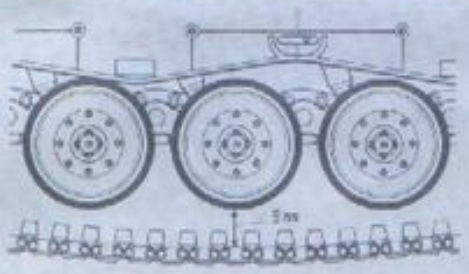
Adjust track tension by means of the screw of the track adjuster which holds the front shaft. If the track is too long to do so, remove its links accordingly.

Make sure that no wire is loose or disconnected.

Make sure that the gear box is free from dust, small stones or the like.

Make sure that no screw is loose.

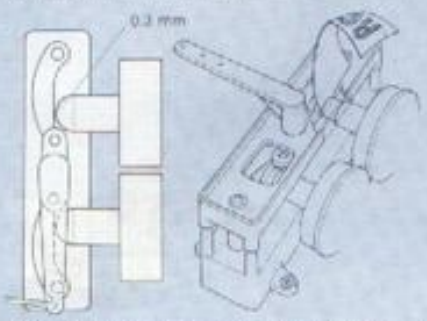
Clearance between the clutch and the push arm should be about 0.3mm. Loosen the set-screws of the clutch engaging device and adjust the clearance.



Radio control equipment - operate the transmitter to see if the servos, switches and clutches work well.

Fasten road wheels, idler wheels, etc. in place by firmly pushing their caps in place.

Make sure that dry cells and/or storage batteries for the transmitter, receiver and motors in good condition and fully charged.



Folgende Inspektion ohne Kraftanschluss ausführen: Kettenspannung. Ketten müssen so eingestellt sein, dass diese bei Anheben der Wanne (Fahrwerk) 5mm in der Mitte durchhängen.

Die Ketten können durch Anziehen der Kettenspanner gespannt werden. Sollte eine Kette zu lang sein, entsprechende Kettenglieder entfernen.

Überprüfen, dass kein Kabel locker oder nicht angeschlossen ist. Getriebe muss frei von Staub, kleinen Steinchen oder ähnlichem sein. Alle Schrauben müssen festgezogen sein. Abstand zwischen Kupplung und Kupplungsarm muss 0.3mm sein. Sender einschalten und prüfen ob Servos, Schalter und Kupplungen funktionieren. Lauf- und Gleitrollen überprüfen, evtl. Achskappen stärker eindrücken. Trockenbatterie oder Akku auf Leistung prüfen.

(2) Operation procedure

The power switch should be turned on last and turned first. To run the tank, be sure to following the procedure below.

1. Mount batteries for the motors, transmitter and receiver in place, insulating terminals against rist of short circuit.
2. Make sure that the sticks of the transmitter is in neutral.
3. Turn the transmitter switch "On" first.
4. Turn the receiver switch "On" second.
5. Operate the sticks to make sure that everything is in good order.

This procedure must be strictly followed. If the receiver switch is turned on when the transmitter switch is till off, the receiver may receive radio waves from other transmitters and the model tank may run beyond your control.

After you have finished running the model tank, reverse the above procedure.

After running, be sure to disconnect the battery connector and remove power source from the transmitter and receiver.

Running in. Put the tank on the small box provided for metal parts in the kit.

Lift the tank as shown in the figure and run the drive motors for at least five minutes by means of radio control so that the gear box, sprocket wheels, etc. adjust themselves to use.

In so doing, make sure that (1) no abnormal noise is heard and (2) the clutches work well. Make adjustments if necessary.

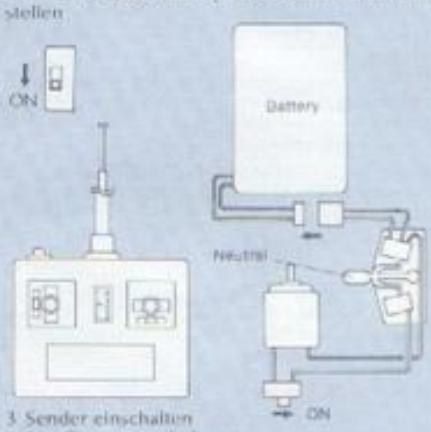
If no abnormality is recognized, make a trial run of the model tank for about five minutes. In so doing, avoid climbing any steep slope, a quick turn on the lawn, or similar movements which might apply undue stress at this time.

