

TEAM LOSI MINI-LST

1/18TH SCALE RTR VERSION OF THE AWARD WINNING LST

Operation Manual

Introduction

Thank you for choosing the Mini-LST from Team Losi Sport. This guide contains the basic instructions for operating your new Mini Monster Truck. While the Mini-LST is great for first time R/C drivers, it does require some mechanical experience and/or adult supervision for drivers under the age of 12. It is critical that you read all of the instructions, safety warnings, and accompanying printed material in order to operate your model correctly and avoid unnecessary damage. Please take a moment to look these over before running your new Mini-LST.



Safety Precautions

This is a sophisticated radio controlled model that must be operated with caution and common sense. Failure to operate your Mini-LST in a safe and responsible manner could result in damage to the model and property. The Mini-LST is not intended for use by children without direct adult supervision. Team Losi and Horizon Hobby shall not be liable for any loss or damages, whether direct, indirect, special, incidental, or consequential, arising from the use, misuse, or abuse of this product or any product required to operate it.

- This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference may cause momentary loss of control so it is advisable to always keep some distance in all directions around your model as a safety margin to avoid collisions.
- Always operate your model in an open area away from cars, traffic and people.
- Avoid running your model in the street where damage can occur.
- Never run your Mini-LST with low transmitter batteries.
- Keep all chemicals, small parts and anything electrical out of the reach of children.

Required Equipment

8 AA Alkaline batteries for the transmitter

Tools and Items You Will Find Handy

- Soft bristle brush for cleaning
- A 5.5mm nut driver for the wheel nuts.
- A #0 or #1 Phillips screwdriver
- A LOSA99100 .050" Allen Wrench

Note: Use only Team Losi tools or other high quality tools. Use of inexpensive tools can cause damage to the small screws and parts used on this type of model.

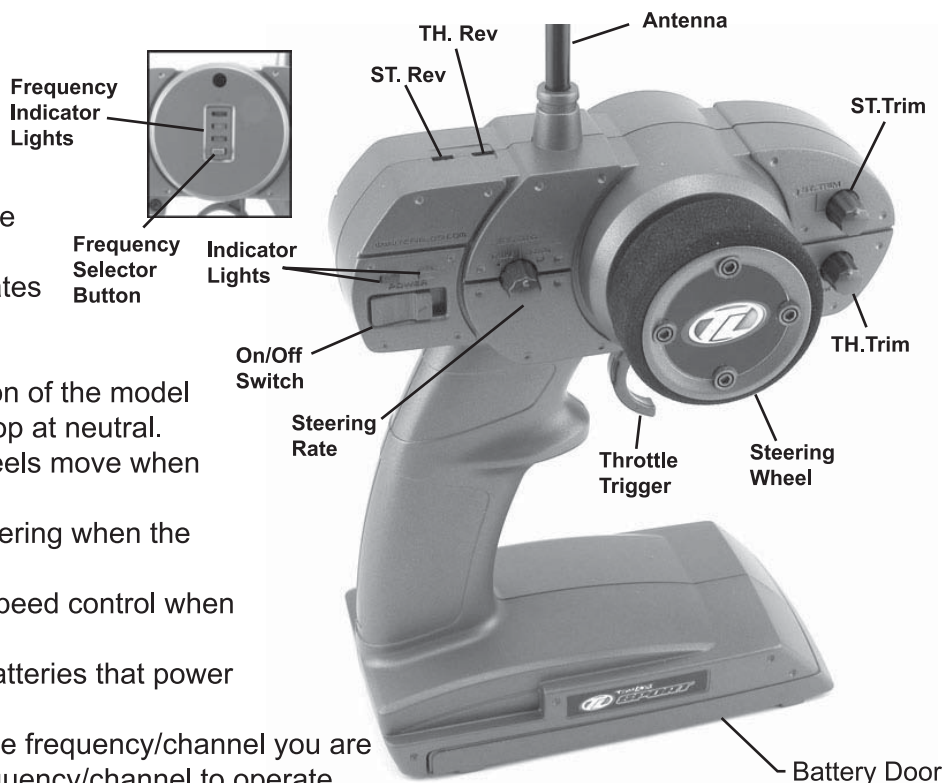


The Radio System

The following is an overview of the various functions and adjustments found on the Mini-LST radio system. Since Mini-LST operates on a radio signal that you control, it is important that you please read and understand about all of these functions and adjustments before driving.

