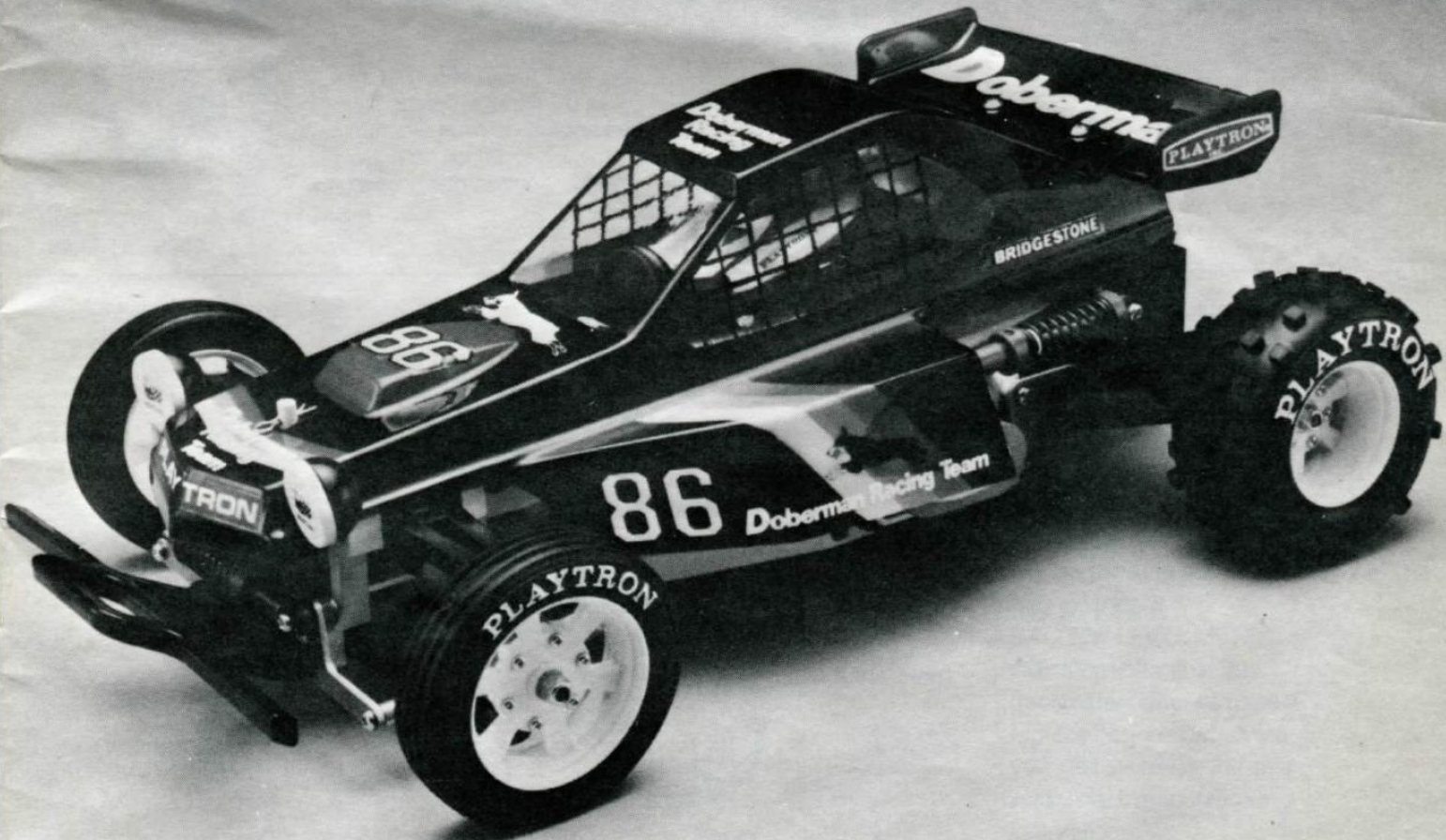




Doberman

1/10TH SCALE R/C SUPER OFF ROAD RACING CAR

COMPLETELY
ASSEMBLED



www.dirt-burners.com

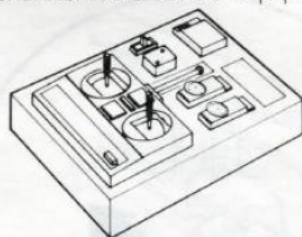
PLAYTRON
INC.
RADIO-CONTROL

REQUIRED ITEMS...Not supplied with this kit

- * 2 Channel Radio Control System
- * Ni-Cd Battery Pack, 7.2 volts 1200 mA.H.
- * Charger for Ni-Cd Battery.
- * Tools.

●2ch RADIO CONTROL

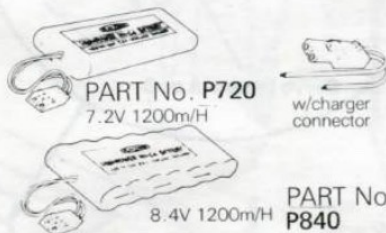
(NOTICE: This kit does not include 2 channel radio control equipment.)



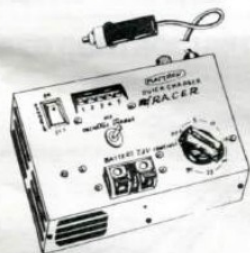
RECOMMENDED ITEMS

- * 2 Channel FUTABA Radio Control system with FP-S28, S30, S31S, S31SH, S32, OR S32H servos.
- * PLAYTRON 7.2V 1200mAH High Power Racing Ni-cd Also available is 8.4V 1200mAH Ni-cd for competition.
- * PLAYTRON Quick Charger Race. For a Universal type charger, the Quick Charger It is available to charge different types of Ni-Cd batteries.

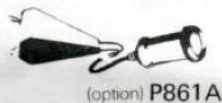
**●Ni-Cd BATTERY
PLAYTRON'S High Power Racing**



QUICK CHARGER RACER

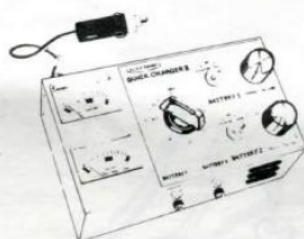


(for 7.2V/12mA Ni-Cd Battery)
PART No. P867



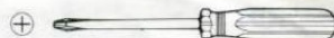
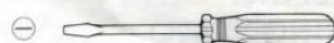
PLAYTRON Quick Chargers will charge your Ni-Cd in 30 minutes from an automobile cigarette lighter or 12 volt battery with optional adapter.

QUICK CHARGER-II

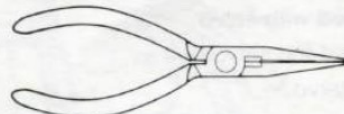


(Wide Range Type 1.2V-10.8V)
PART No. P861

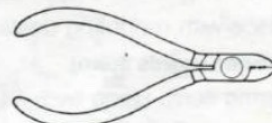
Tools needed for construction



Screwdriver



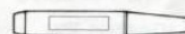
Plier



Wire cutter

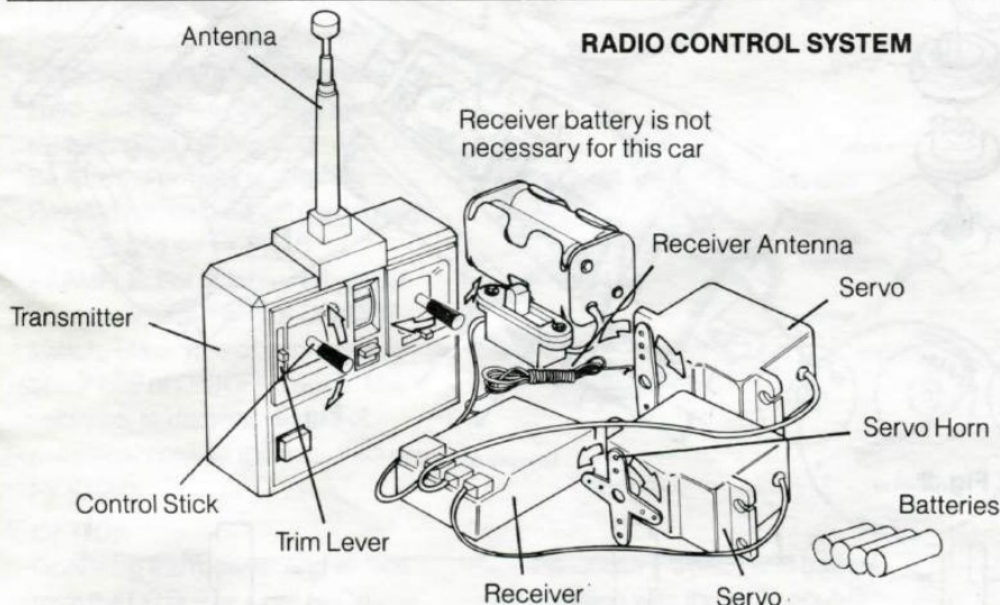


knife



Quick bond

This kit comes with ALLEN wrenches



RADIO CONTROL SYSTEM

- TRANSMITTER (or the control box) changes stick movements into radio signals.
- TRIM LEVER allows fine adjustment of controls.
- CONTROL STICK operates steering and speed of the car.
- ANTENNA dissipates radio signals (be sure the antenna is fully extended)
- BATTERY LEVEL METER indicates voltage of the transmitter batteries (please replace batteries when the voltage falls below the safe limit) check manufacturer instructions.
- SERVO converts signal from receiver into mechanical motion which operate controls of car.
- RECEIVER ANTENNA gathers radio signals. Antenna must be fully extended for proper reception.

Most radio control sets come complete with transmitter, receiver and servos and are compatible with this car. Some radios may not be used due to size of servos. Please read the instructions supplied with your Radio Control equipment carefully before opening.

RADIO INSTALLATION-STEP ①

INSTALLING STEERING SERVO

SERVO PREPARATION

Prepare servos by installing mounting grommets supplied with servo. Remove the servo horns from servo.

MOUNTING STEERING SERVO

Select servo mount A or B to fit servo.

Slide in place with mounting posts up. (Car shown upside down)

Install steering servo using two machine screws 3x12 and two nuts 3x9x4 at the front of the servo. Use two tapping screws 3x12 to secure the rear of servo.

