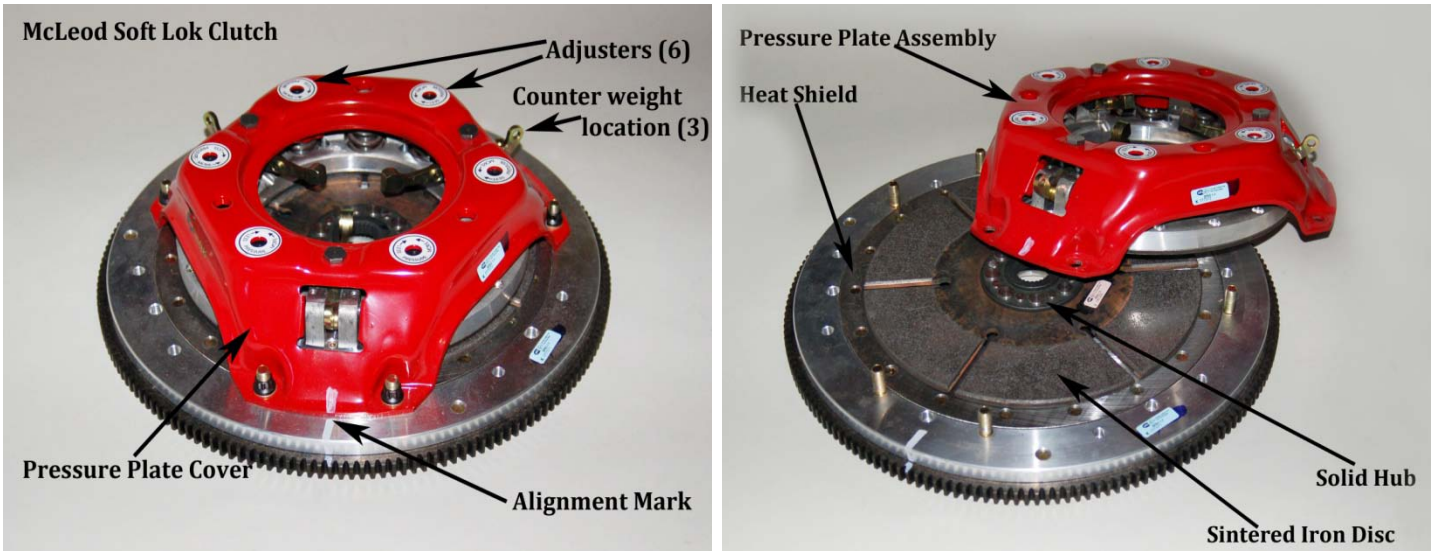
Soft Lok Clutch Instruction

Warning: DO NOT USE SOFT LOK ON ANY DYNO!!

The Soft Lok clutch assemblies consist of an adjustable Ford/Long style pressure plate, sintered iron disc and flywheel. Steel flywheels are normally used on engines that are under 450hp but usually are not heavier than 22 lbs. Engines over 450hp use an aluminum flywheel with a steel insert. Car weight, tire size and gearing do play into this decision. Call the McLeod Tech Line if you need a recommendation.

The McLeod Ford/Long style pressure plate has an aluminum pressure ring inside with a steel face riveted to it. It has nine springs, six are adjustable. Most Soft Lok clutches have 200 lbs of base pressure. Each of the six adjusters are found on either side of the levers. It is important to have steel surfaces on either side of the disc to keep the same coefficient of friction.

The disc is sintered iron and is very aggressive. In order to control the aggression, McLeod reduced the pressure in the pressure plate. This disc has a special characteristic and is expressed as: "The hotter it gets, the harder it bites". This will be explained further in these instructions.