The Transmitter

- 1. Steering Wheel:** Controls direction (left/right) of the model.
- 2. Throttle Trigger:** Controls speed and direction (forward/reverse) of the model.
- 3. Antenna:** Transmits signal to the model.
- 4. On/Off Switch:** turns the power on for the transmitter operation.
- 5. Indicator Lights:** Green (top) light indicates adequate battery power. Red (bottom) indicates signal strength.
- 6. ST. TRIM:** adjusts the "hands off" direction of the model
- 7. TH. TRIM:** adjusts the motor speed to stop at neutral.
- 8. Steering Rate:** adjusts amount front wheels move when the steering wheel is turned left or right.
- 9. ST. REV:** reverses the function of the steering when the wheel is turned left or right.
- 10. TH. REV:** reverses the function of the speed control when pulled back or pushed forward
- 11. Bottom Cover:** covers and holds the batteries that power the transmitter
- 12. Frequency Indicator Lights:** Shows the frequency/channel you are on. The receiver must have a matching frequency/channel to operate.
- 13. Frequency Selector Button:** Used to choose 1 of 6 available 27mhz frequencies

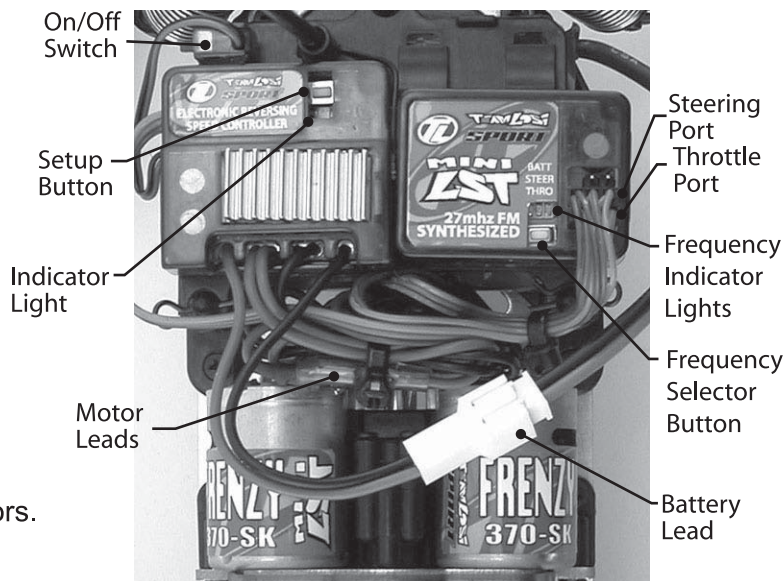


The Receiver

1. Throttle Port: Where the Electronic Speed Control (ESC) plugs in.
2. Steering Port: Where the steering Servo(s) plug in.
3. Frequency Selector Button: Used to program the desired frequency/channel.
4. Frequency Indicator Lights: Shows what frequency/channel is being received.

The Electronic Speed Controller (ESC)

1. On/Off Switch: Powers the receiver and ESC.
2. Setup Button and Indicator Light: Used for re-setting the ESC
3. Battery Lead: Connect to the battery pack for power.
4. Motor Leads: Connects to the wire leads from the motors.



Changing Frequencies/Channels

The Mini-LST radio operates on 27mhz and has 6 different frequencies – often referred to as “channels” available. This allows you to operate without interference while up to 5 other models on 27mhz are also operating. Simply put, a frequency is like a TV channel. The transmitter you hold in your hand is like the TV station and the receiver in the Mini-LST is like your TV at home that must be set to the correct channel to receive the signal your transmitter is sending. Unlike most radio systems the Mini-LST features a “synthesized” system that does not require crystals to be physically changed to select the channel you wish to operate on. Both the transmitter and the receiver must be set to the same frequency/channel for the model to operate correctly. This can be easily checked by noting the colored LED’s (lights) on the top of the receiver and the back of the transmitter. These should always be the same on both or you will not have control of the model. Always program the transmitter first then the receiver. To select a frequency follow the following easy steps.

1. Turn on the transmitter and/or receiver. Note that both should display the same light(s).
2. Locate the frequency selector button.
3. Press the selector button until the desired frequency light(s) are illuminated.
4. Repeat for the receiver if necessary.
5. Double check to make sure both the transmitter and receiver have the same LED’s (lights) on.

Frequency/Channel Guide

Channel/Color	Frequency	LED Indicators
Ch. 1 (Brown)	26.995mhz	Red (top) only
Ch. 2 (Red)	27.045mhz	Yellow (middle) only
Ch. 3 (Orange)	27.095mhz	Red & Yellow (top & middle)
Ch. 4 (Yellow)	27.145mhz	Green (bottom) only
Ch. 5 (Green)	27.195mhz	Red & Green (top & bottom)
Ch. 6 (Blue)	27.225mhz	Yellow & Green (middle & bottom)

NOTE: A frequency guide sticker is included with your Mini-LST for use on the back of the transmitter (if desired).

