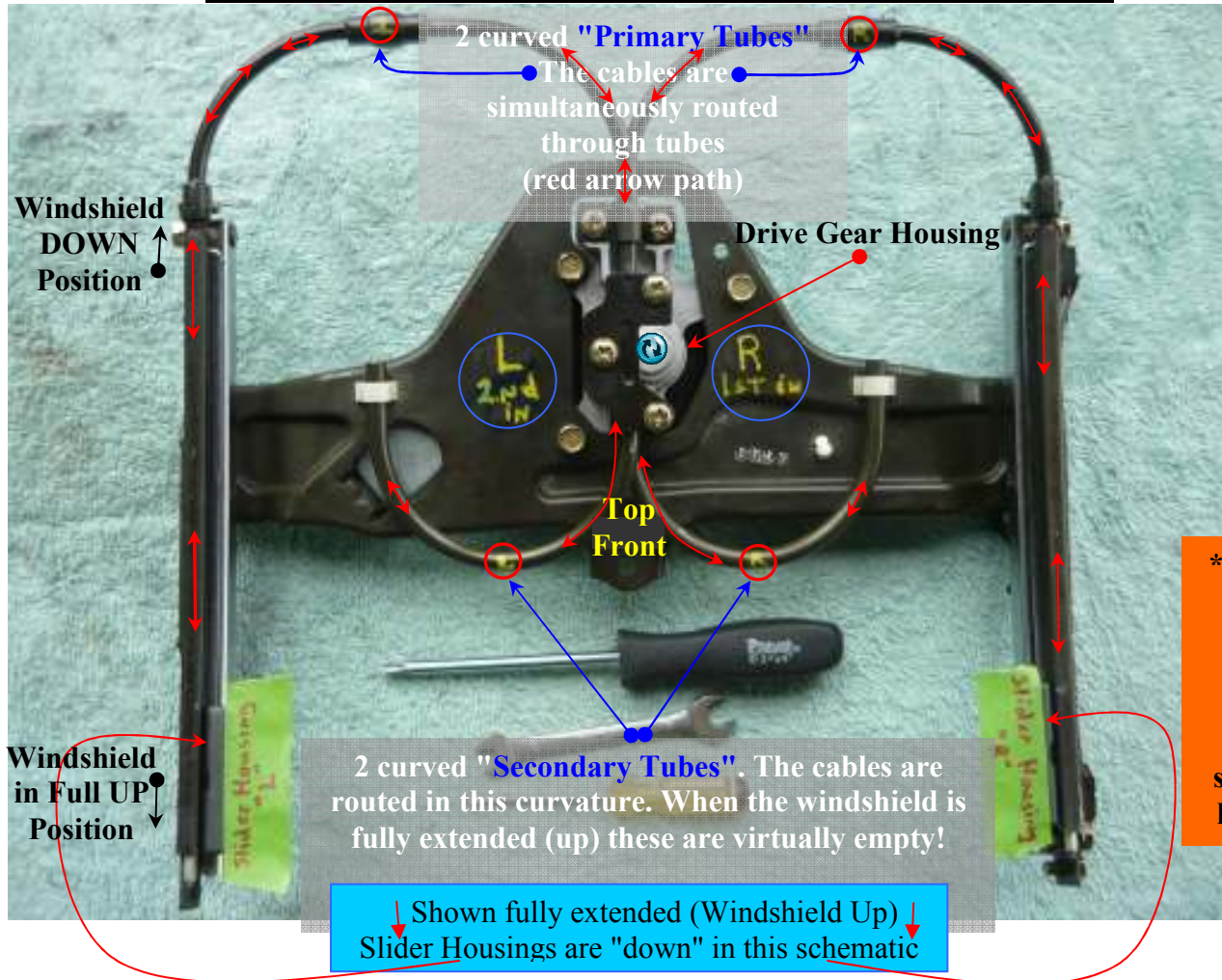


# ST1300 Window Adjustment Mechanism (Clean Lubricate, Re-assembly)

**A full disassembly is shown, but not required for simple gear replacement or successful maintenance**

This document is the Part 2 of the 2 part series... .. after mechanism removal;

