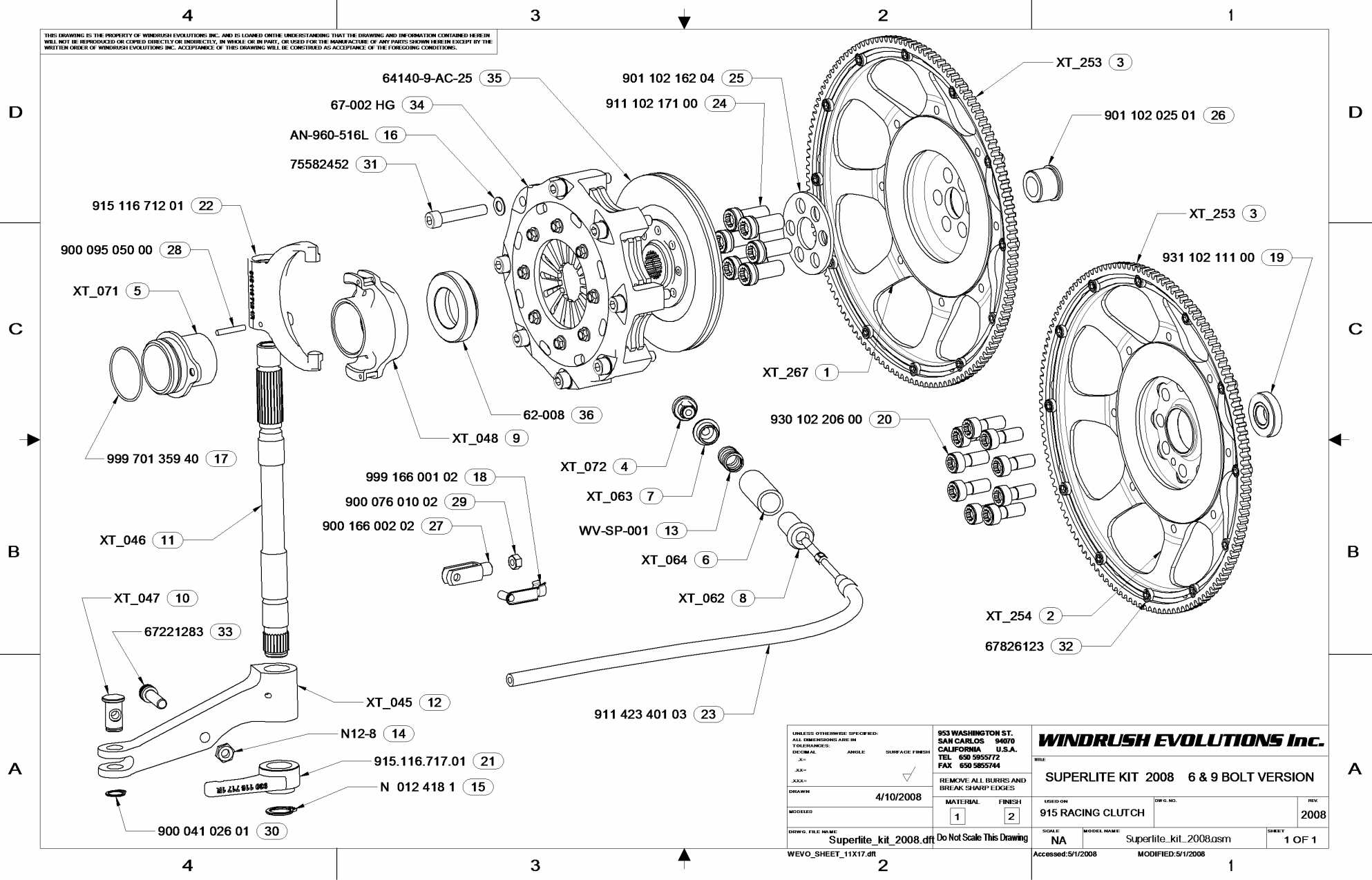


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UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN TOLERANCES ARE IN			953 WASHINGTON ST. SAN CARLOS 94070 CALIFORNIA U.S.A. TEL. 650 9955772 FAX 650 9955744	WINDRUSH EVOLUTIONS Inc.	
DECIMAL	ANGLE	SURFACE FINISH		WTE	SUPERLITE KIT 2008 6 & 9 BOLT VERSION
.XX-		✓	REMOVE ALL BURRS AND BREAK SHARP EDGES	ISSUED ON	REV
DRAWN	4/10/2008	MATERIAL	FINISH	915 RACING CLUTCH	2008
MODELED		1	2	SCALE	MODEL NAME
DRWG. FILE NAME Superlite_kit_2008.dft			Do Not Scale This Drawing		1 OF 1
WEVO_SHEET_11X17.dft			Accessed:5/1/2008		MODIFIED:5/1/2008

WINDRUSH EVOLUTIONS Inc.	
WTE	SUPERLITE KIT 2008 6 & 9 BOLT VERSION
ISSUED ON	REV
915 RACING CLUTCH	2008
SCALE	MODEL NAME
NA	Superlite_kit_2008.asm
Accessed:5/1/2008	MODIFIED:5/1/2008

#	Part Number	Title	QTY.	IN KIT ?
1	XT_267	915 - 6 BOLT FLYWHEEL 5.5" CLUTCH - LOOSE RING	1	YES/NO
2	XT_254	915 - 9 BOLT FLYWHEEL 5.5" CLUTCH - LOOSE RING	1	YES/NO
3	XT_253	915 / 901 BOLT-ON WEVO STARTER RING GEAR	2	YES
4	XT_072	CLUTCH CABLE NUT	1	YES
5	XT_071	CLUTCH T.O.B. GUIDE TUBE	1	YES
6	XT_064	SUPERLITE CLUTCH STOP - GAUGE TUBE	1	YES
7	XT_063	SUPERLITE CLUTCH STOP - CAP	1	YES
8	XT_062	SUPERLITE CLUTCH STOP - BASE	1	YES
9	XT_048	THROW OUT BEARING CARRIER -TILTON 38Ø	1	YES