Re-Setting the ESC

The ESC comes from the factory pre-set and ready for use. If for some reason you should need to re-set the ESC, used the following instructions.

1. Turn on the transmitter and ESC. Press the set-up button -- **both** the **RED and Green** LEDs will come on.
2. Pull the throttle trigger all the way back (full speed) and press the set-up button once -- **only** the **GREEN** LED will come on.
3. Push the throttle trigger full forward (brake/reverse) and push the set-up button once -- **only** the **RED** LED will come on.
4. Let the throttle trigger return to the neutral (center) position and press the set-up button once more to save the program and exit set-up mode -- **only** the **GREEN** LED will be on.

NOTES

A: If the receiver does not receive a signal from the Transmitter, the ESC will not enter the Program mode.

B: While in Program mode, the motor will not run.

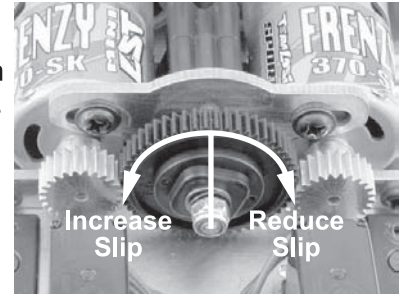
C: If the set-up button is not pressed for 20 seconds while in the Program mode the ESC will exit the Program mode and the data will be saved.

Chassis Tuning

The Mini-LST has several adjustments available to you for tuning the performance for your needs. Although there are multiple shock positions and camber link locations provided, as noted above we have built the model with the best overall settings. The following are simple adjustments and easily maintained settings that will assure proper operation and performance. It is advised that when making any adjustment you do so in small increments and always check for other parts of the chassis that are affected.

Slipper Adjustments

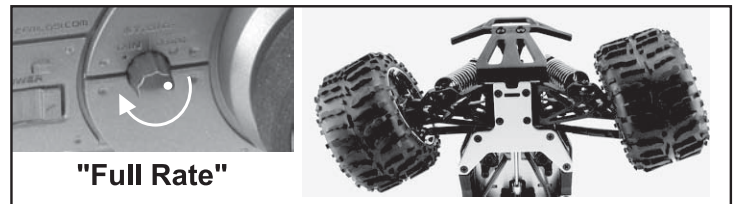
The slipper is a key component of the drivetrain that is designed to absorb sudden or large impacts that would otherwise stress various drivetrain parts. You should never run the Mini-LST with the slipper locked (all the way tight). The slipper can also be used as a tuning device for extreme conditions. Running the slipper so it slips for a few inches upon initial acceleration will help the overall drivability. If the surface is very slick this will allow the tires to establish some grip without spinning. In extremely good traction conditions it will help keep the front tires on the ground and actually provide better acceleration and steering.



1. Hold the spur gear with your thumb and using the wrench included, tighten the slipper adjustment nut until relatively tight. Do not try to torque it as tight as possible - only until you feel it stop turning.
2. While still holding the spur gear, back off the adjustment nut one full turn (marking one flat on the adjustment nut with a marking pen makes it easy to see how much the nut has turned).
3. Place the Mini-LST on the ground -- preferably carpet or asphalt and test the acceleration by rolling it backwards and pulling the throttle trigger.
4. If there is any slippage, turn the adjustment nut clockwise one flat and retest.
5. Replace the gear cover.

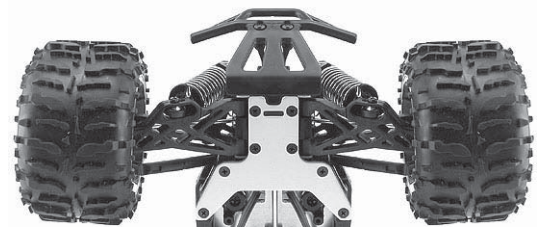
Steering Rate

Your transmitter is equipped with a steering rate control to the left of the steering wheel. This advanced feature, usually found only on competition type radios, allows you to adjust the amount the front tires move when you turn the steering wheel. This is really helpful when you are on slick as well as high traction surfaces. If your Mini-LST turns too sharply and/or spins out easily, try turning the steering rate down by rotating the knob counter-clockwise (to the left). For sharper or additional steering try turning the knob clockwise (to the right).



Toe-In/Toe-Out

This is the relationship of the left and right side tire to one another. Ideally you want the front of the tires to be pointed inward toward each other just slightly when viewed from above. This makes the model track straight and stable. This is controlled with the threaded steering rods on either side. As you make them longer you will increase the toe-in. To create toe-out, you will need to trim the inside end of the ball cup to allow for adjustment.