After that, check screws and tighten them if necessary.

It is recommended to fasten screws with Metal cement, lockite etc. (The screws of the idler wheel supports must not be cemented).

Den Stromschalter zuletzt einschalten, bezw. zuerst abschalten, da sonst das Fahrzeug unkontrolliert ist.

1 Batterien bzw. Akkus einbauen
2 Schalthebel bzw. Knopf des Senders auf neutral stellen

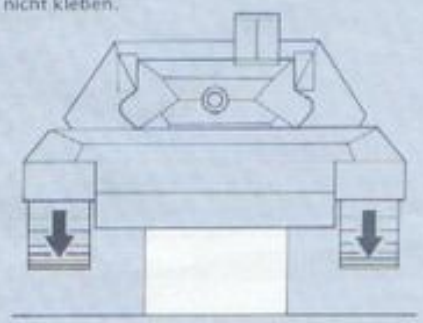


3 Sender einschalten
4 Empfänger einschalten
5 Kurzsteuerung betätigen, zur Überprüfung aller Aggregate.

Die Punkte 1 - 5 sollten unbedingt beachtet werden. Falls der Empfänger eingeschaltet ist und der Sender noch nicht, kann der Empfänger Radiowellen von anderen Sendern empfangen und der Panzer aus ihrer Kontrolle gehen. Nach Einstellen des Fahrbetriebes obiges wiederholen. Bei der Einkonpischaltung ist es nicht leicht die Stellung "neutral" zu finden, daher mit Vorsicht auf Neutral-Stellung schalten.

Nach dem "Einsatz" alle Batterien abschalten! Motor - Sender - Empfänger.

Lager und Wellen im Getriebe mit Maschinenöl und Zahnräder mit Fett (Grease) schmieren. Alle beweglichen und drehenden Teile wie Räder und Radaufhangung ölen. Kupplungen niemals ölen, sonst werden die Kupplungsscheiben schmierig und drehen durch. Panzer etwas hochstellen und Motore 5 Min. laufen lassen. Gleichzeitig Servos einschalten, um die Antriebsräder richtig in Gang zu bringen. Dabei feststellen, dass kein anormales Geräusch auftritt und die Kupplunge funktionieren. Nachstellen wo nötig. Ist alles in Ordung, einen Testlauf von etwa 5 Minuten. Stehen-drehen-vorwärts - rückwärts - fahren. Danach alle Schrauben nochmals überprüfen und wo nötig nachziehen. Die Schrauben der Spannachslager nicht kleben.



WEST GERMAN TANK LEOPARD A4

Instructions for Running

Tamiya's Leopard Tank uses electric motors and does not make a loud noise. It is very powerful, and must be handled with care. Observe the following instructions :

Do not drive the tracks with the model tank in your hand.

Do not put your fingers between the track and wheels (sprocket wheel in particular), when they are rotating. (Use safety fenders contained in the kit).

Do not touch the gear box when in motion.

Do not run the model tank very near to small children.

Do not run the model tank in the street.

Before switching on the radio control, make sure that there is no other person who is operation a radio-controlled model nearby. If there is such a person, compare the type and frequency band of your radio control unit with those of his. Avoid all possibility of interference.

Do not short-circuit high capacity storage batteries. (Short-circuit produces heat and may cause a fire). Be very careful not to short-circuit storage batteries, or dry cells.

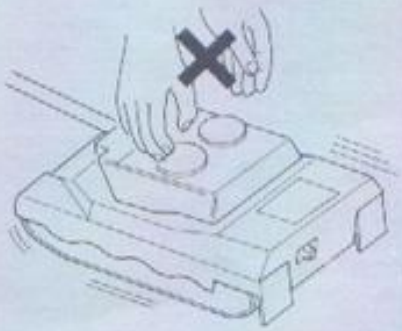
If interference occurs, immediately stop running the model tank.