Note that the output shaft of servo must be positioned towards the front of the car. Incorrect mounting will cause the steering direction to be reversed. Fig. 1

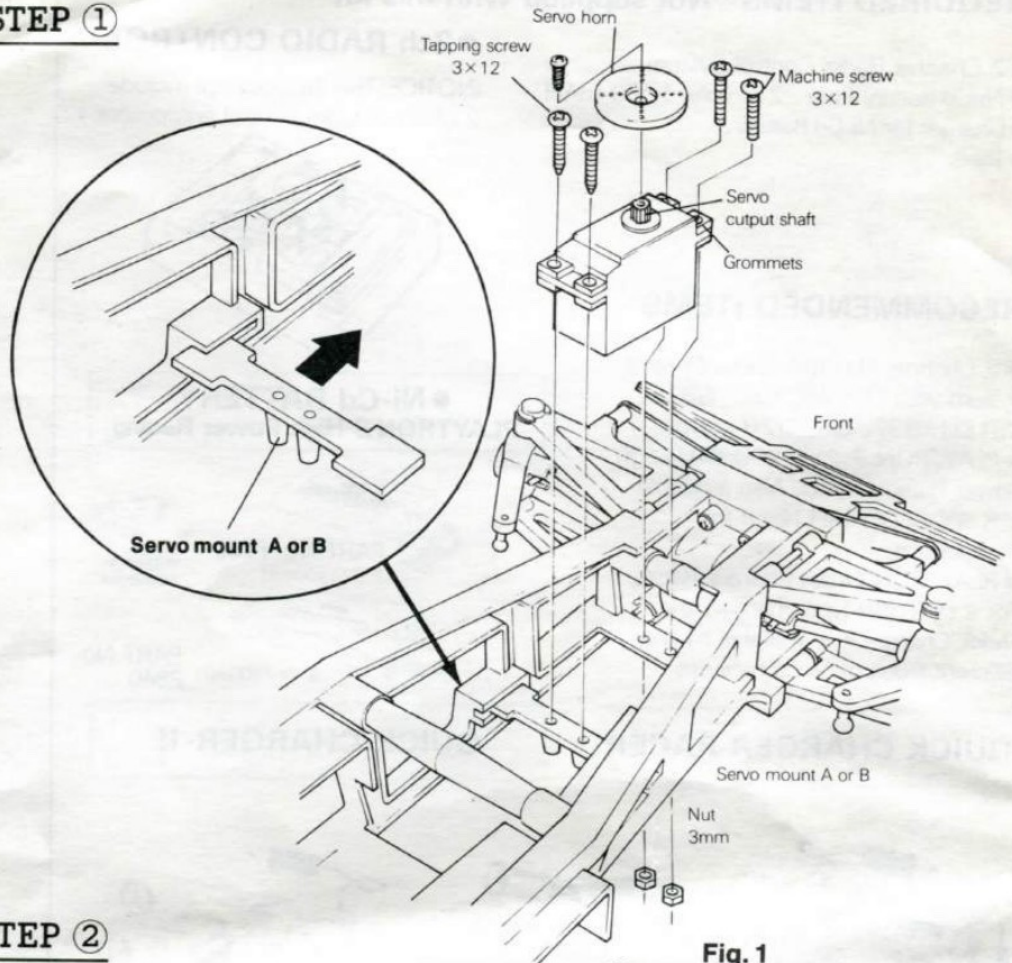


Fig. 1

RADIO INSTALLATION-STEP ②

STEERING LINKAGE INSTALLATION

Screw rod ends onto tie rod.

Select servo saver base to fit your servo.

Assemble servo saver as shown. Fig. 2

Insert "Z" end of tie rod into servo saver. Turn on radio control system, temporarily hook up radio control system as described by radio manufacturer. Set transmitter steering trim to center. Fig. 3

Position servo saver on servo as close to center as possible.

Secure with screw and washer.

Turn OFF R/C system. Attach rod ends to upright. Adjust rod ends for 2 to 3 degrees of toe-in.

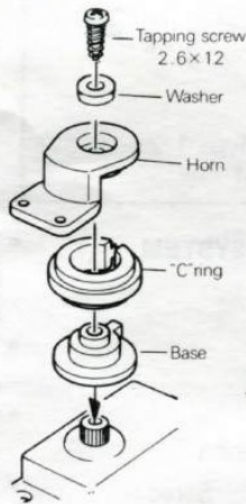


Fig. 2

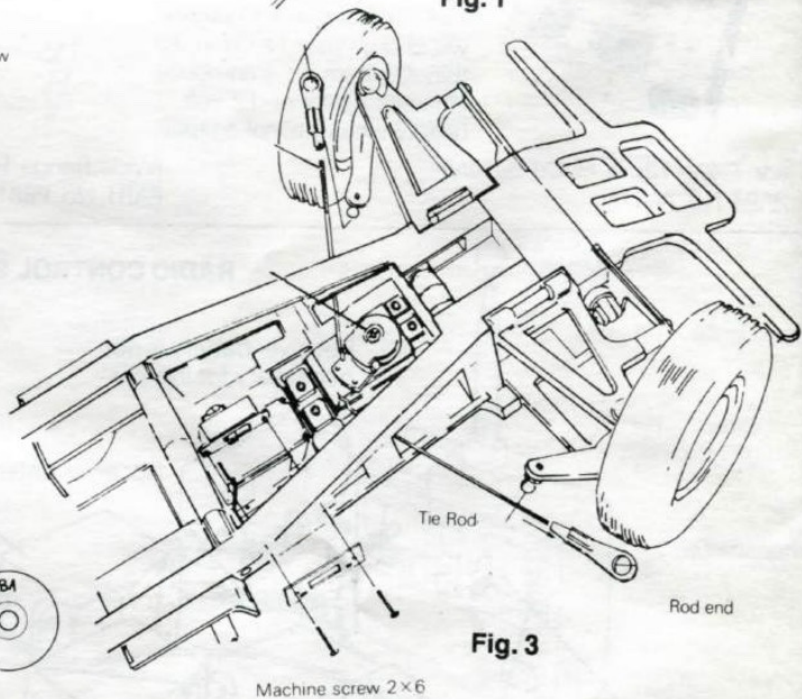


Fig. 3

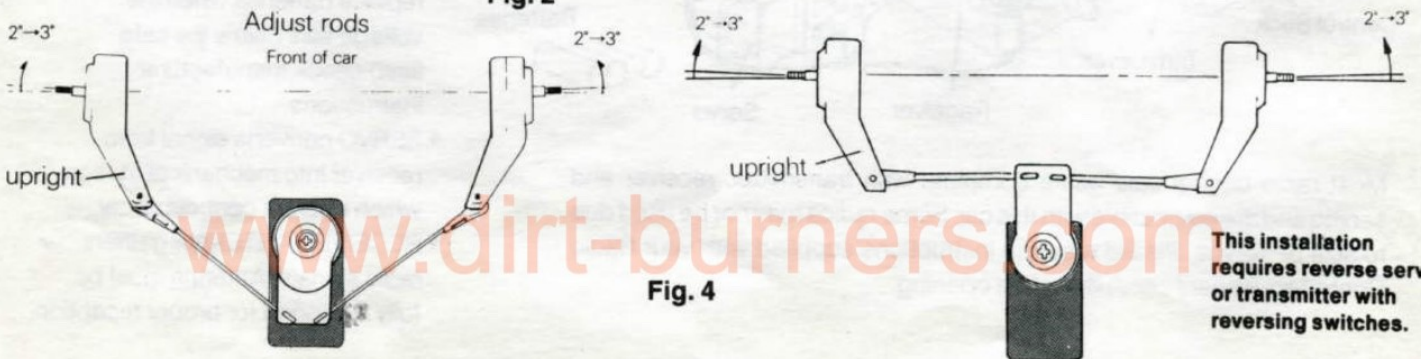


Fig. 4

This installation requires reverse servo or transmitter with reversing switches.

RADIO INSTALLATION-STEP ③

MOUNTING THROTTLE SERVO

Cut 8mm notch in rear servo mount using a wire cutter or knife as shown. Slide rear servo mount in position with notch on the left side of the car. Install throttle servo with two 3×12 screws at the front. Use two machine screws M3×12 and two nuts M3×9×4 to secure the rear of servo.

Also, cut a notch in the chassis to prevent the nylon band that secures the Ni-cad from slipping off. Fig. 5

RECEIVER MOUNTING

Cut two pieces of double stick tape and attach to the bottom of receiver. Mount receiver lengthwise.

SERVO MOUNT

In case servo is small use-to Servo mount A

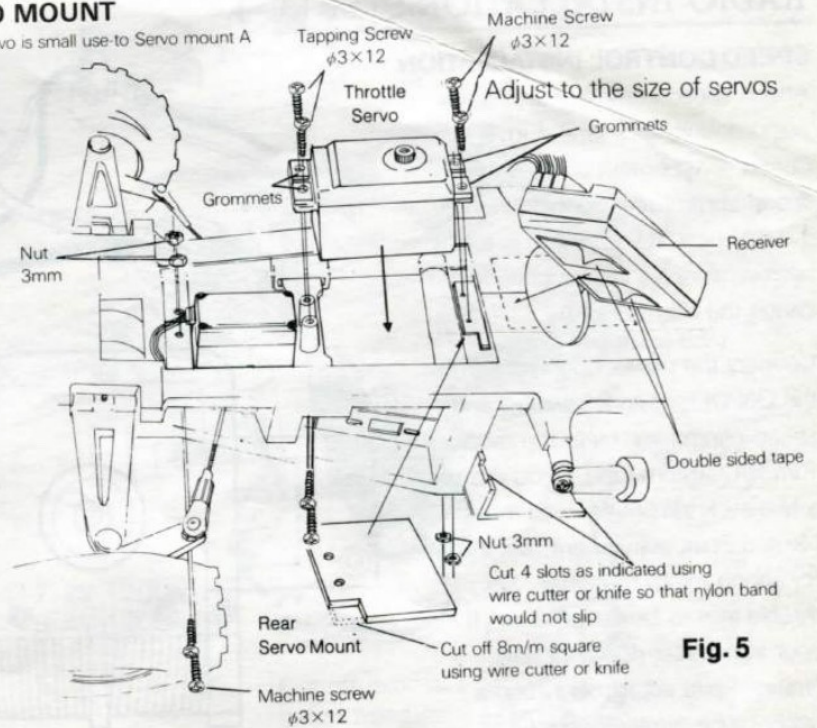


Fig. 5

RADIO INSTALLATION-STEP ④

SPEED CONTROL UNIT PREPARATION

Attach "L" shape metal bracket to speed control resistor with two machine screws M2×6. Remove connector which plugs into the receiver from radio switch harness. Fig. 6A.

You may prefer to purchase the appropriate connector from your hobby dealer.

Solder the connector taken from radio switch harness to the red and black wires of the ON/OFF switch, then wrap the connections with tape. Be sure the polarity is correct. Reverse connection will damage the receiver and servo. Fig. 6

EXAMPLE: For Futaba: red wire of connector to red wire of ON/OFF switch. Black wire of connector to black wire of ON/OFF switch. Use a voltmeter to determine correct polarity or contact the manufacturer for details.