## Part-2 On the Bench - Cleaning, Lubrication and Gear Replacement



16) Remove these 5 bolts



17) Remove cover plate



18) Rotate (L) secondary tube



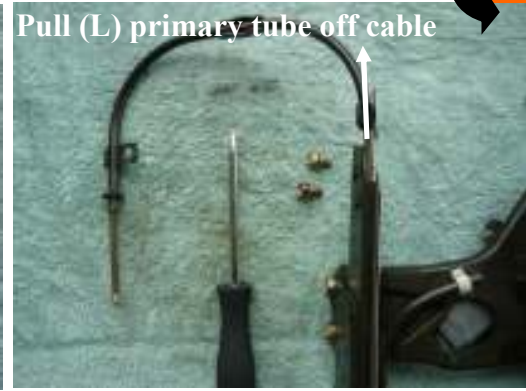
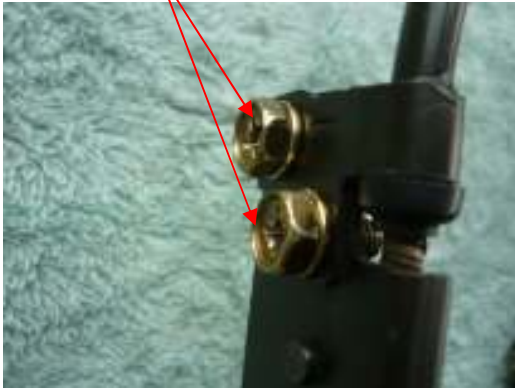
19) Rotate (R) secondary tube



Leave Secondary tubes attached to frame!



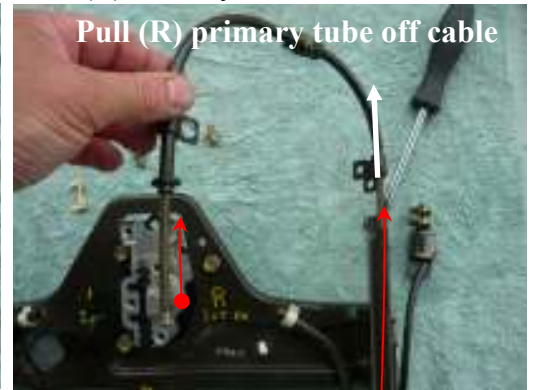
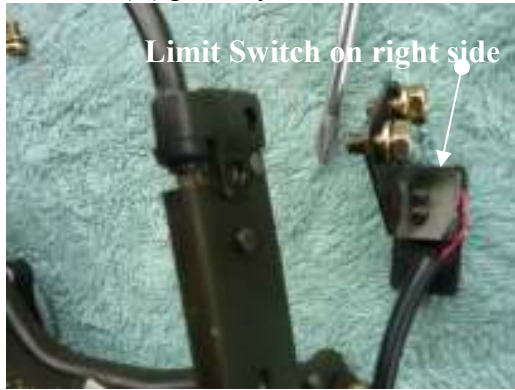
20) Remove two phillips bolts that secure (L) primary tube / the (L) Primary tube is now free



21) White plastic "M" shaped "seperator" lies between cables , remove it



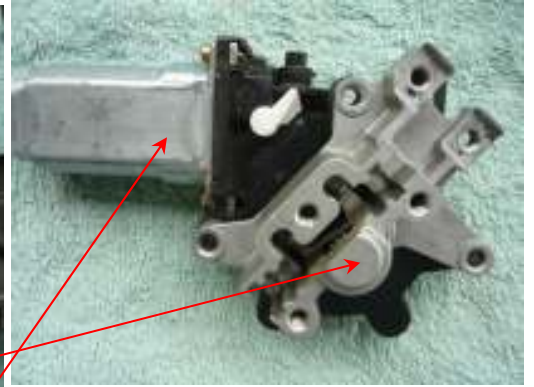
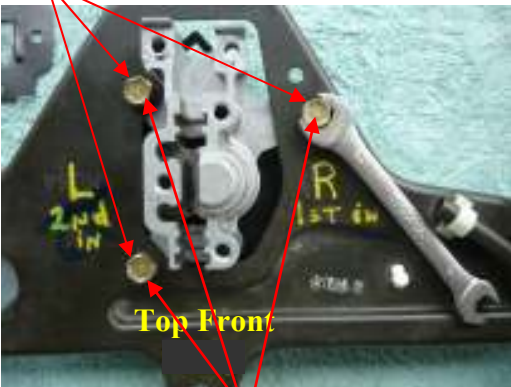
22) Remove two phillips bolts that secure (R) primary tube & limit switch / the (R) Primary tube is now free



23) Remove both (L)(R) primary tubes from cables (Pull them out of cables / holding onto sliders on rail) (Easy on the micro-limit switches here!)