Before running the model tank, make sure that it is in good order.

Watch the operating surface, and avoid abuse in running so that the model tank may stand up to long use without trouble.

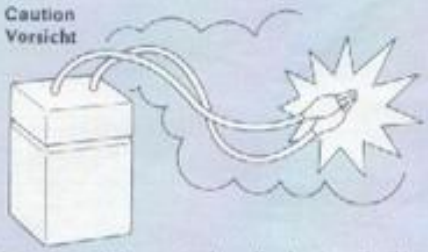
After running the model tank, check, clean and oil it. This will add to its life.

Power sources (Batteries) for the motors, transmitter and receiver should be removed when the model tank is not in use.



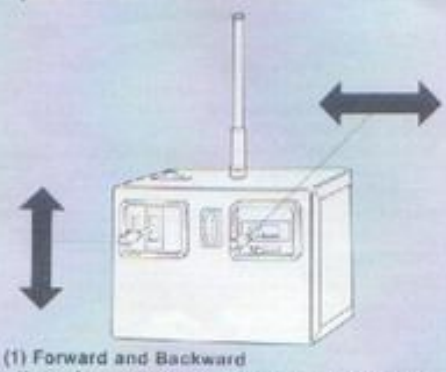
Tamiya's LEOPARD fährt mit E-Motor und macht keinen Lärm. Da die Geschwindigkeit niedrig ist, kann der Panzer leicht gelenkt werden. Das Modell ist sehr kräftig gebaut und muss trotzdem mit VORSICHT behandelt werden. Die Ketten nicht laufen lassen, wenn man das Modell an der Hand hält Finger nicht in laufende Ketten und Antriebsräder stecken. Zur Verhütung von Ver-

Caution
Vorsicht



letzungen haben wir dem Baukasten Kotflügel beigelegt. Siehe Bauanleitung Abb. 14, das Modell ist originalgetreu, der "echte" Panzer hat diese Kotflügel nicht. Diese Kotflügel wurden speziell für Ihren Schutz vor Verletzungen entwickelt und wir bitten Sie dies unbedingt einzubauen. Beim Laufen nicht in das Getriebe hineinlangen. Keine Trafos mit direktem Stromanschluss verwenden, da diese Hitze erzeugen und Feuer verursachen. Bei Funkstörungen Modell sofort ausser Betrieb setzen. Geländefläche beobachten und "Durchdrehen" der Ketten vermeiden. Nach Einstellen des Fahrbetriebes alles wieder überprüfen, reinigen und ölen dies verlängert auf jeden Fall die Lebensdauer des Modells. Batterie/Akku abklemmen.

Operation of LEOPARD TANK



(1) Forward and Backward

If the forward-reverse stick is pushed up, the tank will move forward. If it is pushed down, the tank will move backwards.

(2) Right and Left turn

Tilt the Right-Left stick slowly to the right while pushing up the Forward-Reverse stick to the forward position. Then the right track will stop and the tank will turn right with a small radius. Enjoy delicate control of turns from slow ones to quick ones by using the sticks. Of course, the tank can be turned left in a similar way. If the Forward-Revers stick is pushed down and the Right-Left stick is turned right or left, the tank will turn right or left while moving back.

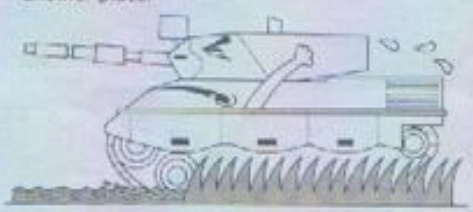
Panzerfahrzeuge lenken durch Stoppen oder Langsamfahren einer Kette, z.B.
Rechte Kette stoppt, linke läuft :
Panzer dreht schnell nach rechts -
Rochte Kette läuft langsam, linke Kette läuft schnell:
Panzer kurvt nach rechts -
Rechte Kette vorwärts, linke rückwärts :
Panzer dreht auf der Stelle -
man nennt dies dann Achsdrehung.
Bei Vorwärts oder Rückwärtsfahrt drehen beide Ketten mit gleicher Geschwindigkeit.