10	XT_047	CLUTCH CABLE SLUG	1	YES
11	XT_046	CLUTCH RELEASE SHAFT	1	YES
12	XT_045	CLUTCH RELEASE LEVER	1	YES
13	WV-SP-001	CLUTCH STOP - COMPRESSION SPRING	1	YES
14	N12-8	M8 x 1.25 THIN LOCK NUT	1	YES
15	N 012 418 1	RETAINING RING Ø 18 mm x 2	1	YES
16	AN-960-516L	WASHER - CLUTCH COVER BOLT	8	YES
17	999 701 359 40	O-RING 40 x 1.5 mm	1	YES
18	999 166 001 02	CLUTCH CABLE CLEVIS PIN	1	YES
19	931 102 111 00	CRANKSHAFT PILOT BEARING - 9 BOLT	1	YES/NO
20	930 102 206 00	PORSCHE FLYWHEEL BOLT - 9 BOLT CRANK	9	NO
21	915.116.717.01	O.E. CLUTCH ADJUSTMENT LEVER	1	NO
22	915 116 712 01	CLUTCH RELEASE FORK	1	YES
23	911 423 401 03	PORSCHE CLUTCH CABLE 1975	1	YES
24	911 102 171 00	PORSCHE FLYWHEEL BOLT - 6 BOLT CRANK	6	NO
25	901 102 162 04	FLYWHEEL BOLT WASHER	1	NO
26	901 102 025 01	CRANKSHAFT PILOT BEARING	1	YES/NO
27	900 166 002 02	CLUTCH CABLE CLEVIS	1	YES
28	900 095 050 00	ROLL PIN Ø 4 mm x 26	1	YES
29	900 076 010 02	M6 NUT	1	YES
30	900 041 026 01	RETAINING RING - EXTERNAL Ø 13 mm	1	YES
31	75582452	M8 x 45 CAP HEAD BOLT - 10.9	8	YES
32	67826123	M6 x 10 LOW HEAD CAP SCREW - 10.9	12	YES
33	67221283	M8 x 30 CAP HEAD BOLT - PLATED	1	YES
34	67-002 HG	TILTON 5.5" Ø CLUTCH COVER	1	NO
35	64140-9-AC-25	TILTON 2 PLATE DISC PACK - SUIT 915	1	NO
36	62-008	TILTON 38mm Ø THROW OUT BEARING	1	NO