Ride Height

This is the height the chassis sits and runs at. There are spring spacers included with the Mini-LST that, when installed between the shock top and spring, will increase the pre-load on the spring and raise the chassis. You may want to try this when running on extremely rough surfaces.

Service/Repair

Radio/Speed Control & Motor: If you have any problems other than those covered in the troubleshooting section please call the **electronics service dept.** at **(877) 504-0233**. They will be able to give your specific problem additional attention and instruct you as to what needs to be done.

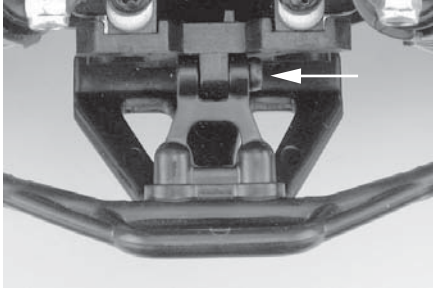
Chassis: If you have any questions other than those covered in the troubleshooting or maintenance sections please call **(909) 390-9595 or 888-899-LOSI**. Please note that this is for the chassis only and the personnel at this number will probably not be able to answer additional questions about the electronics.

Cleaning: Performance can be hindered if dirt gets in any of the moving suspension parts. Use compressed air, a soft paintbrush, or toothbrush to remove dust or dirt. Avoid using solvents or chemicals as they can actually wash dirt into the bearings or moving parts as well as cause damage to the electronics.

Rebuilding the Front and Rear Differentials

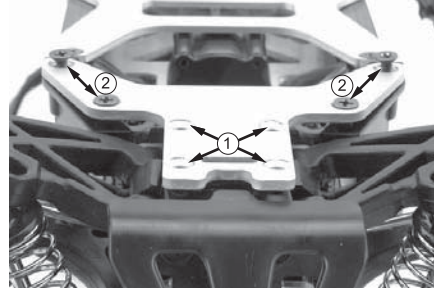
The gears in the differentials will wear over time. The same is true for the outdrives, driveshafts, and axles. We suggest using a small rag or paper towel to layout the parts you remove, to make it easier to reassemble.

Step 1.



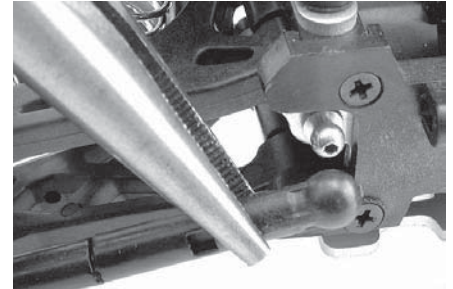
Remove upper bumper mount screw.

Step 2.



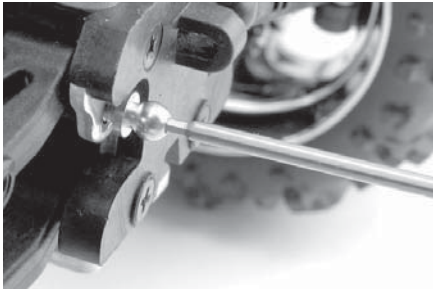
Remove 4 chassis screws (1). Loosen chassis screws (2) enough to allow the bumper to slide out from under the chassis plate. **NOTE: If you are rebuilding the front diff, skip to step 6.**

Step 3.



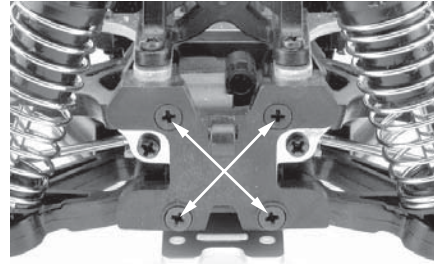
Using pliers, remove tie rod end as pictured.

Step 4.



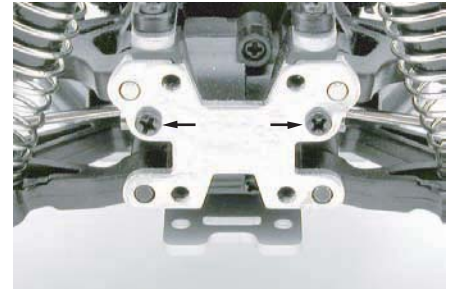
Remove both brass ball studs as pictured above.

Step 5.