(3) Undesirable road surfaces

The driver of a real tank watches the ground and keeps clear of places which are difficult to cross.

Also, for the model tank, some places are difficult to cross such as lawns and carpets with deep pile.

These are most unsuitable places for the model tank. They offer very large surface resistance. The motors are subject to heavy loads, particularly in quick turns. Make slow turns instead, or use another place.



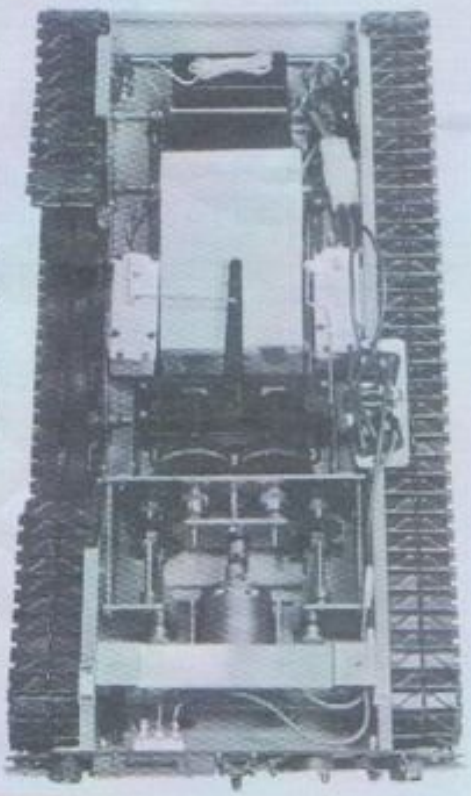
Loose gravel Paths.

It is relatively easy for the model tank to make turns on gravel paths, but in such places. The tracks are liable to be dislodged, and therefore turns should not be made.

Fine sand offers no serious problems. But Sand about the size of a grain of rice is liable to get between the track and sprocket wheel.

In a V shaped ditch, the tracks are also liable to be thrown.

"Diesen Boden will ich nicht": Der Fahrer eines echten Panzers beobachtet den Boden vor sich und vermeidet schwierige Stellen zum durchfahren. Auch für den Modellpanzer gibt es schwierige Stellen. Rasen und langflorige Teppiche sind die unbrauchbarsten Plätze für den Fahrbetrieb mit dem grössten Oberflächenwiderstand. Die Motore erhalten die grösste Belastung speziell in schnellen Drehungen. Wenn nicht vermeidbar auf solchen Stellen zu fahren, dann bitte langsame Drehungen des Panzers ausführen. Auf Kies und Schotterstrassen kann der Panzer leicht unkontrollierte Drehungen ausführen. Rinnsteine sind zu vermeiden, da die Ketten ausbrechen könnten. Feiner Sand stellt keine Probleme, jedoch körniger Sand in der Grösse von Reiskörnern könnte sich zwichen Ketten und Antriebsrädern klemmen.



TROUBLESHOOTING

A. The motors do not rotate

A-1 If the servo motor does not operate, check if switches of radio control mechanism (transmitter, receiver) are on, and the voltage and current of the battery are suitable (or if the battery is fully charged).

A-2 Is each switch on? Are the battery connector and switch connector in proper condition? Isn't the battery exhausted? Are cords properly connected?

A-3 The forward-reverse polarity change-Checking Switches
Push with finger, over-ride the radio control. Changeover Switch does not function. With radio control equipment of the Digital Proportional type, the movement of the servo is transmitted through the pushrod to the switch lever, which operates the changeover switch. If the tank moves forward or backward when you push the switch lever with your fingers, as shown in the figure above, the range of motion transmitted through the switch rod is insufficient. Adjust the length of the rod and/or fix it to another hole of the servo horn. (The transmitter of the Digital Proportional type is equipped with a trim lever. However, this is designed to be used in making fine adjustments of the servo neutral position, and should not be used prior to the adjustment of the push rod or the changing of the hole.) If the tank does not move when you push the switch levelever with your fingers, wires may be incorrectly connected, disconnected or out of place, or the changeover switch itself may be defective.

A-1 Schalter der Radio-Control-Anlage ausgeschaltet.