(May have to pull fairly hard on the Primary tubes considering waxy OEM "anti-lube"!)

24) Remove 3 motor mount bolts • flip frame over / remove motor & drive gear housing



After 3 (10mm) motor mount bolts are removed, the Gear Housing & Motor can be separated to access drive gear



25) Lift drive gear housing from motor - remove drive gear - examine - clean- lube – replace Drive Gear with Carler or OEM, reassemble motor, gear & housing. Set aside.



26) Remove 2 (L)& 2 (R) 8mm Bolts from “DOGS” (one side at a time!). Work the “dog“ from the “slider” (Metal Shim is between “dog & “slider”). Pull (slide) dog & cable out of the channel. (L & R) (While you can,t mix them up, labeling for re-assembly would be OK here)



"DOGS" are permanently attached to cables



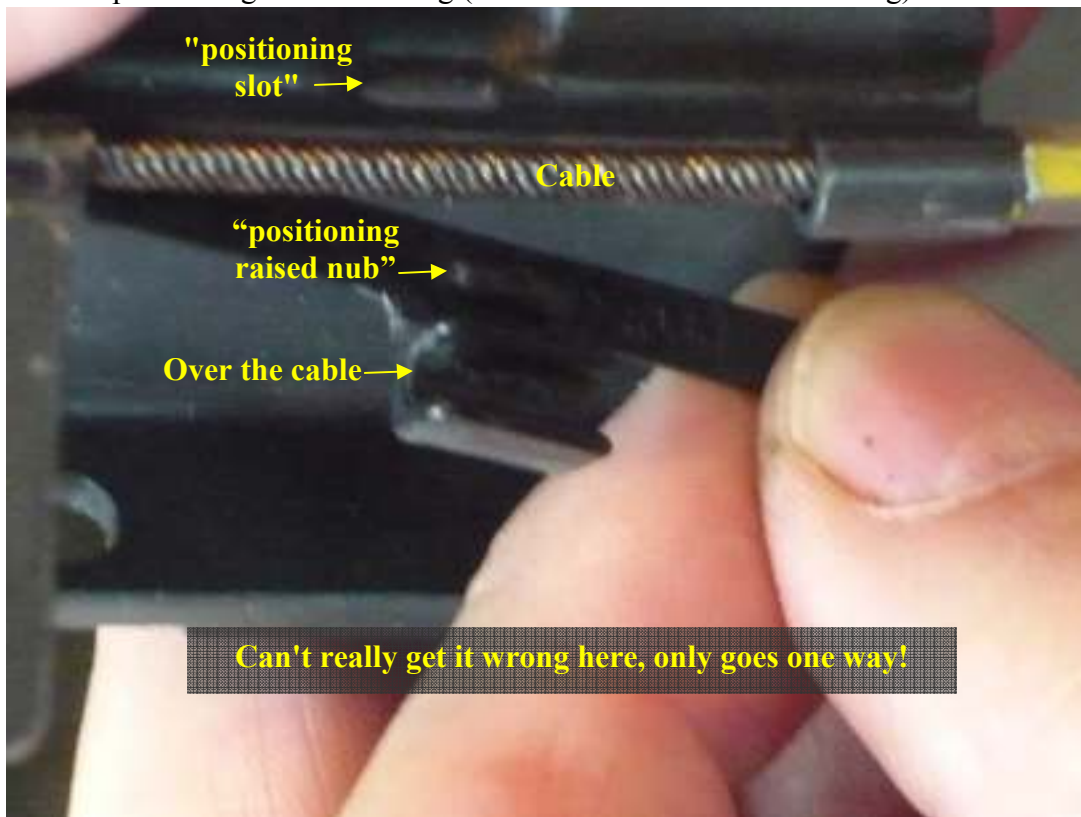
Pull DOG and cable out of channel for cleaning

Some of you may be thinking... DOG ? .....