Soft Lok Assembly shown with aluminum flywheel

PREPARATION:

When you receive your Soft Lok assembly, bolt it up to the engine. Get yourself a T-Handle Allen wrench that fits the six adjusters. (Helpful Hint: mark one of the 'T' by painting, striping or taping it). Put the T-Handle in one of the adjusters and move it back and forth ½ turn. Get used to the feel of what base pressure feels like. . You need to know how it feels because most often times you will make the

adjustment to the clutch through a hole in the bellhousing; this will be covered in Phase 1. Once you are used to the feel we will make the initial adjustment to the pressure. We want to have the clutch high enough so there is no slippage in any gear. A good rule of thumb is to start at 8 – 10 turns. The adjuster turns just the opposite of what one might think, counterclockwise adds pressure and clockwise take it out. If needed, mark the bellhousing hole to reflect this. Start turning your T-Handle CCW until you feel tension on the Allen screw. Check to see where the marked end is on the T-Handle and turn it 360 degrees for at least 8 – 10 turns. There will be a counterweight kit with your assembly. It has aluminum nuts, steel nuts and bolts and steel weights. Put it in the toolbox until we get to the section on adjusting the clutch.

CONCEPT:

Most clutches are high-pressure lockup types. When you launch the car with these, the high spring pressure will shock the car like pulling the trigger on a shotgun and feel like someone hitting the back of the seat with a baseball bat. The trouble is it breaks parts and sometimes will cause the tires to spin and get the car out of shape. Using the Soft Lok your ET and MPH will improve. You will have little to no breakage because we are causing a controlled slip in the clutch that takes out all of the shock and violence. Transmissions and rear ends last longer.

With its lower spring pressure and lighter weight, it will not hit the tires or chassis as hard and tire spin can be controlled so traction is better and the lighter weight will let the engine rev quicker and pull harder through mid range and top end.

Warning: Do not use the Soft Lok on any dyno!!

Do not drive the car onto the trailer or car hauler!!

Soft Lok Assembly with six adjusters

and a .280" thick Disc Base Pressure = 200#

1 turn of all (6) adjusters increases total pressure to 330#
2 turns of all (6) adjusters increases total pressure to 460#
3 turns of all (6) adjusters increases total pressure to 590#
4 turns of all (6) adjusters increases total pressure to 720#
5 turns of all (6) adjusters increases total pressure to 850#
6 turns of all (6) adjusters increases total pressure to 980#
7 turns of all (6) adjusters increases total pressure to 1110#
8 turns of all (6) adjusters increases total pressure to 1240#
9 turns of all (6) adjusters increases total pressure to 1370#
10 turns of all (6) adjusters increases total pressure to 1500#
11 turns of all (6) adjusters increases total pressure to 1630#
12 turns of all (6) adjusters increases total pressure to 1760#
13 turns of all (6) adjusters increases total pressure to 1890#

Important Clutch Installation Hints

The following check list is a reminder of the necessary inspection points and precautions required to insure a trouble-free clutch installation.

Installation / Do's

1) Determine cause of original clutch failure. Cause of first clutch failure (if not wear) MUST be found and corrected. If oil is present on clutch plate, cause of leak MUST be corrected before installation of new clutch unit.
2) Check splines on transmission input shaft for signs of abnormal wear or twisting. Slide new disc on spline by hand gently to check fit. Disc should move FREELY on splines.
3) Remove ALL oil or grease from friction surfaces on flywheel and cover assembly. Surfaces MUST be clean and dry. Also clean input shaft spline with a wire brush. Lubricate with dry graphite spray if needed.
4) To insure proper operation, friction surface of flywheel MUST be resurfaced. Check dowel pins, they must be smooth and straight.
5) If throw-out bearing is worn, replace it, better now than later.
6) Closely inspect pilot bearing or bushing for excessive wear to avoid transmission shaft misalignment. Replace it if any doubts.
7) Use clutch alignment tool to insure disc and cover are properly aligned with pilot bearing.
8) If using an aftermarket scatter shield/bell housing, checking center hole run-out is highly recommended.
9) Be sure all special type bolts, if any, are replaced in their proper locations.
10) Torque all clutch cover bolts evenly, to factory recommended spec, using a progressive "criss-cross" tightening pattern.
11) Before completing installation, inspect all clutch linkage parts (fork, clevis, pins, etc.) for signs of wear and replace ALL worn pieces. Grease all pivot points in linkage system.
12) Adjust clutch pedal "free play" to correct specifications. Throw-out bearing should not be tight against clutch fingers. 1/8" – ¼" is recommended, except cable linkage.