A-2 Sind alle Schalter auf "ein" ?
Sind die Batterie und Schalter gut angeschlossen ?
Wie ist die Stromstärke der Batterien ?
Alle Kabel gut angeschlossen ?

A-3 Der Vorwärts / Rückwärts-Schalter funktioniert nicht. Bei der Digital-Prop-Anlage wird die Bewegung der Servos mit einer Schubstange vom Schalter ausgelöst. Der Spielraum der Schubstange ist ungenügend wenn der Schalter mit dem Finger betätigt wird und der Panzer sich vorwärts oder rückwärts bewegt. Entweder verlängert man die Schubstange oder steckt diese in ein anderes Loch des Servoarmes. Sollte der Panzer trotzdem nicht laufen, müssen sämtliche Kabel überprüft werden, eventuell ist der Microschalter zu ersetzen.

B. The motors rotate but the tank does not move.

B-1 (In case the clutch cases rotate) If collets holding a gear in place are loose, it may slide and will not transmit power. Tighten screws with the Allen Key contained in the kit.

B-2 (In case the clutch cases do not rotate) The seizure between gear shaft and bearing causes trouble. Disassemble the gears and shafts which are locked by the seizure, and wash shaft and bearing with machine oil. Assemble gear box and run the drive motors for at least five minutes.

B-1 Die Kupplungen übertragen die Motorkraft nicht. Wenn geölt, dann rutschen die Kupplungsscheiben. Ausbau vorsichtig vornehmen und jedes Teil mit Alkohol waschen, eventuell Federn nachspannen.

B-2 Getriebeschaden. Wurmschrauben auf Wellen sind locker und müssen festgezogen werden.

C. The tank moves too slowly

C-1 If abnormal noise is heard, the seizure of gears may occurred. Apply machine oil to bearings and run the drive motors for at least five minutes.

C-2 Dry cells or storage battery for the motors is weak

C-3 The caterpillars are too tight.

C-1 Laufräder, Stützräder oder Antriebsräder laufen nicht glatt. Wellen ölen - Schmutzbelag entfernen.

C-2 Trockenbatterien oder Akku von Motoren sind zu schwach.

C-3 Die Ketten sind zu stramm. Ketten an Spannachlagern neu einstellen.

D. The tank does not move straight

D-1 The tracks have different tensions.

D-2 When the tank turns right — The right clutch is always in contact with the push arm and half engaged or completely disengaged.
When the tank turns left — The left clutch is always in contact with the push arm and half engaged or completely disengaged.
Adjust the clearance between the clutch and the push arm to about 0.3mm by changing the length of the clutch rod and using the trim lever of the transmitter.

D-1 Die Ketten sind ungleich gespannt.

D-2 Der Panzer dreht nach rechts - die rechte Kupplung ist ständig in Verbindung mit Schubarm und halb oder ganz ausgerückt.
Der Panzer dreht nach links - die linke Kupplung ist ständig in Verbindung mit Schubarm und halb oder ganz ausgerückt. Nachstellen der Kupplung erforderlich. Schubarm muss ein Spiel von 0.3 mm haben.

E. The tank moves forward or backward in direct opposition to the radio signal.

E-1 Dry cells or storage battery for the motors are connected with reversed polarity.

E-1 Die Motorkabel umpolen.

F. The tank does not turn well

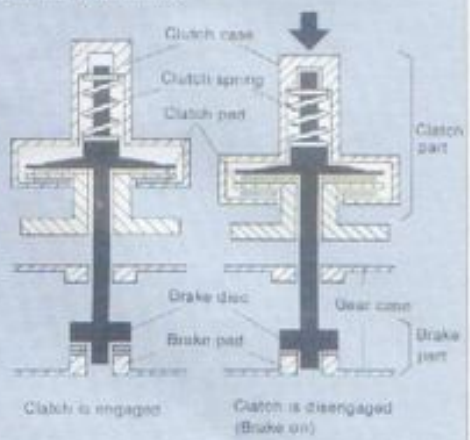
F-1 The clutches cannot be completely disengaged.
Adjust the length of the clutch rod and/or fix it to another hole on the servo horn so that the clutches can be competely disengaged. (The clutches have a travel of about 1mm.)