WEVO 915 Superlite Flywheel / Clutch kit

This kit is a high performance competition system that is not suited for continuous road traffic conditions. The parts are engineered for the use conditions prescribed by the Clutch manufacturer; use of the clutch under other conditions might damage any of the parts in the system.

The manufacturer instructions for the clutch must be observed at all time, particularly the information about clutch installation, clutch stop and release mechanisms free play measurements.

This kit is designed to be installed with a standard 915 transmission in a totally unmodified 911 Bodyshell, 1972 through 1986. There are some small variations in mating parts across this 15 year period, however WEVO have attempted to cover all combinations. Variations that require specific and unique solutions are listed throughout this document. If your vehicle is modified, then compare your current modifications against a stock car to make judgements about potential installation problems. Call WEVO with any questions or difficulties encountered during installation.

This kit has been designed to require the absolute minimum of modifications to your original 915 transmission. However, the WEVO kit uses closer tolerances than original for the packaging and manufacture and of some of the parts in this kit. Due to the inevitable variations in the original Porsche transmission castings, there will be some checking during installation to ensure the WEVO design intent can be maintained. Any likely modifications required to meet this design intent are covered in these instructions.

This kit includes most parts that will be replaced during the conversion from an O.E. stock clutch package to the WEVO Superlite unit – except the 3 clutch parts from Tilton Engineering. See the exploded diagram for illustration of each part and part number information that will be referenced in these instructions. There are some O.E. parts required that vary with different model years, all the necessary O.E. parts are identified on the exploded view – although unless necessary to use a new part, these are not included.

These instructions assume an experienced level of technical capability, including execution under good working conditions and performed with accepted good work practices.

FLYWHEEL

Remove the existing clutch assembly and Flywheel from the crankshaft.

The new WEVO Superlite Flywheel (1 or 2) can be installed in the condition it is supplied. The Flywheel already has a new Pilot bearing (26 or 19) installed and the Starter Ring Gear (3) is also installed using the twelve M6 screws (32).

Torque the Flywheel bolts to the original specification for your Flywheel configuration.

STARTER MOTOR

Wipe a small amount of heavy grease on the teeth of the starter and the flywheel ring gear to avoid a totally dry contact between the parts. Excess grease will be flung off during rotation and the small amount remaining on the parts will increase the life of the ring gear teeth.

CLUTCH

The Clutch cover (34), Throw out bearing (36) and Disc pack (35) are not included in this kit. Contact local or national Tilton re-sellers for the part #'s identified on the parts list.

Assemble the clutch cover per the Tilton instructions and use a clutch plate, aligning tool during the attachment of the clutch assembly to the Flywheel. Refer to the Tilton instructions to familiarize yourself with the process of tightening the clutch cover bolts in a criss-cross fashion. Tighten the M8 Clutch cover bolts to 22 lbs./ft of torque. Perform all the checks described in the Tilton instructions to establish that the installation of your clutch is without defect.

The friction plates must be the 64140-9-AC-25 part # or the input shaft spline will not be correctly engaged.

The friction plate closest to the flywheel has the flat face of the hub facing the flywheel.

PEDALS

The various pedal assemblies used from 1972 through 1986 are all compatible with the WEVO Superlite system. The clutch pedal shaft from 1977 and later offers the best cable travel condition, the earlier parts have a shorter action arm and full clutch release is difficult in some cars. In 1977, a helper spring was installed to change the release weight felt on the clutch pedal. This helper spring can remain installed and will not effect the operation of the clutch. However, this helper spring relies upon an overcenter mechanism that will "park" the pedal in the fully up position. If the pedal bushes are badly worn, or excessive grease and debris is causing the pedal shaft to drag, then this overcenter mechanism will be lazy and not fully return the pedal to the up position.