Installation / Don'ts

1) Don't let any grease or oil contact ANY friction Surface.
2) Don't use an impact (air gun) to tighten cover bolts.
3) Don't let transmission weight rest on input shaft during installation.

Torque Specs

5/16-18 Grade 8	*25 Ft/Lbs*
3/8-16 Grade 8	*35 Ft/Lbs*
7/16-20 Grade 8	*65 Ft/Lbs*
½-20 Grade 8	*75 Ft/Lbs*

McLeod Racing, LLC 1600 Sierra Madre Circle, Placentia, Ca 92870 714.630.2764

McLeod
Clutches ▫ Flywheels ▫ Discs ▫ Components

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Bell Housing Alignment Procedure

When swapping a clutch, bell housing or transmission it is highly recommended you check the alignment of the bell housing to the engine block/crankshaft and to the transmission input shaft/output shaft. Think of this as a theoretical straight line running through the crankshaft, through the input shaft of the transmission and the output shaft of the transmission. Misalignment along this path can lead to leaks, poor clutch release, premature wear of components and excessively noisy operation. This inspection can be performed with a few common measuring devices and some time.

Manufacturer's tolerances of engine/crankshaft alignment can vary especially if the engine block has been modified throughout its lifetime or if you are performing a bell housing and/or transmission swap. If you find excess misalignment on your engine/bell housing you can correct the problem with off-set dowel pins. (Lakewood Industries offers Offset dowel Pins to correct misalignment conditions). You will need a dial indicator with a magnetic base along with some typical hand tools to perform this inspection. It is critical you pay close attention to detail when performing this inspection in order to achieve accurate assembly results.

1) Install flywheel onto crankshaft, using proper bolts and torque to factory setting.
2) Be certain the engine block dowel pins stick out of the rear of the engine block at least 3/8" for proper bell housing engagement. Check the rear surface of the engine block at this time to be certain it is free of nicks or burrs that will prevent the bell housing from seating against the block.
3) Install just the bell housing and hold in place with a few bolts. Install dial indicator base onto crank flange or flywheel face and adjust plunger to contact the register bore of the bell housing. Rotate the crankshaft and note the indicator reading as you sweep the register bore of the bell housing.
4) Misalignment can be determined by dividing the change in the indicator by 2. Maximum allowable runout is .005".
5) If your reading exceeds .005" off-set dowel pins must be used to correct the misalignment. Lakewood Industries offers such dowel pins in several sizes.

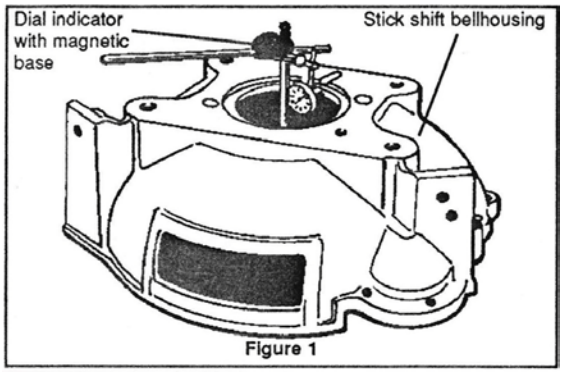

Figure 1

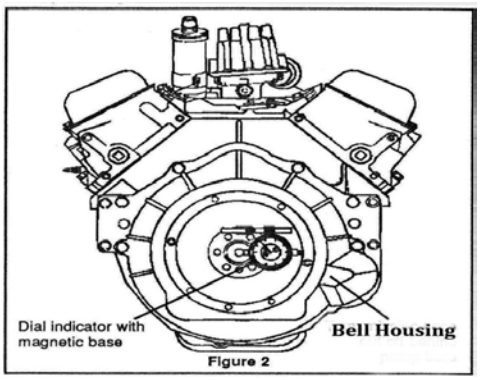

Figure 2

This alignment procedure will eliminate premature wear on many of the transmission and clutch related components and will provide smoother operation. I0029