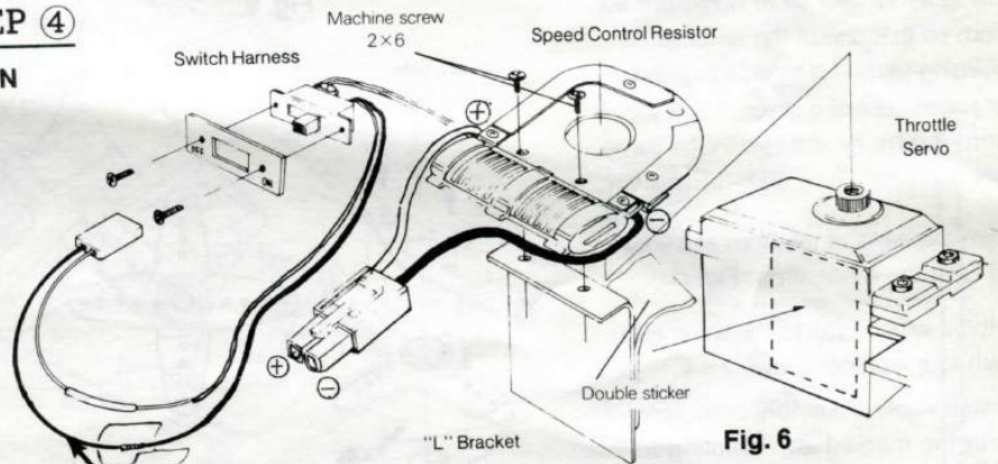


Fig. 6

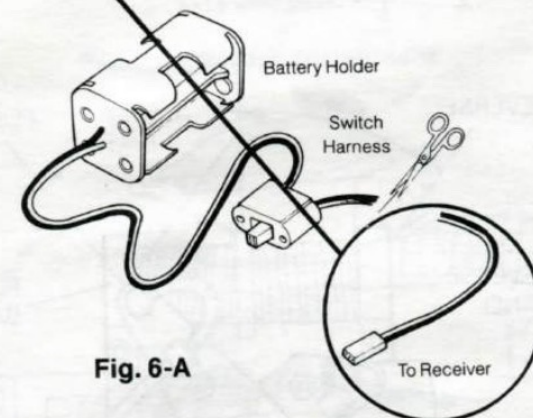
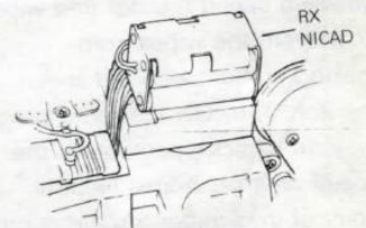


Fig. 6-A



NOTE: THE DRIVER FIGURE CANNOT BE USED IF YOU DECIDE TO USE A SEPARATE RECEIVER BATTERY.

Fig. 7

use the ON/OFF switch and battery unit supplied with the radio control system, which will give full control of the car even after 6 or 7 cell Ni-Cd is near complete discharge. However you should be careful not to fully discharge the 6 or 7 cell Ni-Cd as this will shorten its life. Fig. 7

OPTION

Operating the receiver and servos from the LYNX 6 or 7 cell Ni-Cd lightens the car for competition. The drawbacks of this is the loss of radio control when the 6 or 7 cell Ni-Cd is near complete discharge. You may decide that the risk of losing radio control is too great. If this is the case,

RADIO INSTALLATION-STEP ⑤ I

SPEED CONTROL INSTALLATION

Attach speed control unit to servo using double stick tape. Fig. 8
Center servo output shaft in the speed control unit opening within 1/16th inch. If your servo is too narrow, make a spacer plate to center the servo. Fig. 9

Connect the power connector from the ON/OFF switch, steering and speed control servos to the receiver. Turn R/C system ON. If you are using a two stick transmitter with throttle Neutral Point adjustment, set throttle for spring return to center. Set throttle trim to center position. If your transmitter does not have Neutral Point adjustment, use a ratchet type throttle control.

Using a four arm servo horn, position horn so that one of the arms is pointing to the full throttle end band of speed control resistor. Mark the arm, it must be installed in the same position later. Turn OFF R/C system.

Trim the arms of the horn as shown to clear the wiper arms. Fig. 11

Mount wiper arms to the servo arm with four tapping screws 2×4.

Install wiper assembly onto servo with the marked arm pointing to the full throttle band.

Place a small piece of paper between speed resistor and wiper. To prevent the wiper from making contact with the speed resistor. Turn ON the radio control system. Check operation of the speed control. Adjust Neutral Point of transmitter throttle control to allow the lower wiper blade to stop on the OFF Button of speed control plate while allowing the top wiper blade to touch the full throttle band when full throttle is given. Fig. 12 & 13

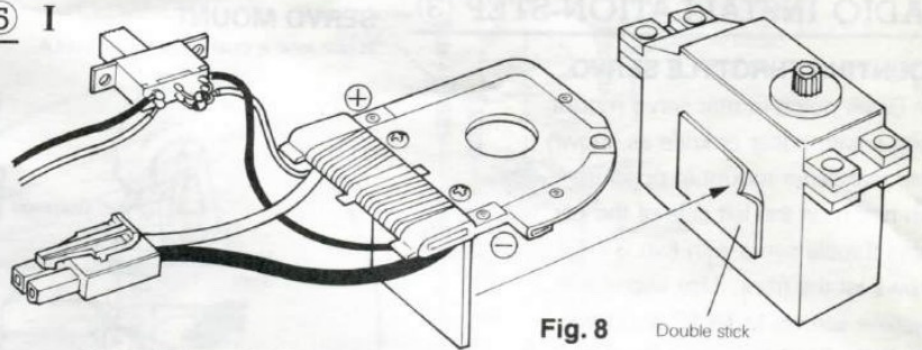


Fig. 8 Double stick

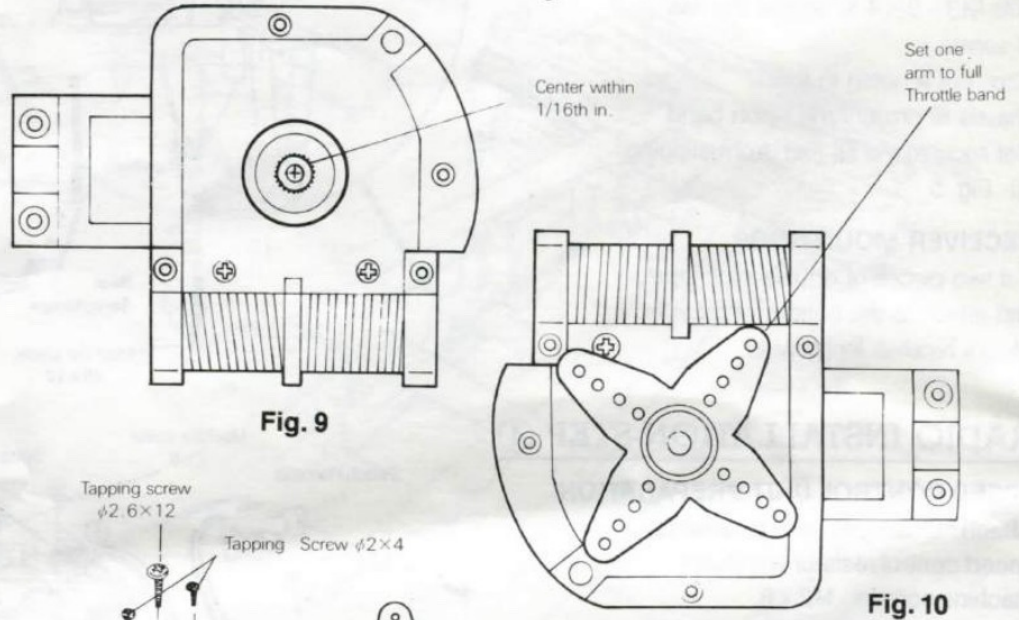


Fig. 9

Fig. 10

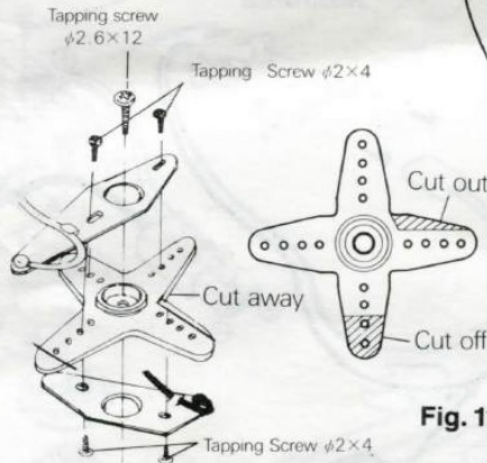


Fig. 11

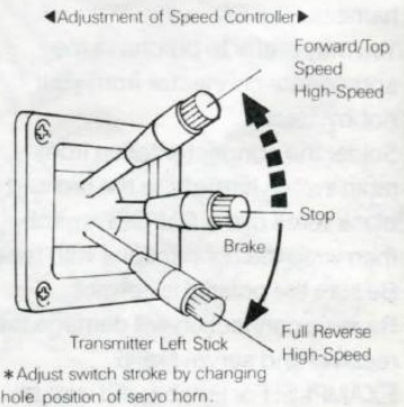


Fig. 12

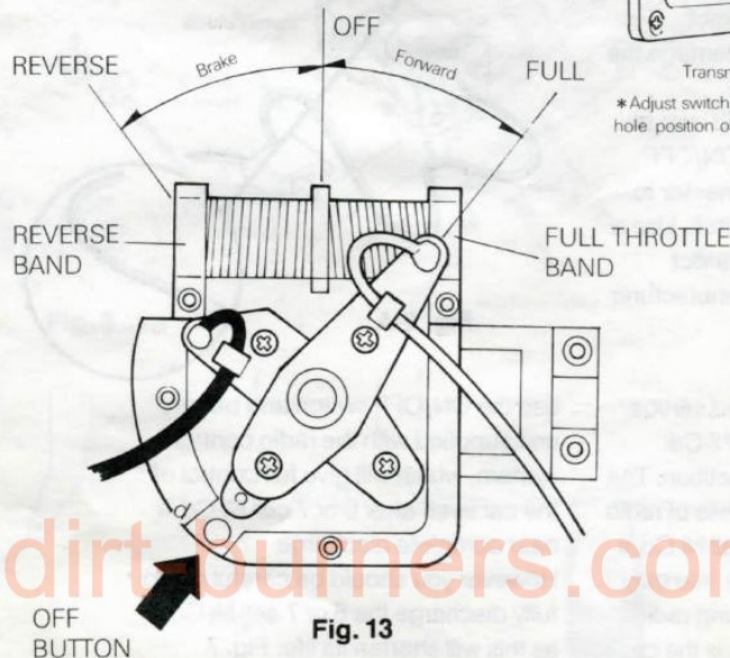


Fig. 13

RADIO INSTALLATION-STEP ⑤ II

Mount Ni-Cd battery with two nylon bands. Fig. 14

Mount receiver switch using two 2 x 6 machine screws. Trim holes as needed. Fig. 15

To mount the antenna wire you must use a phillips screwdriver and remove the left suspension bracket screws. Avoid contact with the shock spring by bending the antenna. Fig. 16. For optimum efficiency you should not shorten the antenna length of your receiver wire. Loosely coil the wire around the antenna and tie a knot through the loop at the top. Excess can be tie-wrapped to the chassis to prevent accidental snagging or breakage.