The small spring in the WEVO pedal stop mechanism under the transmission will be some assistance to returning the pedal to the up position, but should not be relied upon to perform this function. The purpose of the spring is to open the Clutch stop mechanism and relieve pre-load on the Throw out Bearing.

Check that your pedal will cleanly return to the up position without the cable attached and once again with the cable and Clutch release lever (12) attached but without the Clutch adjustment lever (21) installed.

If necessary rebuild your pedal assembly prior to using the WEVO Superlite kit.

CABLE

You will need to access the pedal footwell, for removal of the Clutch cable clevis pin (18), Clutch cable clevis (27) and M6 Nut (29) on the front end of the clutch cable. With these three parts removed, you will be able to remove the old Clutch cable towards the engine bay. In this removal, the heavy black outer cable will also be removed from the socket fixture on the Bodyshell at the rear face of the tunnel.

The original factory installation included plenty of grease, if this grease is contaminated, remove as much dirty grease as possible from the steel guide tube inside the tunnel using whatever method is most likely to succeed. We recommend chasing a piece of lock wire through the guide tube and dragging a wad of solvent soaked rag through the tube to scrape as much grease as possible from this area. Repeat the process a couple of times with clean rag until you are satisfied that the new cable will not be spoiled by contaminated grease.

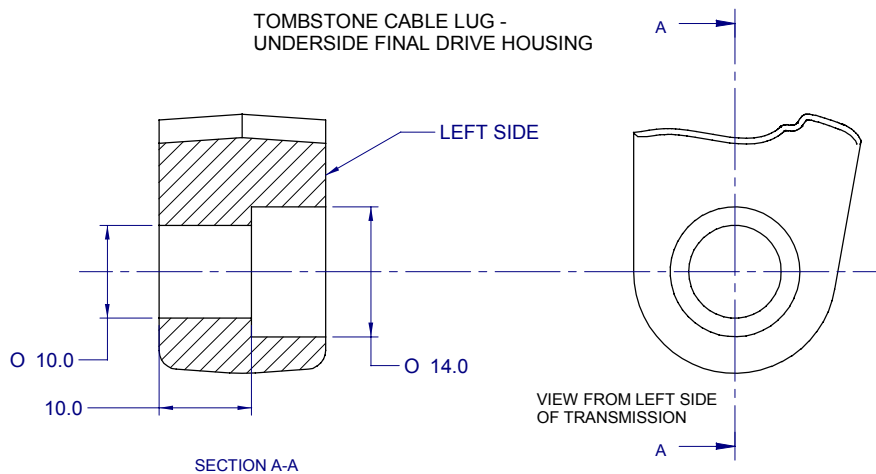
Use synthetic grease in moderation to lubricate the new cable assembly. Including a small amount of grease on the exposed plastic coated cable that will be sliding inside the steel guide tube.

Once the Clutch cable (23) is installed, run the M6 Nut (29) onto the threaded tail, then screw the Clevis (27) onto the thread until the full thread inside the clevis is engaged on the threaded tail, tighten the M6 Nut, it is possible this will be your final adjustment. Install the Clevis pin (18) to attach the cable to the Clutch pedal lever. Ensure all this work is completed to finished standard, as you will not be working on the front of the cable again, unless you need to adjust cable length for the unique dimensions of your Bodyshell.

The rear end of the cable outer is attached to the transmission. All 915 Final Drive Housing's from about mid 1975 onwards had a cast lug on the bottom, just rearward of the flange between the Final Drive housing and the Maincase. This inverted tombstone shaped lug has surfaces that are arranged about 15° from car centerline. On the Final Drive housings 1976 & 1977, this lug was bored to accept the clutch cable (universal machining to include 912 applications). On 1978 and later cars, the lug is left solid. To mount the Clutch Cable for the WEVO Superlite kit, you will need to bore this lug. This can easily be done with correct hand tools and some care.