F-1 Die Kupplungen sind nicht ganz ausgerückt. Nachstellen der Schubstange oder Einsetzen in ein anderes Loch des Servoarmes. Die Kupplungen haben einen Hub von ca. 1 cm.

G. Trouble in the slow turn

G-1
Tamiya A4 Leopard's turning mechanism is designed to lock the tracks if the clutch is disconnected. However, whilst running on the surface with not so much resistance, the brake may sometimes be locked to prevent a slow turn by the clutch. In such a case, remove the brake pad to reduce the braking effect. Please note that if you leave the brake pad off, the tank may not be able to slowturn on the surface with much more resistance and on the downslopes.

Sectional View of Clutch



G-1 Ketten an Spannachslagern nachspannen. Folgende Werkzeuge werden benötigt: Schraubenzieher, Kneifzange, Hammer, Pinzette, runde Feile, flache Feile, Schneidmesser, Doppelkopf-Mutternschlüssel, 6-Kant-Stiftschlüssel, Klebeband, Schaum-Doppelklebeband zum Befestigen des Servos und des Empfängers, Ölkannchen.

H. Radio Interference

H-1 Isn't the power source for the transmitter or receiver exhausted?

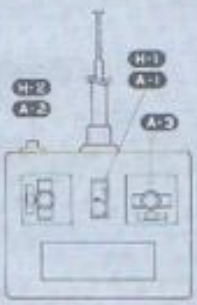
H-2 Isn't there radio interference? If the servo works when the transmitter is off and the receiver is on, there is radio interference and running must be stopped. To confirm the existence of radio interference, put a block under the tank body to keep the tracks off the ground so that the tank does not run of itself.

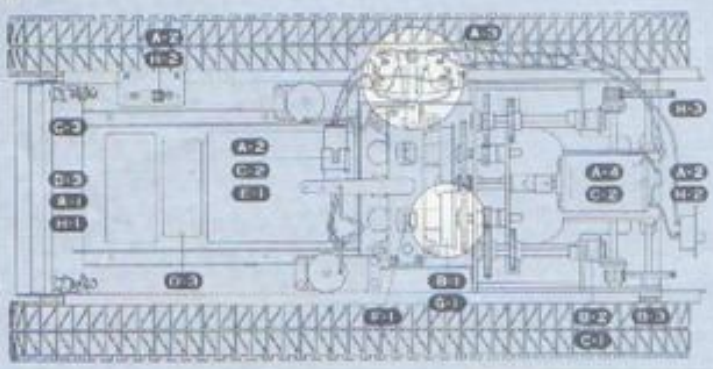
H-3 Isn't the tank body emitting noise? If metal pieces are rubbed against each other by vibration, noise may be emitted and disturb radio control. Make sure that the servo rods or the terminals of the receiver battery box are not rubbing against the tank body. Cover metal surfaces with vinyl tape, etc. if they are liable to come in touch with each other.

H-1 Wellensalat !!
Wenn Servos in Funktion obwohl Sender und Empfänger auf aus stehen, dann sofort den "Einsatz" abbrechen. Zum Überprüfen das Fahrzeug hochstellen sodass die Ketten in der Luft drehen.