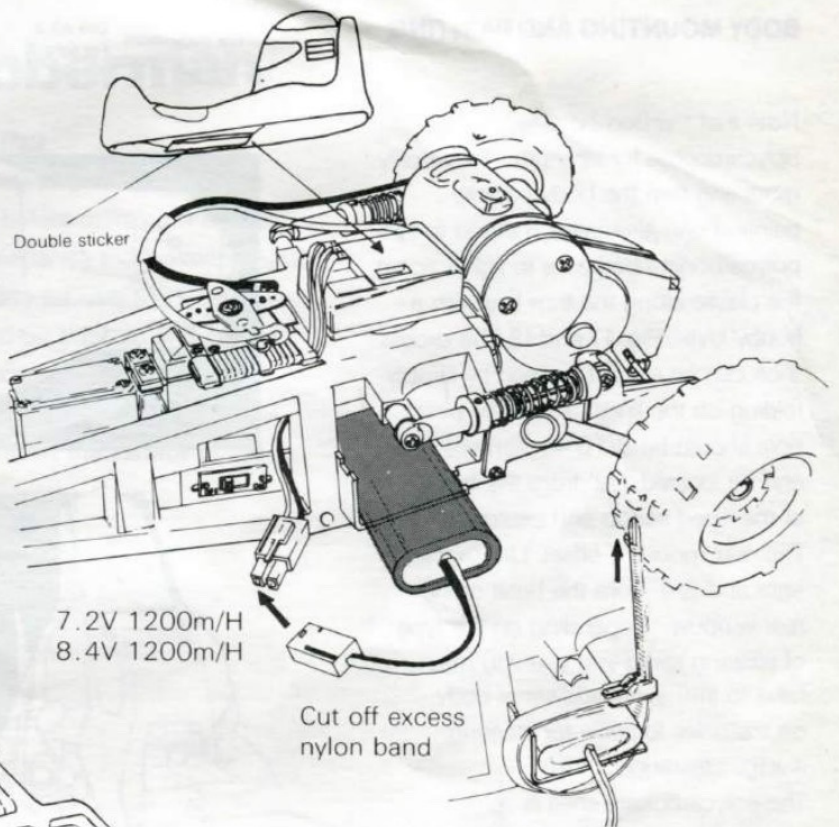


Fig. 14

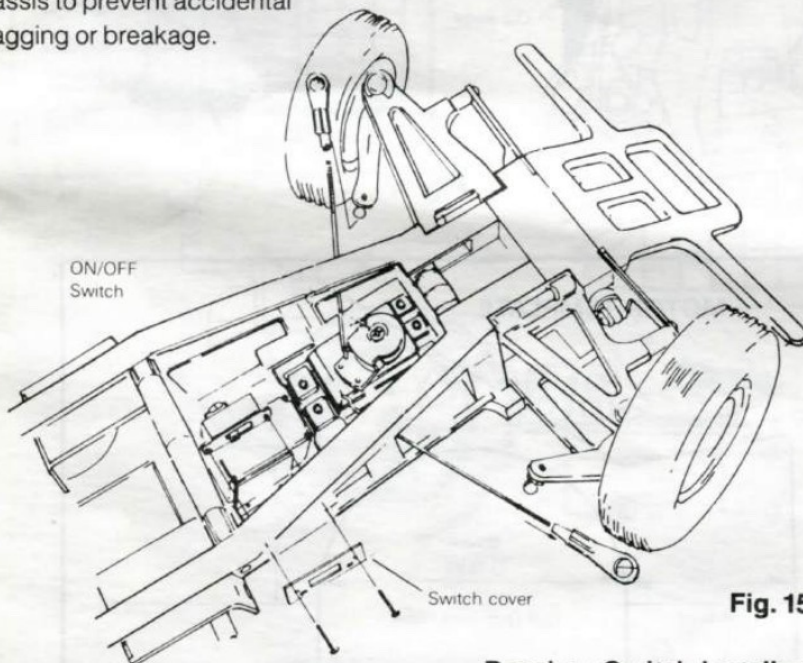


Fig. 15

Receiver Switch Installment

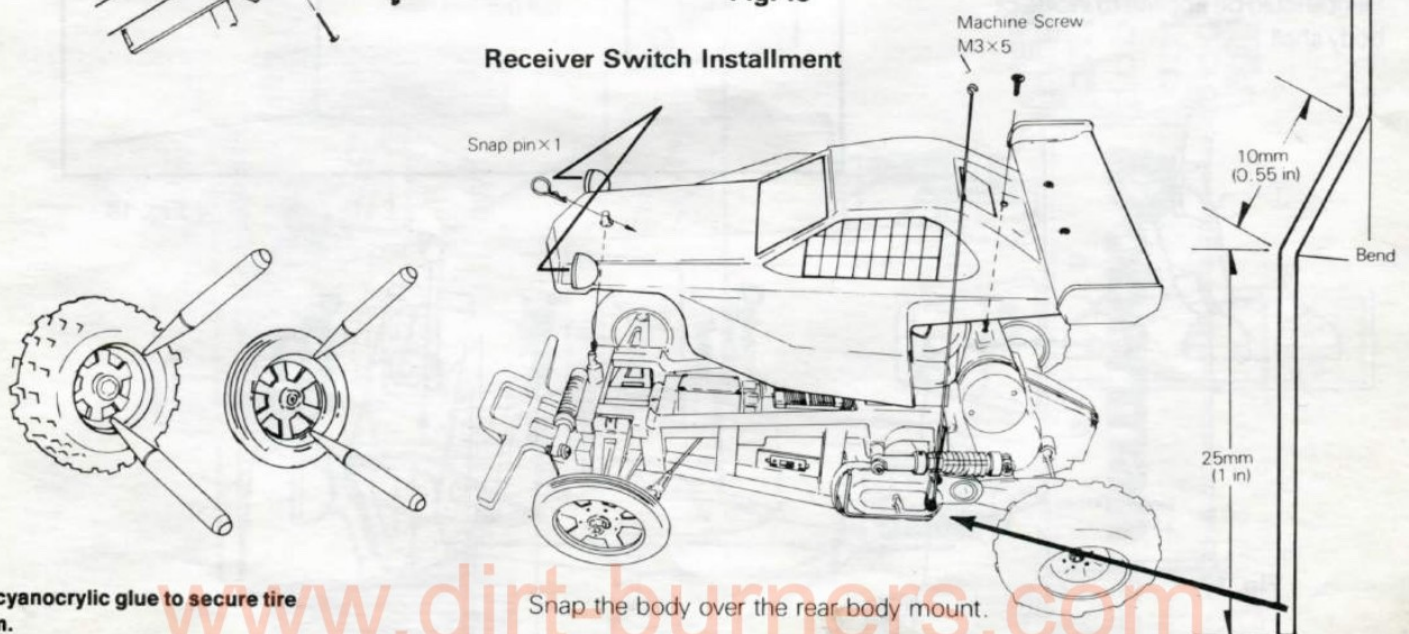


Fig. 16

LOOPED END

BODY MOUNTING AND PAINTING

Note that the body is clear polycarbonate for strength. To simplify mounting trim the body prior to painting. An alternative method to trim polycarbonate bodies is to lightly score the plastic along the trim line with a hobby knife. **Fig. 17 and 18** The excess then can be easily removed by simply folding on the lines. The body post hole should be $3/16$ " in diameter and be located $1/2$ " from the base of the hood scoop and centered. The rear mount is offset $1/4$ " to the right and $3/4$ " from the base of the rear window. Depending on the type of steering servo you use you may have to trim away additional body on the sides to allow for steering linkage clearance.

The polycarbonate shell is very strong, but some precautions should be taken before painting. Select either paint specifically formulated for polycarbonate or artist's acrylics. Lacquer sprays will adhere to the plastic, but will weaken it substantially. If you do use lacquers apply very light coats to minimize warpage. It is also a good idea to attach the body pin to the shell with some fishing line or insulated wire to prevent loss.

Paint should be applied to inside of body shell

For bodymount Drill #3.2
For lights

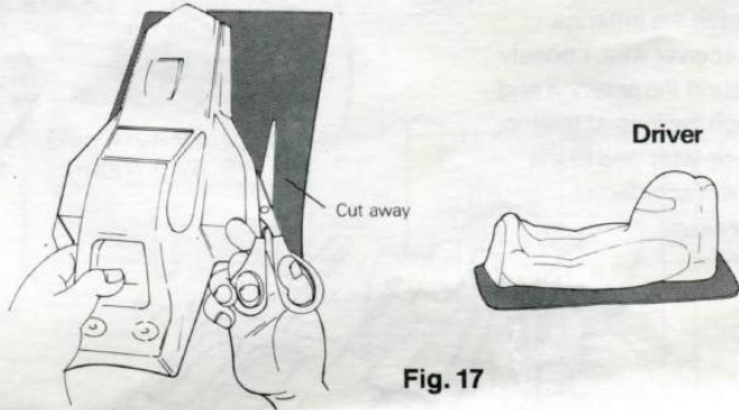
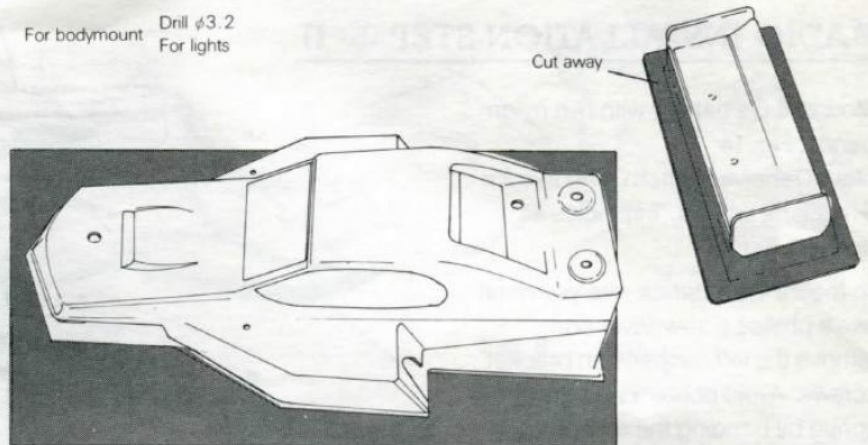