The Through hole is 10 mm Ø.

The Left hand side of the transmission (as mounted in a 911) requires a counterbore of 14 mm Ø to leave the specified plain bore depth. (see sketch below). This counterbore is to receive the ferrule on the end of the Clutch cable outer casing.



For 915 transmission Final Drive Housings 1972 – mid 1975, you will need to fabricate a bracket to replicate the function of the cast lug and hang this from the lower studs of the Final Drive Cover. WEVO do not have specific design for this component at present.

RELEASE BEARING MECHANISM

The WEVO release mechanism is an adaptation of the original equipment with one major variation. The O.E. clutch used a “pull” release mechanism, the Tilton clutch uses a “push” release mechanism. To achieve this we have modeled the WEVO system on the O.E. late model 912 configuration, but used the more sturdy 911 series components.

The Clutch release fork (22) is inverted, so that the ground cheeks are arranged to “push” the Throw out Bearing carrier (9). By inverting the Clutch release fork (22) we have created a small interference between the root of the top arm on the Clutch release fork and the boss of material surrounding the uppermost bearing for the Clutch release shaft (11).

A small amount of material needs to be relieved for to allow the Release Fork to swing back fully away from the Flywheel so that the TOB carrier can reach the base of the guide tube. This excess

travel is critical to meet the Tilton specification for full free play on a worn clutch assembly. The lower arm striking the face of the final drive housing should ultimately limit the travel away from the clutch.

You will also need to check that the Clutch release fork (22) can be centered about the axis of the input shaft – which was not tolerance critical in the O.E. installation.

Fit the T.O.B. guide tube (5) to the final drive housing. Now fit the Clutch release fork onto the Clutch release shaft (11) in the correct operating position. The Clutch release fork should be installed with the Roll Pin bore towards the bottom of the transmission. Fit the Throw out Bearing carrier (9) on the Clutch release fork and slide onto the T.O.B. guide tube (5). Using a scribe or punch, check the position of the Roll Pin bore in the Clutch release fork (22) with the corresponding groove in the Clutch release shaft (11). These two features need to be correctly aligned and provide a friction free assembly.

Two possible types of misalignment are possible.

The Clutch release fork might not be centered on the T.O.B. guide tube because the ends of the composite bushings for the Clutch release shaft are fouling the Clutch release fork. This will be obvious due to the difficulty of assembling the Clutch release fork onto the spline of the Clutch release shaft, or by the Throw out Bearing carrier dragging on the T.O.B. guide tube when all parts are assembled.

Detail the ends of these composite bearings to allow sufficient end-float for the Clutch release fork to swing freely and move the Throw Out Bearing carrier without dragging on the T.O.B. guide tube.

Once you are certain this first operation is complete, the only other error could be the relative position of the Clutch release shaft (11) trying to change position of the Clutch release fork due to misalignment of the Roll Pin groove and Roll Pin hole. This can occur if the upper end of the Clutch release shaft fouls the end of the bore of the uppermost composite bearing for the Clutch release shaft. Ensure no grease, dirt or matter is compacted into the end of this bore. If the misalignment for the Roll Pin is still an issue you will need to file or grind a small amount of material from the end of the Clutch release shaft. Remove material until you can arrange for the Roll Pin hole and groove to align without tightening the clearance between any of the following pairs of surfaces

- Clutch release fork (22) to end of Composite Bearings
- Tip of fingers on Clutch release fork (22) to diameter of the Throw Out Bearing carrier (9)
- Diameter of Throw Out Bearing carrier (9) dragging the diameter of the T.O.B. guide tube (5)

With the various tests to establish that the Throw Out Bearing carrier can move smoothly over the full range of motion required, you are ready to complete final installation of these parts.

Use the new “O” ring (17) on the T.O.B. guide tube (5) and use Blue Loctite to retain the two M6 Phillips heads screws that mount the T.O.B. guide tube. Spray some DRY MOLY LUBRICANT product onto the T.O.B. guide tube and inside the Throw out bearing carrier. Any wet lubricant will attract debris from the sintered clutch plates and accelerate wear on the guide surfaces.