Here's a note about the mechanical engineering term “DOG” (from WIKI)

*In engineering a **dog** is a tool that prevents movement or imparts movement by offering physical obstruction or engagement of some kind. It may hold another object in place by blocking it, clamping it, or otherwise obstructing its movement. Or it may couple various parts together so that they move in unison - the primary example of this being a flexible drive to mate two shafts in order to transmit torque.*

27) Beneath the "dog" there is a black T shaped plastic SLIDER (L & R)...these pesky little parts goes over the cable and in a positioning slot on the dog (remove and set aside for cleaning)



28) Remove "Sliders" & Shims (L & R). Set these aside for cleaning





**29) We have completed total disassembly.**

Clean everything that effects movement! Look for high friction areas by sliding sliders through channel/tracks, cables through tubes. Sliders may benefit from light sanding as some report distortion from bolts being too tight. Inside channel may need slight honing as some report a slight weld bump on the inside track. Remove OEM lube from all components with several cycles of WD40 , dry washcloth , & maybe Propanol (the old stuff is sticky). Lube everything with Lithium soap based grease or one of your choosing. ....Clean.....Lube.....Re-assemble.....Install.....



Some light sanding here couldn't hurt (400-800 grit)

**A full disassembly is probably best but certainly not required for gear replacement or successful maintenance**  
 There may be several high friction points in the assembly that need attention or you might find that the dogs are sliding sleazy... great! Maybe the cables are in good shape... excellent! How's the drive gear?  
 Use your judgment. What needs your attention? Do as much as you think is necessary... Either disengage the cables from the drive and manually move the dogs and/or temporarily hook up the completed assembly after the maintenance session to check smooth function on the bike before you finalize.

### Re-assembly Order

- 1) Place the Gear in Housing, Housing on Motor .
- 2) Mount Motor assembly in frame rubber motor mount from backside..
- 3) Push RS Cable down track & loosely bolt dogs /shims / sliders
- 4) Load RS Cable into RS "Primary Tube"
- 5) Loosely bolt (RS) "Primary Tube" & Limit Switch to frame
- 6) Adjust cable length by positioning "Dog" 1/8" from the limit switch
- 7) Seat the (RS) cable (1st in) into position in Gear Housing
- 8) Load cable into (RS) "Secondary Tube"
- 9) Insert White plastic "M" shaped "Seperator" in Gear Housing
- 10) Push LS Cable down track & loosely bolt dogs /shims / sliders
- 11) Load LS Cable into RS "Primary Tube"
- 12) Loosely bolt (LS) "Primary Tube" & Limit Switch to frame
- 13) Adjust cable length by positioning "Dog" 1/8" from stop
- 14) Seat the (LS) cable (2nd in) into position in Gear Housing
- 15) Load cable into (LS) "Secondary Tube"
- 16) Position Gear Housing Cover and tighten



Then gradually button everything up, tightening stuff & adjusting as you go... check everything. check everything. check everything.....OK...Should be good to go.