Fig. 17

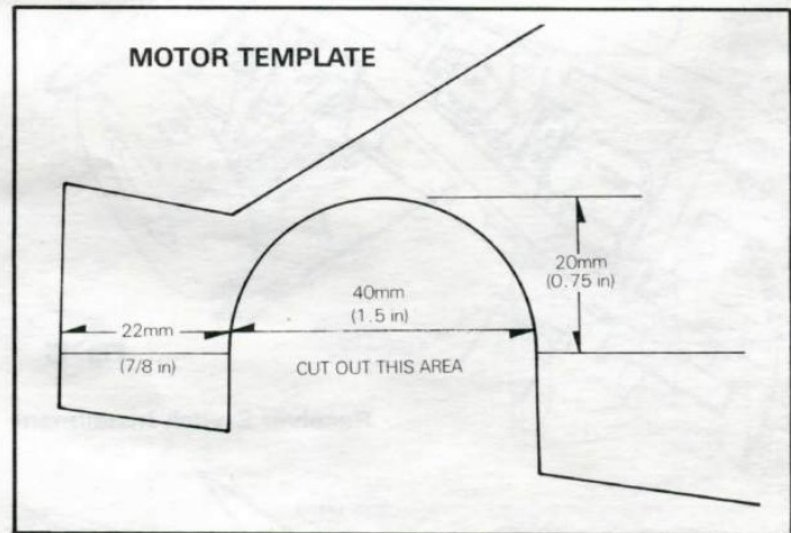


Fig. 18

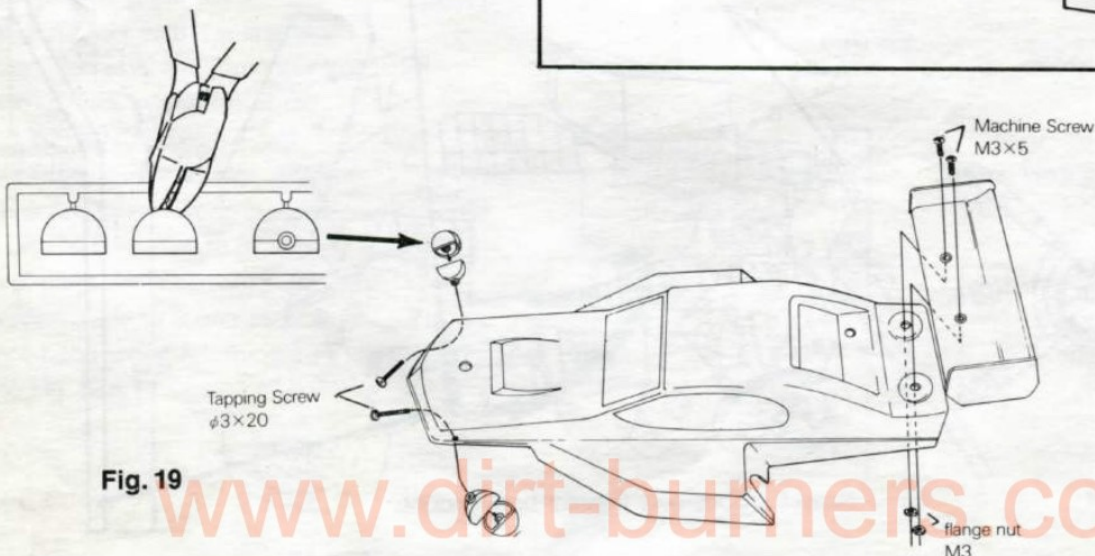


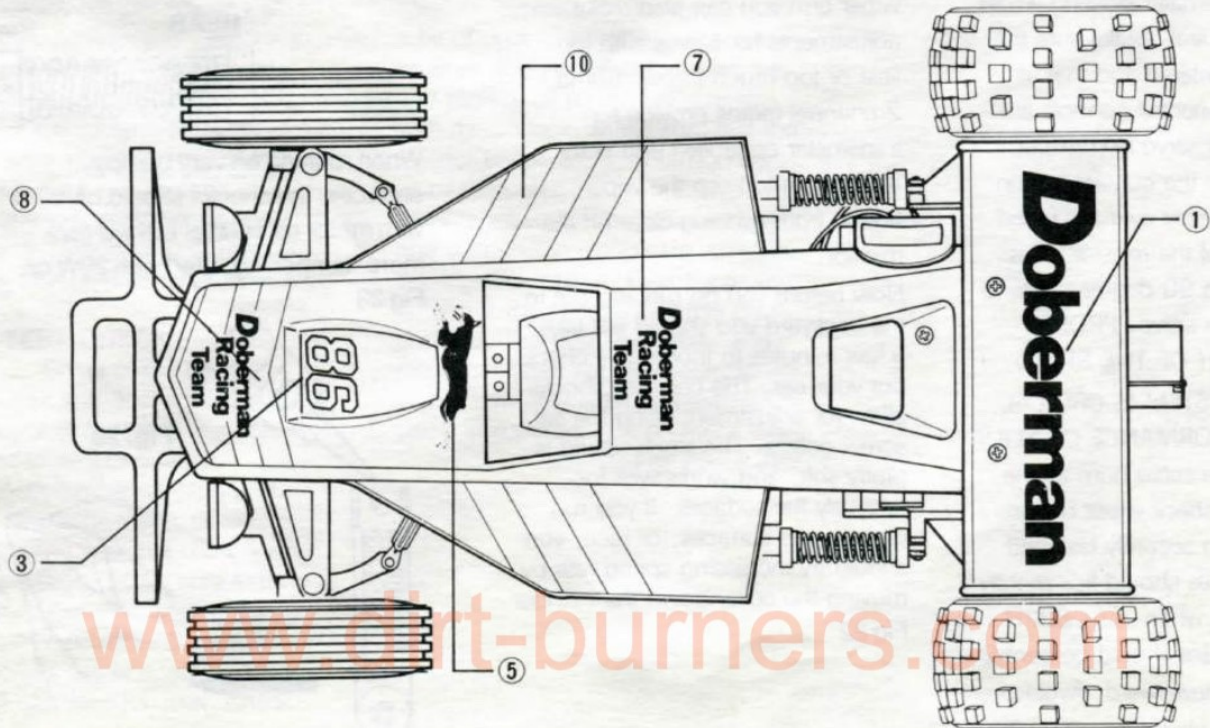
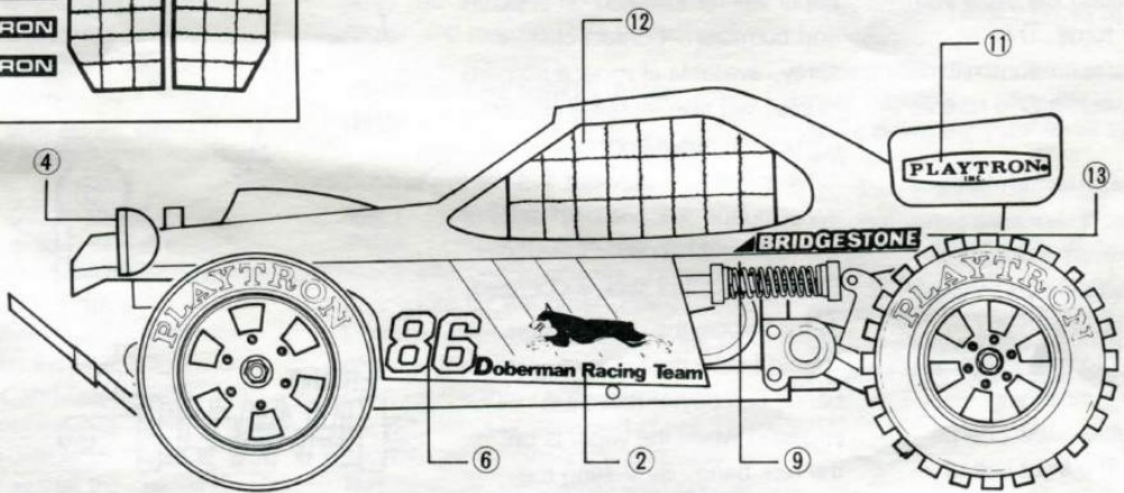
Fig. 19



Doberman

MARKING

Cut away all clear areas of the decals before marking the body. Never separate the waxpaper until it is ready for use. Mark carefully to avoid air bubbles and creases (it is recommended that you slowly peel the waxpaper off as you smooth the surface of the decal down).



* RACING TIPS *

RADIO INSTALLATION

The servo mounting holes and installed servo mount are sized to fit Futaba S32 or S32H servos.

These are excellent servos, with the S32 providing more torque and the S32H more speed, but other servos will fit using the additional brace.

We have found that by rotating the servo saver horn 180 degrees from that shown in the illustration Fig. 20 & 21 will provide more steering angle and consequently a tighter turning radius. 4 wheel drive vehicles tend to exhibit understeering characteristics (commonly referred to as "pushing") and this modification will allow you to make sharper turns. This modification requires a transmitter with reversing switches or a reverse servo.

Using the Futaba Magnum both steering and throttle servo are set for REVERSE rotation. After servo and receiver installation you should bench run your Lynx with the motor unplugged to make sure that your radio is functioning properly. If possible, slow charge the Ni-Cd pack. The front half of the resistor controls forward speed.

Set your transmitter steering wheel or stick at neutral. Make sure the trim pot is centered and that all rate and exponential controls are off. Install the servo horn/wiper assembly with the contact button positioned directly over the broad center band of the resistor. This should be at a 90 degree angle to the side of the servo. PROPER ADJUSTMENT OF THE SPEED CONTROL SYSTEM IS CRITICAL TO THE PERFORMANCE OF YOUR CAR. Push the servo horn all the way down to check wiper button tension. When securely fastened the wiper blades should flex slightly. We found that when using S32H servos the blades should be bent 2 or 3 degrees downward. Avoid over-tensioning the blades, as premature

wear will result. Lightly sanding the resistor segments with fine grit paper will remove carbon deposits and corrosion. Contact cleaner spray, available at most auto parts stores, will also increase efficiency. Mount the servo horn and check servo travel to make sure that the wiper button reaches both ends of the resistor when your transmitter trigger or control stick is operated.

At full throttle the wiper should be on the forwardmost band. Full power reverse is engaged when the wiper is on the rear band. By slotting the mounting holes of the throttle wiper arm you can also make adjustments for servos with too little or too much throw. Some 2 channel radios provide for transmitter controlled end point adjustment to keep the wiper button from running clear off the resistor.

Now before you go running out to the backyard you should still take a few minutes to thoroughly check out your car. The coil-over shocks allow for adjustment using the set screw collars. The stock setting is pretty soft, and works well for relatively flat surfaces. If you run on bumpier surfaces, or race, you should try increasing spring rate by moving the collar down the cylinder.