One source for DRY MOLY LUBRICANT is;

D.W. Davies & Co. Inc. 3200 Phillips Ave. Racine W.I. 53403 tel. 1800 8886133

The Tilton Throw Out Bearing (36) can be pressed into the Throw Out Bearing carrier (9), this will be a light interference fit and use of Loctite 609 Bearing Retaining Compound can be used, although not essential. The protruding nose of the bearing should be facing toward the clutch

assembly. The two small pin holes in the bearing area are to remove the bearing for future bearing replacement.

Use DRY MOLY LUBRICANT on the release shaft and the composite bearings in the Final Drive Housing, once again, a dry lubricant will help protect the bearing surfaces from the accumulation of debris.

Fit the Clutch release fork (22) and Roll Pin (28). Fit the Throw out Bearing carrier (9) into the Clutch release fork and onto the T.O.B. guide tube to complete the assembly of parts contained within the bellhousing area and not accessible after the Engine and Transmission are joined.

VARIANCE 1972 - 1974

The 1972 through early 1974 915 magnesium transmissions did not use a removable T.O.B. guide tube. In these model years, the guide tube was integral with the casting of the final drive housing. If the diameter of this tube is not badly damaged, scored or stepped, then it will be suitable to carry the new Throw Out Bearing carrier (9). The tube must be shortened to allow for the WEVO kit packaging. Reduce the length of the tube so that a dimension of 66 mm exists as the gap between the bellhousing mounting face against the engine and the cut end of the guide tube.

CLUTCH SPLINE LUBRICATION

It is important that the spline on the input shaft is thoroughly – not excessively – lubricated with anti-seize paste prior to final installation of the transmission. The clutch plates have no axial damping like an O.E. friction plate and therefore disengagement of the clutch relies upon the plates being able to float smoothly along the length of the spline on the input shaft.

RELEASE LEVER ASSEMBLY

The release lever assembly is arranged to the right hand of the transmission, under the differential, not to the left, under the bellhousing like the O.E. series clutch release levers.

To achieve this action the Clutch adjustment lever (21) is inverted from the original installation. This means that the smaller machined diameter is arranged downwards, facing the 18mm Retaining ring (15).

Lubricate the exposed section and spline of the Clutch release shaft (11) with anti seize paste.

The Clutch Release Lever (12) is slid onto the Clutch release shaft (11). The Clutch Release Lever will be free to swing on the Clutch release shaft, except for the drag of the Roll Pin.

Swing the Clutch Release Lever to the right hand side of the car. Now slide the Clutch adjustment lever (21) onto the spline, with the arm facing roughly forwards and angled to the right hand side of the car by about 20°. This will place the tip of the Clutch adjustment lever about 70 - 80mm from the centerline of the transmission. The coarse dimension of the spline means that one tooth either way is a large adjustment.

You should find that the M8 adjustment screw (33) on the Clutch Release Lever is pretty close to the drive surface on the Clutch adjustment lever. Now you can refer to the Adjustment instructions to iterate through the steps to achieve the final adjustments appropriate for your installation.

Once you are close to correct and are making small adjustments to the position of the Cable Nut (4), you will find it is most convenient to remove the Clutch adjustment lever. Compress the clutch stop to disengage the lock feature of the Cable Nut, rotate +/- on the threads and then replace the Clutch adjustment lever. Once you have completed the process for set-up, install the 18mm Retaining ring (15) to permanently attach the Clutch adjustment lever.

CLUTCH STOP

The clutch stop assembly is extremely critical for the longevity of your clutch. If the clutch stop does not effectively limit travel of the release mechanism, excess deflection of the spring diaphragm will result. The clamping pressure of the clutch will be reduced and performance will be limited.

The system in your kit has been designed with key dimensions to control the motion available to release the clutch. The wear that will occur during normal use of the clutch will also effect the clutch stop system, so regular maintenance of the set-up dimensions is recommended.