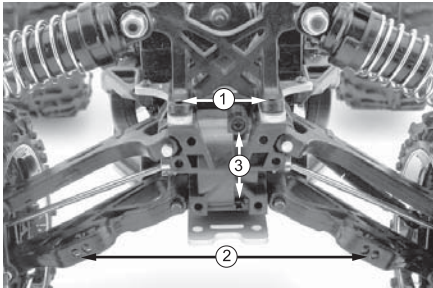
Remove 4 cover screws and remove cover.

Step 6.



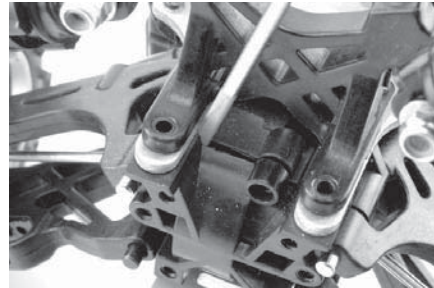
Remove both screws pictured

Step 7.



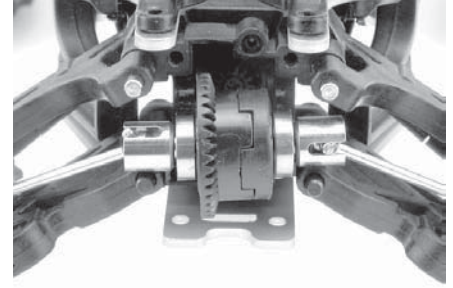
Remove both shock tower screws (1). Remove lower shock mounting screws (2). Remove both diff cover screws (3).

Step 8.



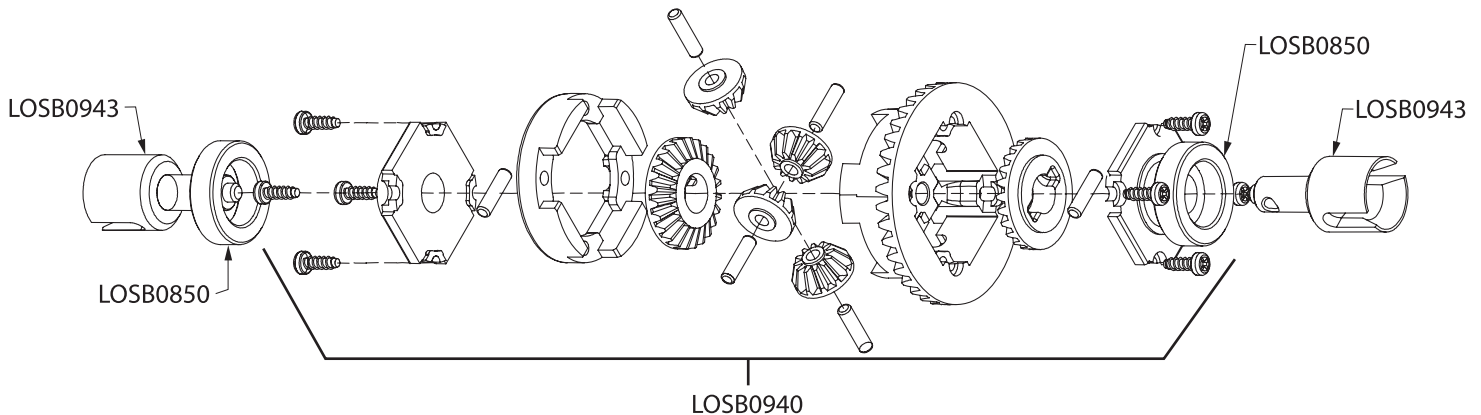
Using a small flat head screwdriver carefully pry and remove the diff case cover.

Step 9.



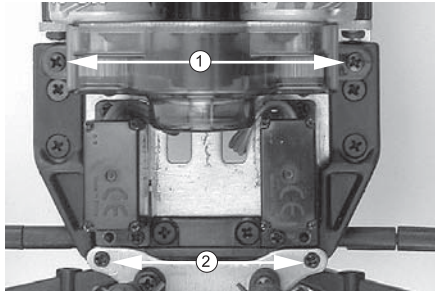
Remove complete Diff assembly.

Complete Exploded View of Front or Rear Differential



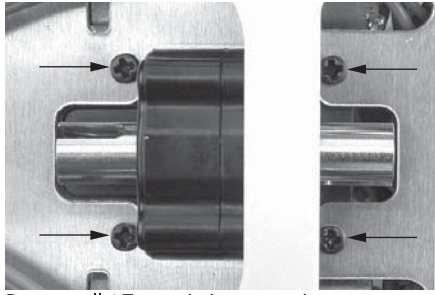
Rebuilding the Center Transmission

Step 1.