Fig 22

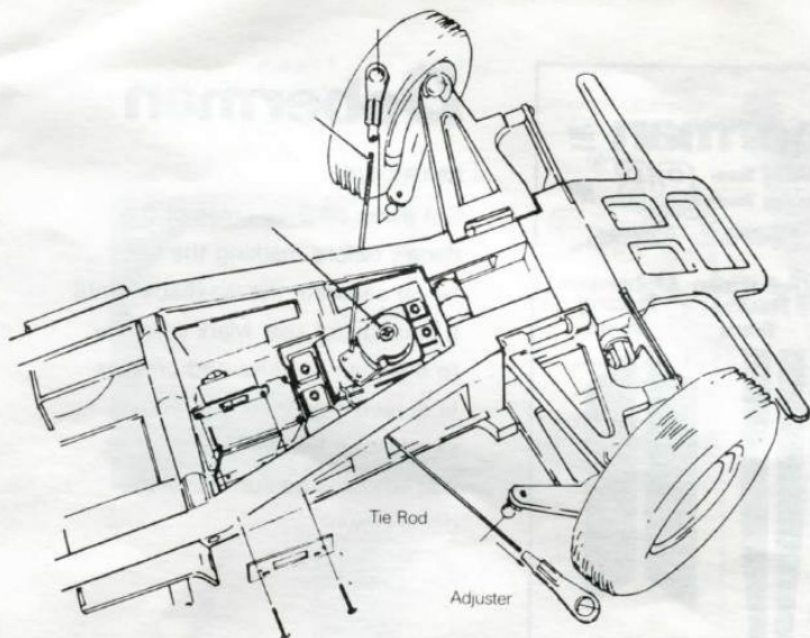


Fig. 20

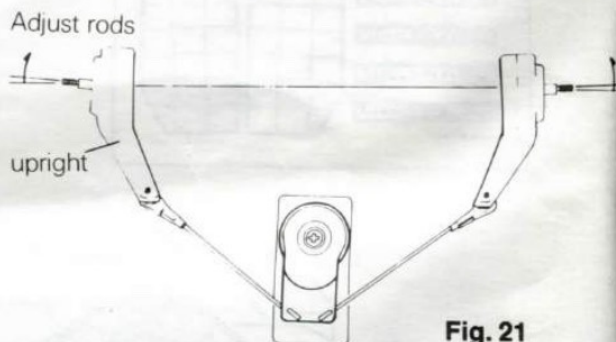


Fig. 21

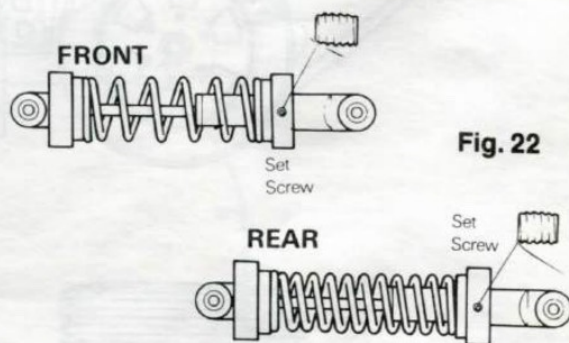


Fig. 22

When running on very bumpy surfaces, the shocks should be filled with motor oil. Heaver oils will give more dampening. Start with 20W oil. Fig 23

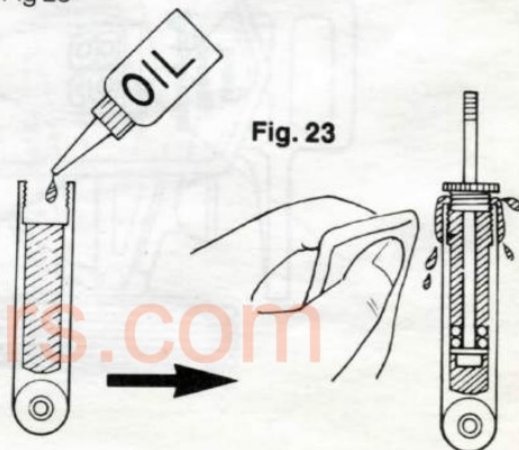


Fig. 23

RACING TIPS

TEST RUNNING

Doberman gearboxes and wheel bearing are factory lubed, but it is a good idea to put a small amount of lubricant on the motor shaft and the u-joints for break-in and to prevent rust. Don't go crazy, excess oil should be removed before running as it attracts dirt.

Run through a quick power-on test by plugging in the motor and elevating the chassis. Make sure that the wheels, all four of them, can spin freely. Check that the steering allows for 2 or 3 degrees of toe-in and that the front wheels turn evenly lock-to-lock. Examine the resistor for sparking or poor contact and for proper travel.

Your first test drive is and should be short. With new batteries and bench testing you should only expect 5 to 6 minutes of run time on a charge. **KEEP IT SLOW.**

Doberman should track straight ahead with no trim adjustment. If it doesn't, use the ball joint adjusters to correct.

It is a good idea to select a reasonably flat area to test in with a minimum of obstacles to confront. Paved parking lots are actually better for initial set-up but will wear out the tire knobs if used too much. Apply power and brake gently and familiarize yourself with the transmitter controls and car's response. See that the car turns both left and right equally well. Listen for any tell tale noises that could indicate improper gear mesh or friction. Be careful around vining weeds that can easily be caught in the moving parts.

The receiver power is tapped from the Ni-Cd pack, so as soon as you detect any loss of power bring your car in. Continuing to run can result in loss of steering or throttle control.

POST-TEST CHECK

Keep a 2" China bristle brush in your tool kit and dust off any dirt. Dirt on any of the rotating surfaces can lead to excessive wear.

Disconnect the battery plug and do not touch the motor or resistor. Both become fairly hot even during short operation. Make sure that no wires are loose or dragging and that the wheels rotate freely. The front wheels use one-way bearings and will only spin forward. Check

all screws for any sign of loosening. You may choose to use thread lock for vibration resistance. The radio installation should be secure and you should check that both front and rear gearboxes and the transfer gear case remain closed.

TEAR DOWN PROCEDURE

Periodic maintenance is essential to performance of Doberman Complete tear downs (disassembly) should be performed after every 4 or 5 charges at first.

Start by removing the battery pack and slow charging it to equalize the cells. Wheel locknuts are best removed with a metric socket wrench, but needle nosed pliers will do. The wheels are hex-keyed, so you can hold the nut with your pliers and turn the tire to loosen it. Now you are ready to inspect the motor and rear gearbox as well as the rear suspension.

REAR SUSPENSION AND GEARBOX

Use a phillips screwdriver to take out the two screws securing the rear arm plate and the arm end of the shock. Leave the other end of the shock attached to chassis. Repeat the procedure for the other side.

Examine all components for wear or damage then clean and re-lubricate. Remove the three screws mounting the transfer gear case and check the bevel gears for clearance and wear. This case can be packed with grease. The exposed motor shaft should be carefully cleaned, as it attracts quite a bit of dust which can damage the brushes and commutator. Remove and replace all u-joint set screws with thread lock. Make sure that the resistor bands are not corroded or worn through.

Now re-assemble the rear gearbox and suspension using care with the self-tapping screws. Over-tightening will crack the chassis and rear case material. The heat sink screw and the shock shaft nut also seem to work loose after extended use, so use a little thread lock on these too.

Fig. 25,28,31

GOING RACING

The light weight and simple design of the Doberman makes it an ideal base for a competition off-road racer. Currently there are 2 National sanctioning bodies setting rules and holding events, ROAR and ORRCA. Both have specific classes for 1/10 scale 4 wheel drive vehicles as well as separate driver divisions and classes for 2 wheel drive. Should you decide to run in both you can remove the transfer case, drive shaft and front half shafts.

Most racers use 7-cell packs for higher speed. However, make sure that other parts are also up-graded (like gears, additional ball-bearings & bushings, etc.) for higher speed. Because of extended charging time it is a good idea to have several battery packs ready on race day.

Spring rate settings for the rear are near maximum. Slide the shock collar down the cylinder to within 1/4" of the base.

Teardowns should be much more frequent, after each full day's racing. It's also fair to say that if you really want to go racing you better be prepared to break something. Don't get too attached to your race body, because they take a real beating.

EXPLODED VIEW

FRONT GEAR BOX
(LYNX only)