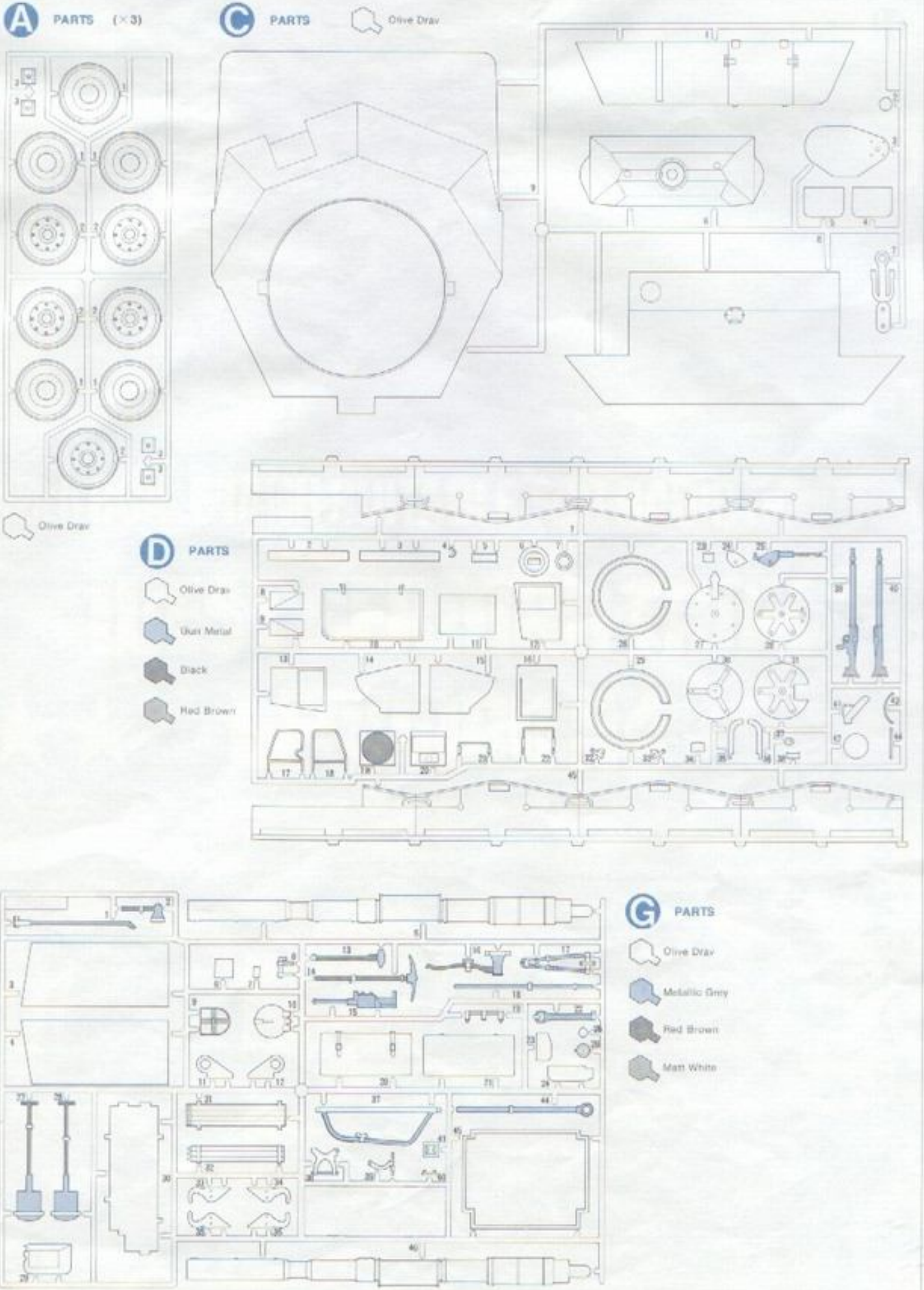
H-2 Wenn das Fahrgestell Geräusche von sich gibt, alles überprüfen und evtl. lockere Schrauben nachziehen.

H-3 Darauf achten, dass Servoschubstangen die Karosserie nicht berühren. Scheuerstellen evtl. mit Tesa abdecken.