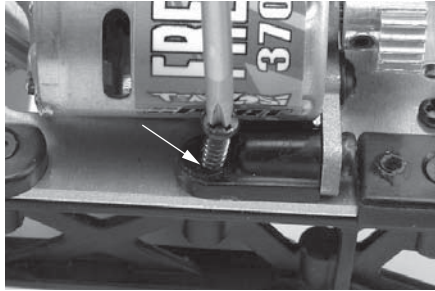
Remove both gear cover screws (1). Remove both front top plate screws (2).

Step 4.



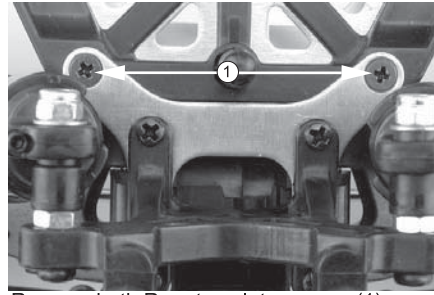
Remove all 4 Transmission mounting screws.

Step 4.



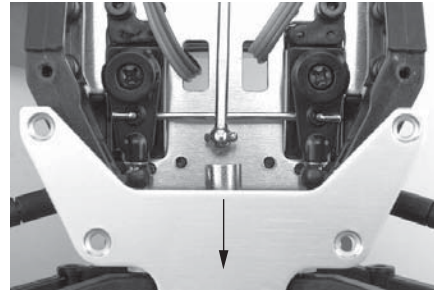
Remove Transmission side mounting screw from each side. Once the screws have been removed the transmission can now be removed from the chassis.

Step 2.



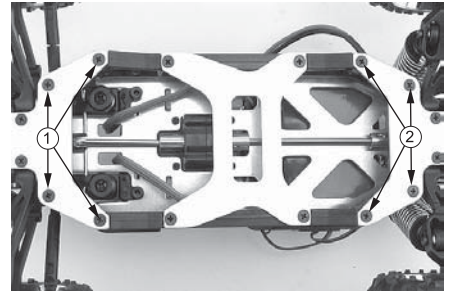
Remove both Rear top plate screws (1).

Step 5.



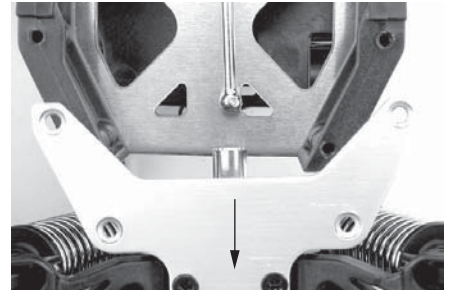
Slide the complete front end assembly out until the drive shaft slides out.

Step 3.