We also **HIGHLY** recommend a pedal stop be installed to limit travel at the pedal. This will prevent the cable from premature stretch and distortion of the pedal system that might occur if the rear stop is the only part of the system.

ADJUSTMENT

With a new clutch package installed, as a starting point, set the M8 adjustment screw (33) fully into the release lever.

Twist the Clutch adjustment lever and Clutch release shaft until you can feel the Throw Out bearing make contact with the clutch assembly

Use a .40 mm feeler gauge to control a small gap between the M8 adjustment screw and the Clutch adjustment lever.

Now use the Cable Nut (4) to adjust the initial compression of the Clutch stop so that 14 – 15 mm of travel remains available between the Clutch stop base (8) and the Gauge tube (6).

This amount of travel on the Clutch stop will give the full travel at the Throw out bearing recommended by Tilton. There is some flex in components, twist in the release Clutch release shaft etc, and we have attempted to consider this – however, some trial and error might be required, but do not increase this dimension significantly.

Do not be alarmed if your clutch will not release fully when first installed, there are a total of eight fresh, rough, surfaces, all dragging each other. The texture on these surfaces will become modified during the initial use of the clutch and allow for more positive disengagement. Do not alter the travel limits in an effort to remedy this initial drag, you will damage the pressure plate.

The M8 adjustment screw (33) is the element of the release mechanism where all adjustments for clutch disc wear will be performed. Always maintain the .40 mm gap between the M8 Adjustment screw and the Release Arm. This will ensure that the Throw Out Bearing is not pre-loaded against the fingers on the Diaphragm spring.

As the clutch wears, the .40 mm gap will shrink. Undo the M8 thin lock nut (14) and adjust the M8 screw so that .40 mm gap is restored and the clutch is ready. The wear rate of your clutch will not be significant and should only require assessment prior to a normal Club event weekend. If you are suspicious of abusing the clutch, or participating in Enduro events, you should familiarize yourself with the rate of wear you develop and adjust your inspection interval accordingly.

By isolating the free play adjustment from the cable assembly, the gap in the Clutch Stop will not be changed. This means you will always have the correct amount of limited travel at the Release Bearing.

Once the clutch Stop is active, any additional force on the pedal will only be stretching the cable, or flexing the pedal. If any other additional form of positive pedal stop is installed, ensure that it does not activate prior to the WEVO clutch stop attached to the transmission.

CLUTCH SLIPPING – DRIVER INDUCED

This style of competition clutch is sensitive to slipping – driver induced, the type you will create when loading a car on and off a trailer, crawling around the pits, etc.

Treat this clutch as a “torque transfer switch”, engaged – disengaged, and you will have no problems with excessive heat from slipping, warping the stack of thin discs that comprise the friction and clamping surfaces in the clutch assembly.

Low speeds can be maintained by repeated clutch engagement and then disengagement and coasting. Purchase a winch for your trailer – it’s cheaper than purchasing replacement clutch parts. Park your car so you do not pull away up hill if possible, especially if your transmission has a tall 1st gear ratio.

Having the clutch pedal stop correctly adjusted will greatly assist with your efforts to fully disengage the clutch and avoid slipping. – it will allow you depress the clutch fully and firmly to the stop.

Once the pedal stop is correctly set, the clutch disengagement position will slowly alter as the clutch plates wear, a significant change in clutch feel is an indicator that the adjustment procedure needs to be repeated immediately.

MAINTENANCE

The WEVO Superlite kit and the Tilton Engineering products that are used in the kit are designed for Motorsports competition.

The Tilton parts should be serviced in the manner disclosed in the instructions from Tilton Engineering.

The Windrush parts should be routinely inspected and kept clean to maintain optimum performance. Parts are protected against corrosion where possible, however wet weather use should be following by drying and light spraying of a water displacing fluid such as WD-40 on the exposed parts.

Adjustments should be maintained per these instructions.

The parts list should be used to locate and re-order any parts used in this kit.

CONTACT NUMBERS

Windrush Evolutions Inc - California 650 595 5772

Tilton Engineering - California 805 688 2353