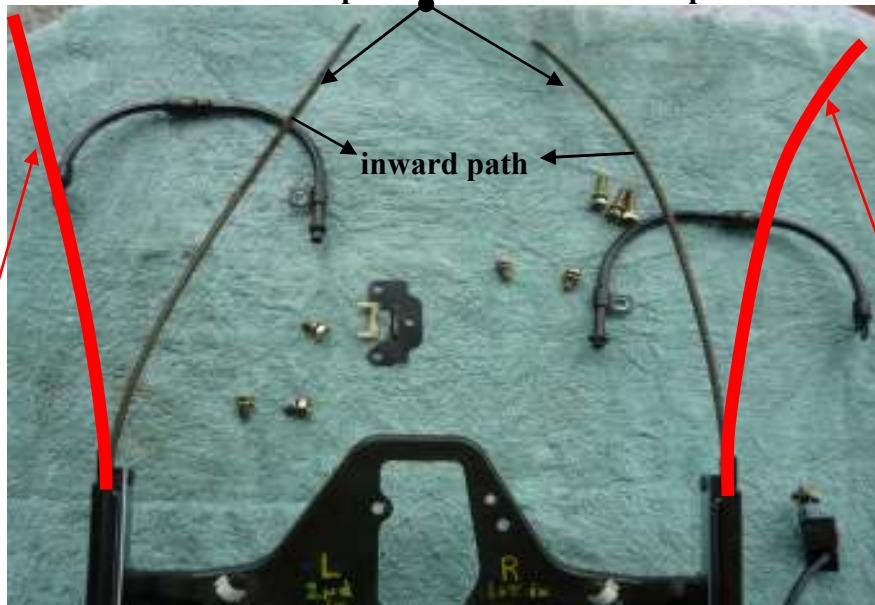
### A note about cables

I have been unable to source these cables in this exact configuration. Its reported that Honda cars have adopted this type of spiral polymer & metal cable in sunroofs to minimize noise during use (not our problem). If your cables show damage, the wear will be along a 6-8" linear path near the cable's end. Rotating cables 180° while loading into the Primary Tubes will ultimately introduce a new path to the drive gear. The weird thing about the mechanism is that the cables are allowed to rotate (and may initially), but typically do not! So its not that the cable never spins, it just quickly finds a preferred curvature where windshield movement is achieved and stays there.

So why are the cables allowed to rotate when rotation is unrelated to windshield movement? Maybe a "clutch" function? a L/R "synch" function? Don't know. Maybe as more individuals become familiar during maintenance, an answer will be found.

***Cable rotation cannot achieve window movement.***

Your cables will show a preferred curved inward path shown here.



If you have damaged cables, Rotate them to an outward 180° path before loading them into the primary tubes.

**Another possibility**

Before assembly; A moderate steady "kneading" of the cables over time may convince Cables to adopt the desired opposite curvature as seen here. *If your cables are correctly loaded into the Primaries, a new portion of the cables will be seen meshing with the Drive Gear. You'll see when you load the cables into the housing*



**A note about Lubrication**

There are a plethora of lubricants available that will outperform OEM. I am currently supplying a 1.75 oz tube of (Allied Electronics) soap based white lithium grease NLGI-2 grade gear purchase.

*Description; provides superior lubrication and reduces friction and wear to a minimum. Suitable for use on wiping contacts. It retains consistency over a wide range of temperatures, will not oxidize or harden and provides outstanding protection against corrosion.*

Interesting Wiki description of Consistency # that I stumbled on doing grease research

**NLGI consistency number** From Wikipedia, the free encyclopedia

The **NLGI consistency number** (sometimes called "NLGI grade") expresses a measure of the relative hardness of a grease used for lubrication, as specified by the *standard classification of lubricating grease* established by the National Lubricating Grease Institute (NLGI). The NLGI consistency number alone is not sufficient for specifying the grease required by a particular application. However, it complements other classifications (such as ASTM D4950 and ISO 6743-9). Besides consistency, other properties (such as structural and mechanical stability, apparent viscosity, resistance to oxidation, etc.) can be tested to determine the suitability of a grease to a specific application.

The following table<sup>[2]</sup> shows the NLGI classification and compares each grade with household products of similar consistency.

**NLGI consistency numbers**

NLGI number	ASTM worked (60 strokes) penetration at 25 °C tenths of a millimetre	Appearance	Consistency food analog
000	445-475	fluid	cooking oil
00	400-430	semi-fluid	apple sauce
0	355-385	very soft	brown mustard
1	310-340	soft	tomato paste
2	265-295	"normal" grease	peanut butter
3	220-250	firm	vegetable shortening
4	175-205	very firm	frozen yogurt
5	130-160	hard	smooth pate
6	85-115	very hard	cheddar cheese

**I might prefer a thinner grade (peanut butter seems a little thick for this application) although most greases in my research are Grade 2. Whatever you use... a thin coat of all surfaces will suffice.**





Two drive gears are shown. The OEM gear is sintered powder metal; brittle and prone to failure. The Carler gear (Contact [carlermotorcycleparts@gmail.com](mailto:carlermotorcycleparts@gmail.com)) is machined from 4140 "low alloy" Cr, Mo, Mn steel noted for toughness, good torsional and fatigue strength then heat treated to further improve critical properties. The drive gear fits in the heart of a housing that drives two stacked cables activating windshield movement. Whether you choose to replace the drive gear or not, these two documents; show how to perform maintenance on this failure prone component of the ST1300.

**Part#1-ST1300 Window Adjustment Mechanism Removal** (Pages#1-6)

and

**Part#2 ST1300 Window Adjustment Mechanism (Clean Lubricate Re-assembly)** (Pages#6-13)