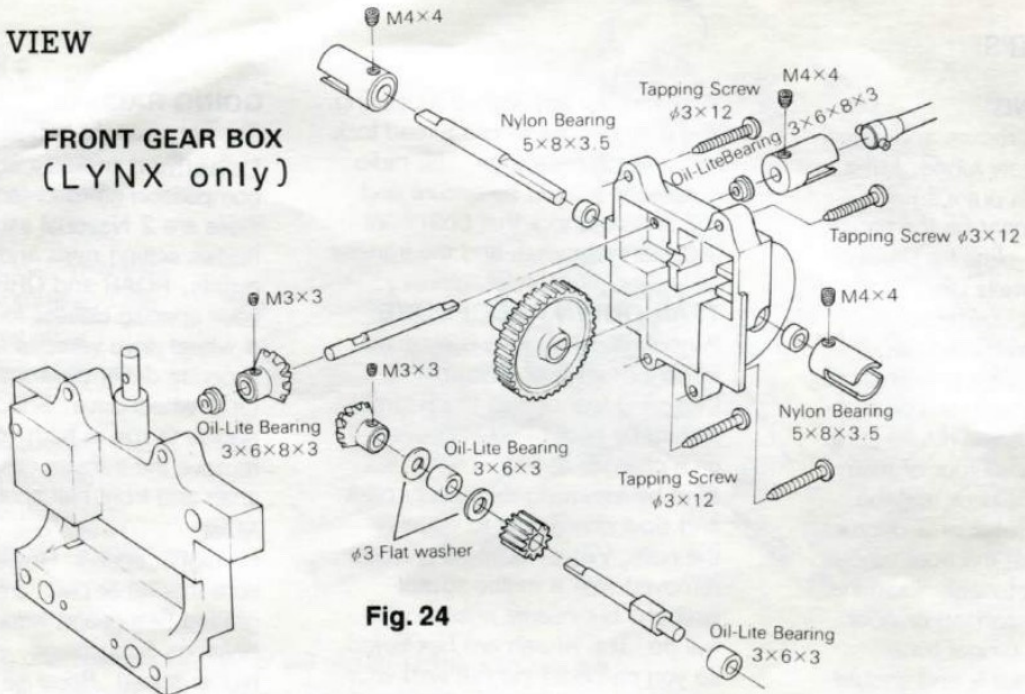


Fig. 24

REAR GEAR BOX

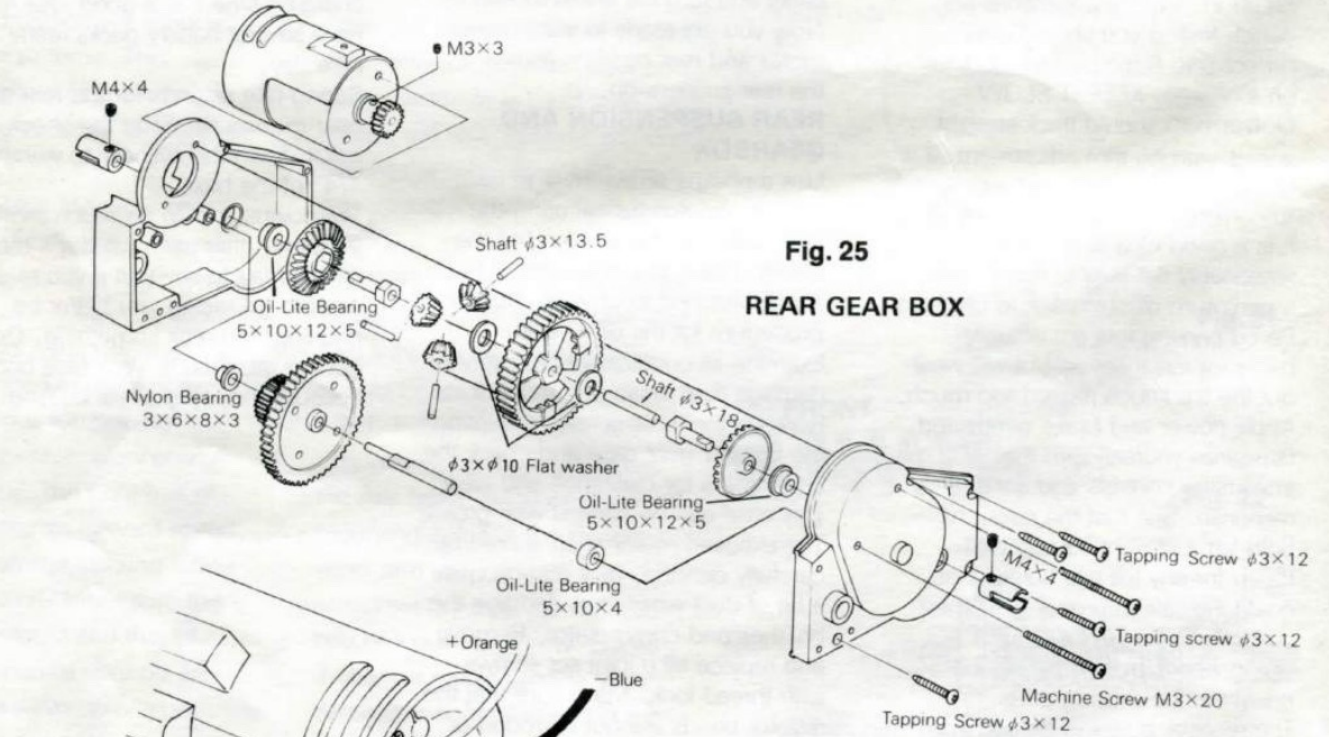


Fig. 25

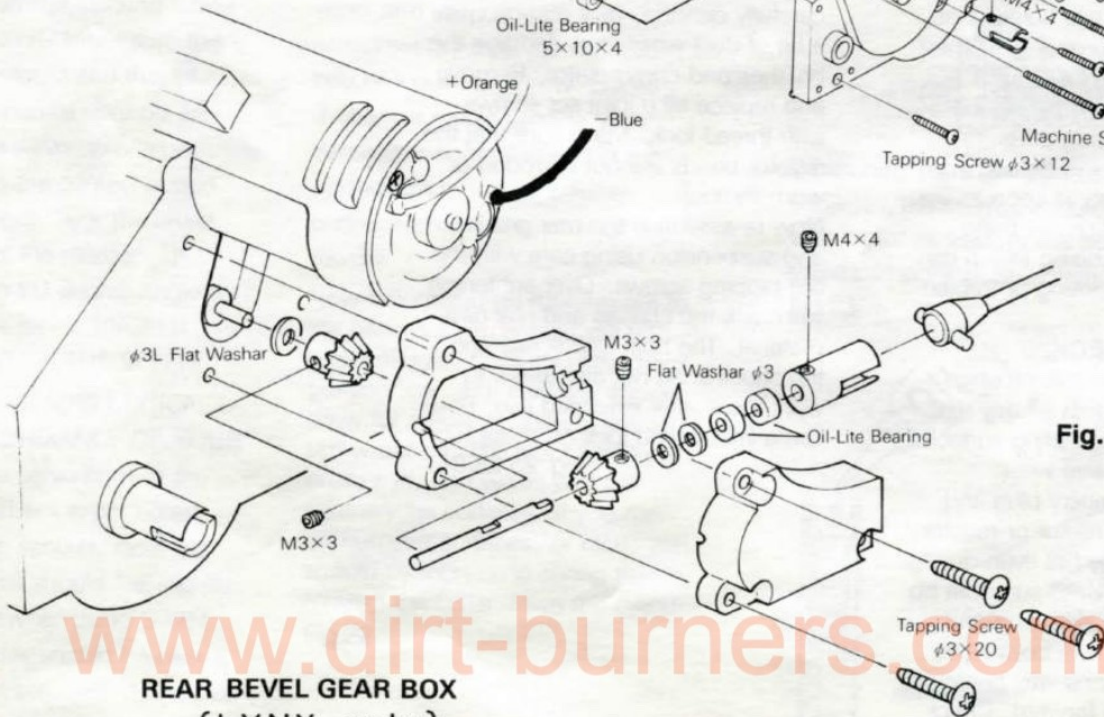
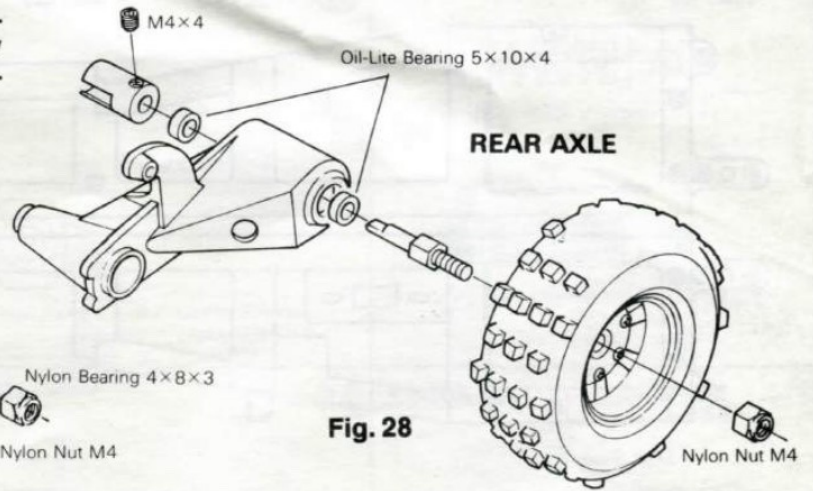
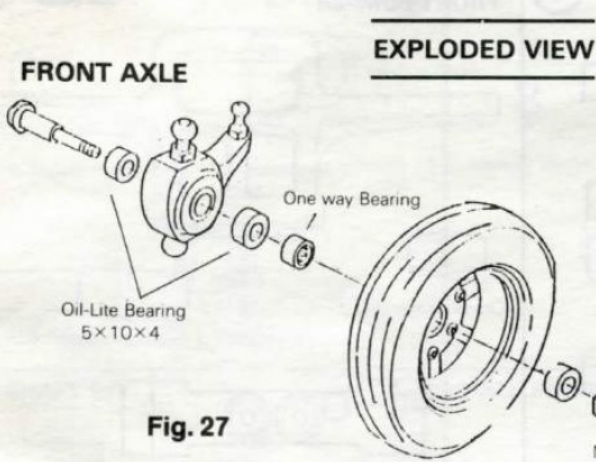
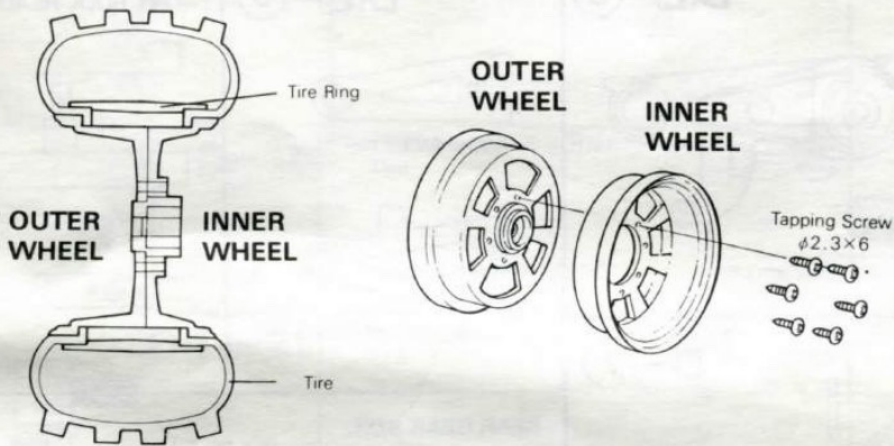


Fig. 26

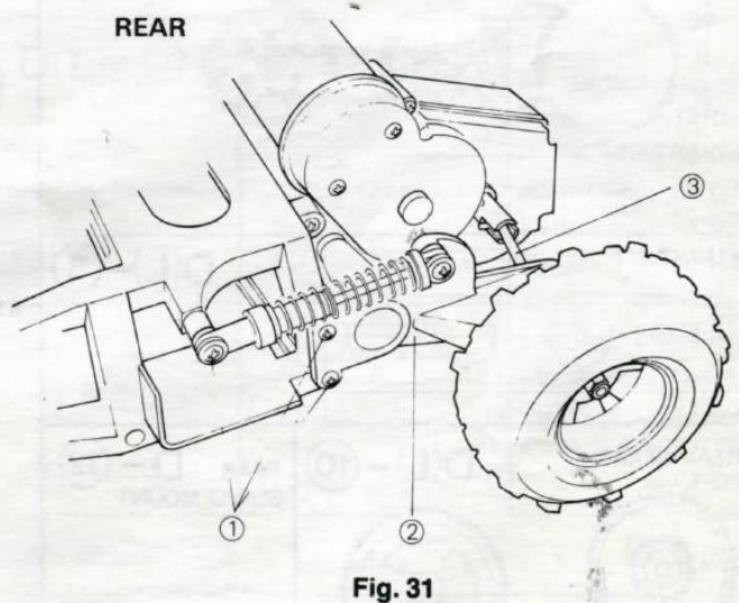
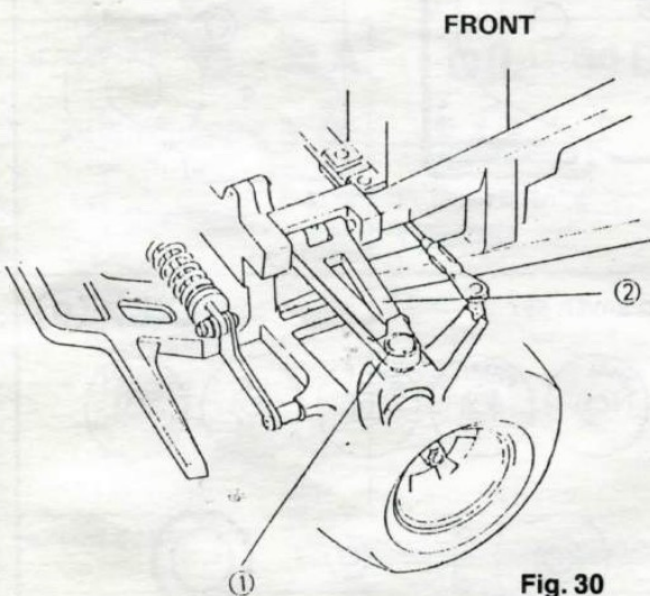
REAR BEVEL GEAR BOX
(LYNX only)



WHEEL & TIRE ASSEMBLY



REPLACING HALF SHAFT.