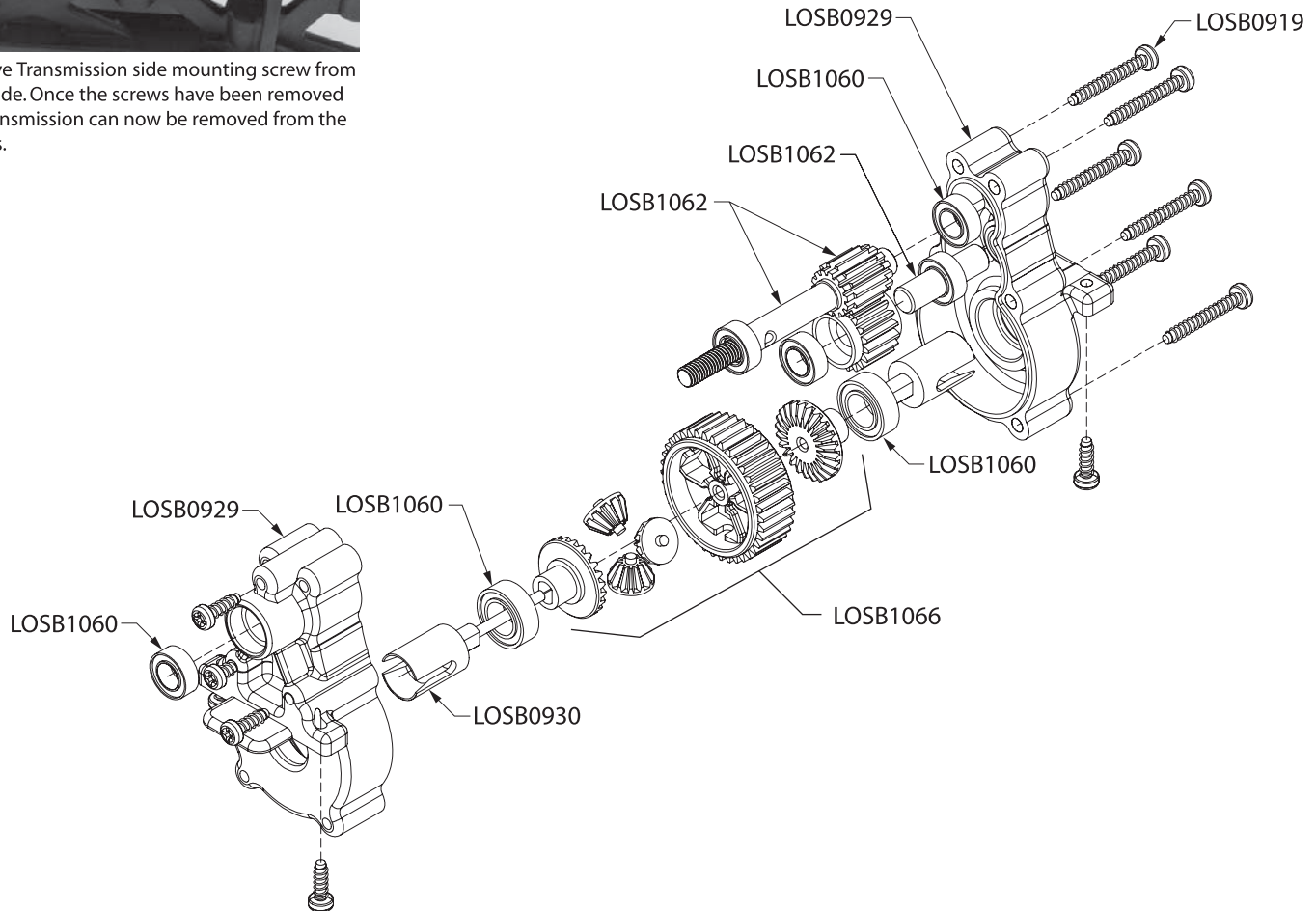
Remove 4 front lower chassis plate screws (1). Remove 4 rear lower chassis plate screws (2).

Step 6.

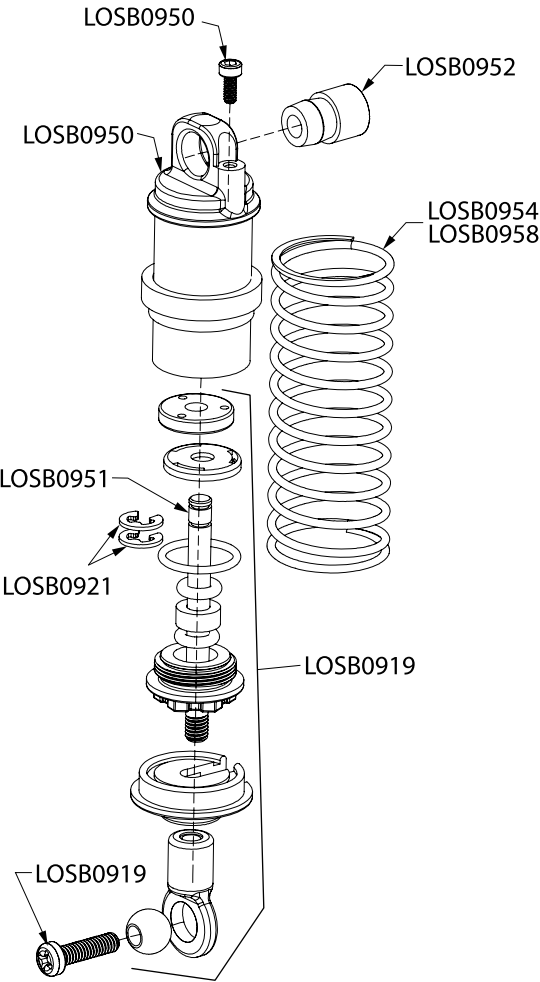


Slide the complete rear end assembly out until the drive shaft slides out.

Complete Exploded View of Center Transmission



Rebuilding/Refilling the Shocks



Step 1.
After removing the shock, push up on the lower spring cup and remove it from the shaft. Remove the spring and preload spacers.

NOTE: If you only wish to change or fill the shock fluid skip to step 6.

Step 2.
Turn the shock upside down and remove the black shock cartridge/shaft assembly from the shock body by turning it counter clockwise.

Step 3.
Remove the top e-clip from the shock shaft. Remove the shock piston. Remove second e-clip. Remove the old cartridge. Put a drop of oil on the shock shaft before installing new shock cartridge

Step 4.
Re-install the lower e-clip. Slide the shock piston onto the shock shaft against the e-clip. Re-install the top e-clip.