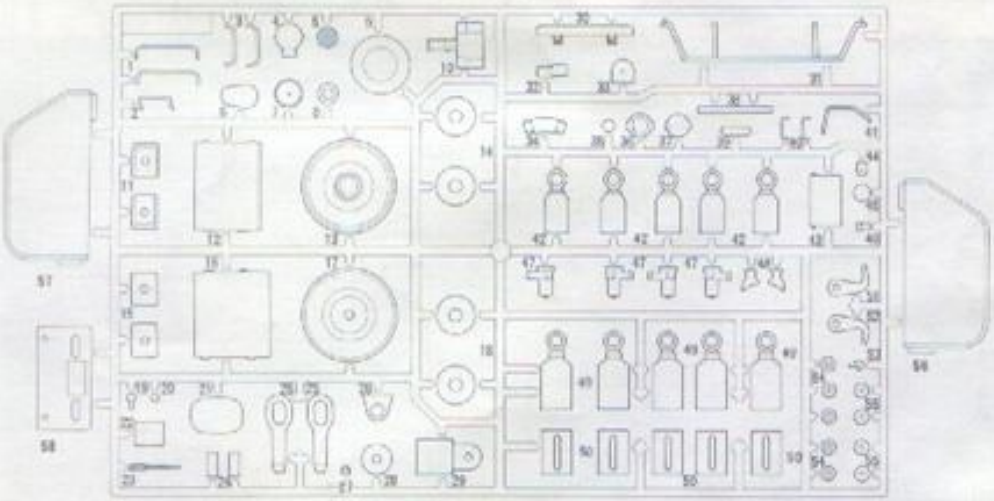


PARTS



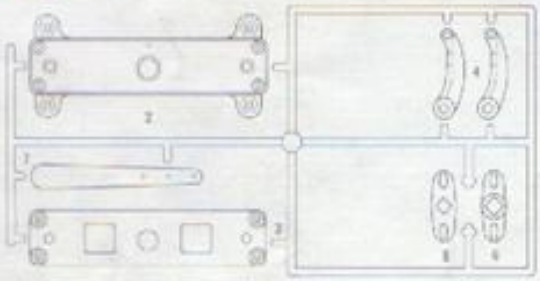
PARTS

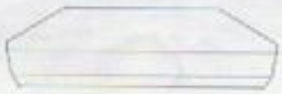
H PART (×2) — Olive Drab — Chrome Silver



E PART (×11)

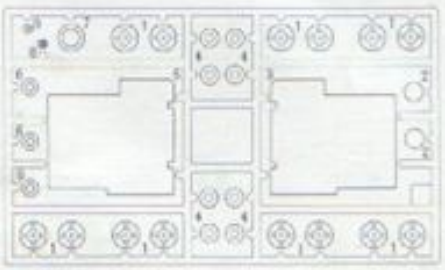
F PART





Gun Shield Canvas × 1
U1

B PART — Olive Drab



● Unnecessary part 8

METAL PARTS

Gear Box Parts
Gear Box
J1
Motor (RS-540S)
J2
Motor Bracket
J3

Blister Pack Parts
Sprocket A
K1
Sprocket B
K2
Suspension Arm
K3
Torsion Bar Plate
K4
Front Shaft
K5
Servo Rod
K6
Wheel Stopper
K7
Motor Joint
K8
Idler Shaft
K9
Suspension Clasp
K10
Suspension Housing
K11
Track Adjustor
K12

Screw Parts Bag A
3mm × 6 Round Head Screw
N1
3mm × 27 Round Head Screw
N2
3mm Nut
N3
3mm Spring Washer
N4
2.1mm × 6.3 Wood Screw
N5

Screw Parts Bag B
2mm × 6 Round Head Screw
P1
3mm × 20 Round Head Screw
P2
5mm × 10 Round Head Screw
P3
3mm × 4 Round Head Screw
P4
2mm Washer
P5
2mm Nut
P6
6mm Spring Washer
P7

Screw Parts Bag C
2mm × 10 Round Head Screw
Q1
2mm × 4 Round Head Screw
Q2
3mm × 15 Round Head Screw
Q3
3mm Washer
Q4

Screw Parts Bag D
3mm × 4 Flat Head Screw
R1
3mm × 3 Grub Screw
R2
Rear View Mirror Stay
R3
Wrench
R4
Allen Wrench
R5
Tension Spring
R6
Motor Coupling
R7

Switch Parts Bag
Switch Plate
S1
Torsion Bar
S2
Micro Switch
S3
Wire Rope
S4
Vinyl Tube
S5
Friction Tube
S6
4mm × 12.5 Brass Pipe
S7

Rubber Tire Box
Rubber Tire
T1

Track Parts Pack
Track A
L1
Track B
L2
Center Guide
L3
Connector
L4
Track Shaft
L5

Metal Parts Pack
Upper Hull Holder F
M1
Upper Hull Holder R
M2
Double Faced Adhesive Tape
M3
Wire Mesh
M4

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