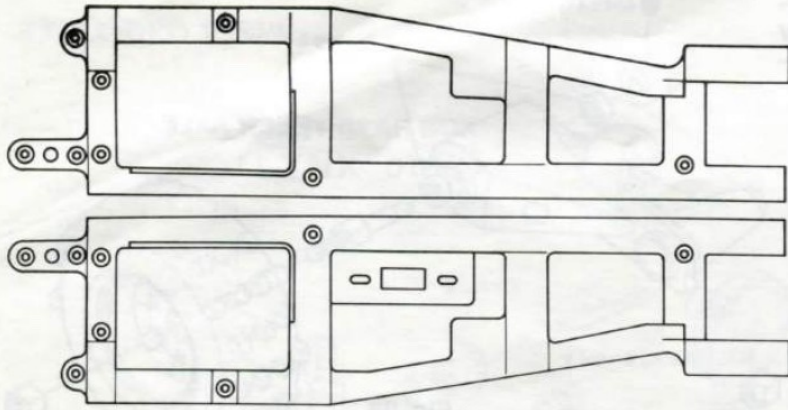


- ① REMOVE "C" CLIP
- ② LIFT UPPER ARM TO RELEASE UPRIGHT
- ③ REVERSE PROCEDURE TO ASSEMBLE.
- ④

- ① REMOVE THREE SCREWS
- ② REMOVE REAR ARM
- ③ REPLACE HALF SHAFT
- ④ REVERSE PROCEDURE TO ASSEMBLE

MAIN CHASSIS

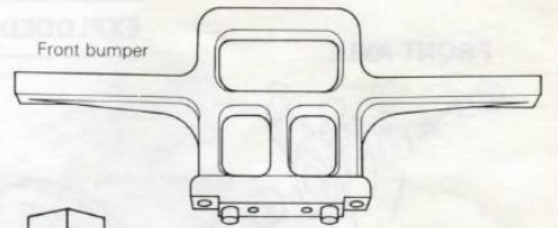
D(L)-①



Main chassi R,L

FRONT BUMPER

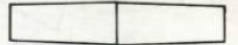
D(L)-②



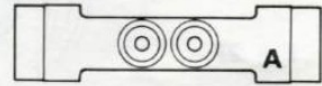
Front bumper



Chassi spacer (S) × 1



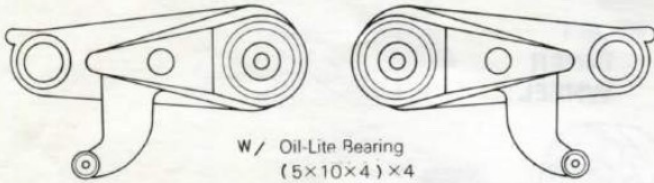
Chassi spacer (L) × 1



★ Servo mount (A), (B) × 1

REAR ARM

D(L)-③



W/Oil-Lite Bearing (5×10×4) × 4

Rear arm R × 1

Rear arm L × 1

FRONT ARM

D(L)-⑤



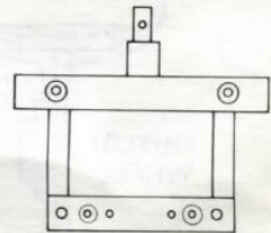
Upper arm L × 1
R × 1



Lower arm L × 1
R × 1

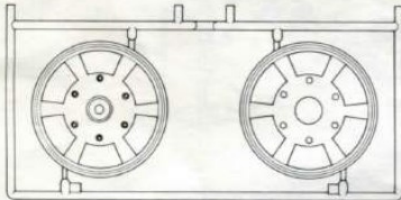
FRONT BULK HEAD

D-④

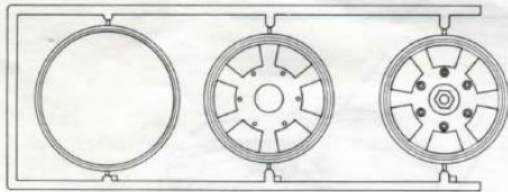


WHEEL SET

D-⑦



Front wheel set × 2

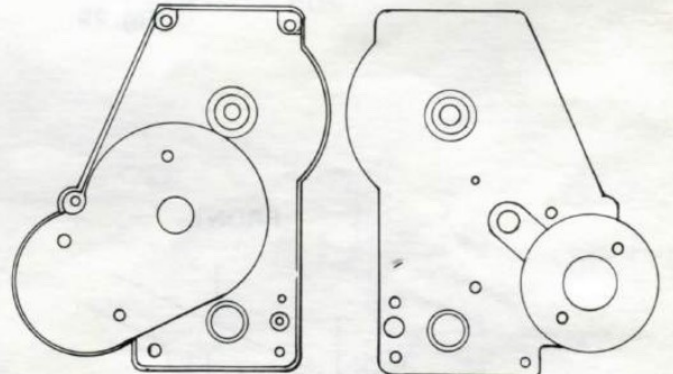


Rear wheel set × 2

REAR GEAR BOX

Gear box R,L × 1

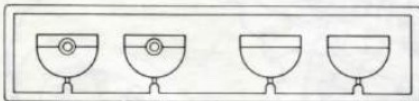
D-⑥



W/Oil-Lite Bearing (5×10×12×5) × 2
(5×10×4) × 1
(3×6×8×3) × 1

★LIGHT SET

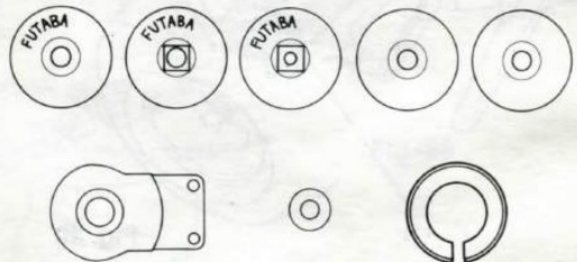
D(L)-⑧



Upright pin cover × 8

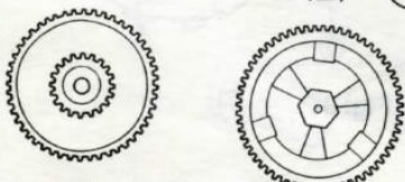
★SERVO SAVER SET

D(L)-⑨



REAR GEARS

D(L)-⑩



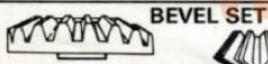
Differential gear × 1

Differential gear × 1

REAR SERVO MOUNT

D-⑫

★Rear servo mount × 1



BEVEL SET

D(L)-⑪

Bevel gear R,L × 2

Differential bevel gear (S) × 3

MOTOR PINION GEAR

D-⑬



Motor pinion gear × 1

Parts, (★) Mark on the parts list are included in the plastic bag.

STAMPED METAL **D(L)-14**

Front damper stay×2 Rear suspension arm stay×2

Motor heat sink & Body mount

UPRIGHT SET **D(L)-15**

Upright pin×4 Rod end ball×2

Upright×2 w/ Oil-Lite Bearing (5×10×4)×4

SHOCK ABSORBER **D(L)-16**

Front shock absorber spacer×2

Rear shock absorber spacer (φ3×6)×2

REAR SHAFT SET **D-18**

Shaft φ3×13.5×3

Shaft φ3×18×1

Spur gear shaft 60T×1

HALF SHAFT **D-24**

Rear half shaft 44m/m×2

★RODS SET **D(L)-19**

Rod end×2

Tie-rod×2

Snap pin×1

ANTENNA ×1

FRONT AXLE **D-17**

Front shaft×2

UNIVERSAL DRIVE JOINT **D-25**

Torque end R 5φ×4

MOTOR **D(L)-26**

REAR AXLE **D(L)-21**

Rear wheel shaft×2

ARM PIN SET **D(L)-27**

Front arm pin 4φ×35×2 Front arm pin 4φ×52×2

DRIVE SHAFT **D(L)-22**

Rear shaft×2

★CAP WRENCH **D(L)-28**

SCREW SET **D-30 A**

★ Tapping Screw (φ3×20)×2

Tapping Screw (φ3×18)×2

Tapping Screw (φ3×16)×2

★ Tapping Screw (φ3×12)×31

Tapping Screw (φ2.3×6)×24

D(L)-30 B

Machine Screw (M3×20)×2

★ Machine Screw (M3×12)×7

★ Machine Screw (M2×6)×4

Tapping Screw (φ2.6×12)×1

★ Tapping Screw (φ2×4)×4

D(L)-30 C

Crossflat Tapping Screw (M3×10)×1

★ Bind Screw (M3×5)×3

Iron Screw (M4×4)×8

(M3×3)×10

D(L)-31

Spring pin (φ2.5×10)×10

6φ E-Ring×4

★ Nut M3×9×4

Nylon nut M4×4

Flat washer (φ3×φ10)×2

Flat washer φ3(S)×8

NYLON BEARING SET ×13 **D-33**

FRONT TIRES ×2 **D-34**

REAR TIRES ×2 **D(L)-35**

★**BODY** ×1 **D(L)-36**

★**WING** ×1 **D(L)-37**

★**DOLL** ×1 **D(L)-38**

★**DECAL** ×1 **D-39**

★**SPEED CONTROLLER UNIT** ×1 **D(L)-40**

★**DOUBLE SIDED TAPE** ×1 **D(L)-41**

★NYLON BANDS Nylon band ×2 **D(L)-29**

D(L)-42 OIL-LITE BEARING (5×10×4)×4

D(L)-43 OIL-LITE BEARING (5×10×12×5)×2

OPTIONAL PARTS

D(L)-44 L-1050ZZ BALL-BEARING×4-FRONT UPRIGHT & REAR ARM

D(L)-46 LF-1050ZZ BALL-BEARING×2-REAR GEAR BOX

D(L)-49 OIL SHOCK ABSORBER FRONT×1-REAR×2

D(L)-51 LF-630ZZ BALL-BEARING×2-REAR SPUR SHAFT