Step 5.
If you plan on completely changing the shock fluid (suggested) dump out the old fluid from the shock body. Carefully fill the shock body with fluid to bottom of the threads inside the shock body.

Note: Your Mini-LST comes with 25wt shock fluid from the factory

Step 6.
Pull the shaft out so that the piston is next to the cartridge and reinstall the assembly into the shock body and turn in a clockwise direction until snug--DO NOT TIGHTEN yet!

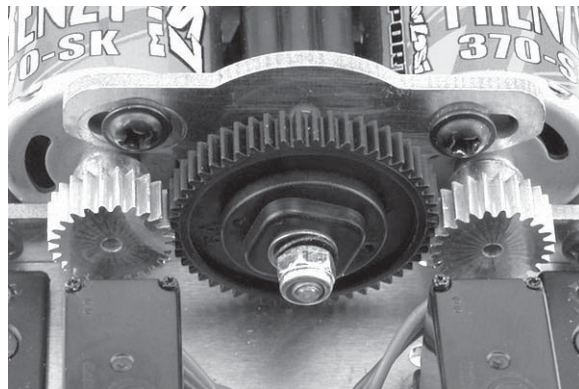
Step 7.
Turn the shock over and using a 1.5mm allen wrench, remove the small bleed screw at the top of the shock. *Slowly* push the shock shaft up until it stops. Excess fluid should flow out of the bleed hole. Slowly pull the shock shaft half way back and replace the bleed screw. Use pliers to tighten the cartridge being careful not to strip the plastics lobes on the cartridge.

Step 8.
Replace the spring and spring cup and test the shock action for smoothness and leaks. Retighten the bleed screw or cartridge if either leaks. Re-mount on the shock or your truck.

Changing the Spur Gear

If you are changing the size of the spur gear and/or pinions you will have to loosen the four screws that attach the motors (2 each motor) plate and follow the directions for adjusting the gear mesh.

1. Remove the gear cover. Use the included wrench to remove the slipper adjustment nut by turning it counter clockwise. Carefully remove the nut, washers and plastic outer slipper plate.
2. Remove the old spur gear and install the new one of the same size.
3. Replace the slipper plate, washers and nut. See “adjusting the slipper” for proper adjustment directions.



Changing the Pinion Gear

You must always use the same spec of motor and size of pinion gear on both motors in the Mini-LST. When you install hotter motors you may find it necessary to install smaller pinions to keep them from overheating. This is usually caused when you are running in a confined area where the motors are not allowed to rev freely. At this point both motors should be slightly loose on the motor plate.

1. Use the small Allen wrench included to loosen the setscrews in both pinion gears. Slide off the pinions and replace them with the new size. If the new pinions do not slide on to line up with the spur gear, pull the motors away from the spur for more clearance.
2. When aligned properly with the spur gear, tighten the setscrew on each pinion.
3. While looking closely at the teeth of the spur gear and one pinion push the motor toward the spur until you can see they are just starting to mesh and slightly snug the mounting screws for that motor. Repeat this for the other motor as well.

Setting the Gear Mesh

1. Insert a small strip of common notebook paper between the pinion and spur gear by feeding it into the gears as you slowly turn the spur gear with your finger.
2. Lightly push the motor in toward the spur (If the motor will not move freely loosen the top screw slightly) until it is resting solidly against the spur and tighten both mounting screws.
3. Remove the paper and test the mesh by holding your finger against the pinion while trying to rock the spur back and forth. There should be a slight bit of movement before the motor is forced to turn over. If not loosen the motor screws slightly and push the motor away from the spur ever so slightly.
4. Retest the mesh and repeat with the other motor making sure all motor screws are tight when done.
5. Replace the gear cover or adjust the slipper if you have also changed the spur gear.

Replacing a Steering Servo

1. Locate and disconnect the servo lead where it plugs in the receiver harness. There will be two of these, one if for the left and one is for the right servo.
2. Turn the Mini-LST upside down and with the wheels pointing straight forward, remove the Phillips screw from the center of the servo arm. (fig 1.). Set the screw, washer and spring to one side and remove the bell crank.
3. Turn the Mini-LST over, remove the small screws at the front and back of the servo (fig 2.). Carefully remove the servo feeding the servo lead through the chassis noting the proper routing for the new one.
4. Install the new servo connecting and routing the wires like the one you removed. Secure it with the screws at the front and rear.
5. Turn on the radio and remove the servo saver bottom from the removed servo and install it on the new servo so that the “V-groove” is pointing towards the other servo.
6. Reinstall the bell crank, spring, and washer securing them with the Phillips screw.

