

# Chevy LS Serpentine Front Drive Kit

## Installation Instructions

If you have any questions during installation, please contact our team on 07 5522 9757 or sales@austrodandcustom.com.au.

### Pre-assembly notes

In this kit, the required pulleys are pre-installed to the accessories. For example, the water pump pulley is already fitted to the water pump, and the required bolts and hardware are packed with each accessory in its box.

A fastener torque guide is included and should be followed for the different fastener sizes used throughout this kit.

A small amount of thread locker such as Loctite can be applied to each fastener during installation to help ensure everything remains secure.

### Assembly instructions

1. If installing to an existing setup, remove the existing accessories from the engine, including the alternator, power steering pump and water pump. Once removed, make sure all water pump sealing surfaces are clean and all threads that will be used to install the new serpentine kit are clean. Thread chasing with a cleaning tap may be required.
2. Prepare the water pump by removing the water pump pulley. Remove the cover cap first, then the pulley. These components can be re-installed once the main bracket and water pump are secured.
3. Apply a small amount of Blue RTV or similar gasket sealer to both sides of the water pump gasket and set it in place.
4. Mount the water pump and the main cradle bracket together in one operation. The order of parts is the main aluminium mounting cradle, the 6 x 150 mm through-bracket bolts, then the 63 mm spacers, followed by the water pump. Two people may be helpful to align the water pump and bracket with the engine block. Once aligned, start the bolts at the top and progressively tighten all bolts before completing final torque. Re-install the water pump pulley. Refer to Figures 1 and 2 and Appendix A.

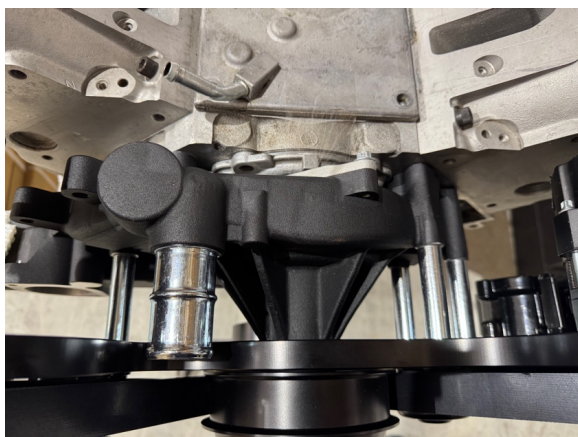


Figure 1. Bracket and water pump mounting detail.

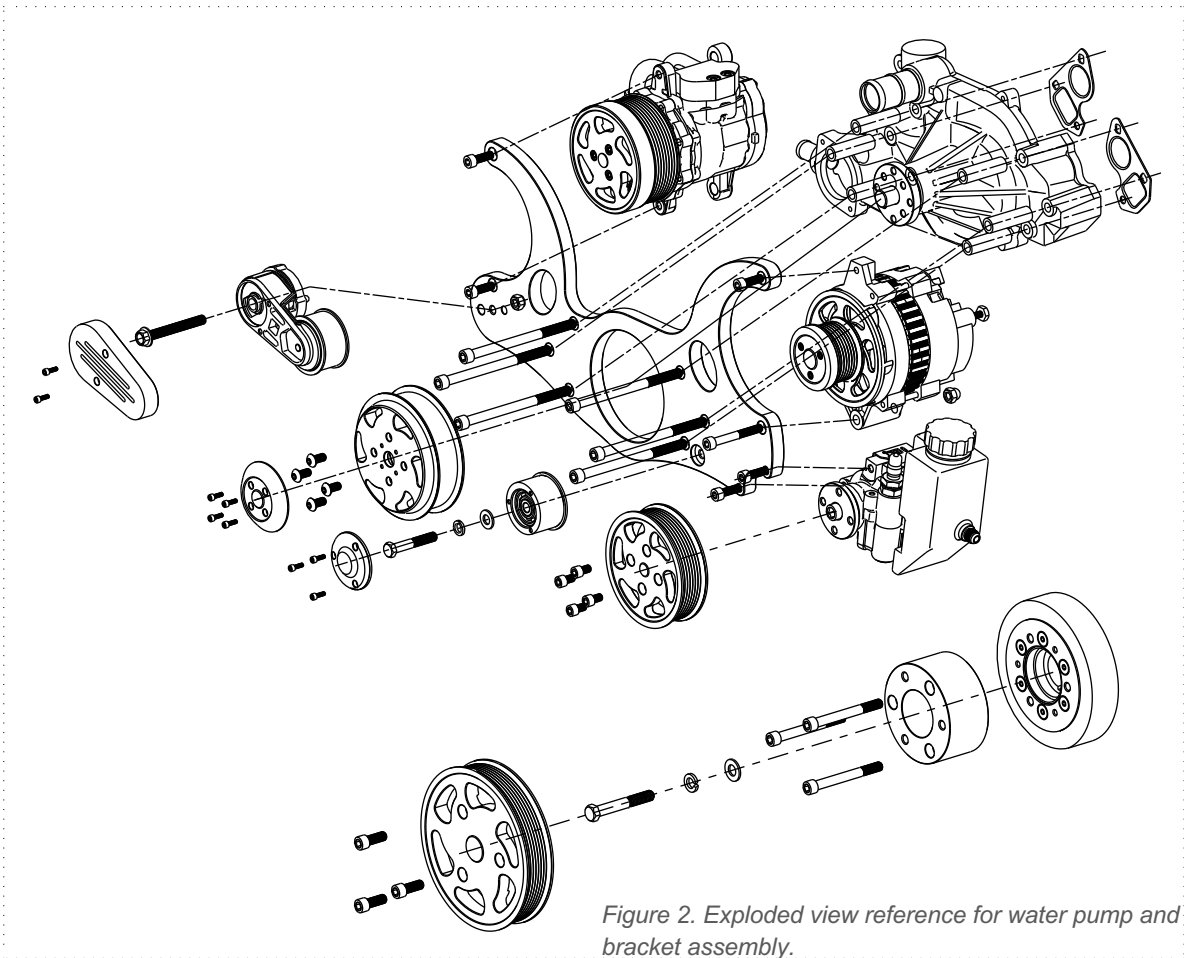


Figure 2. Exploded view reference for water pump and bracket assembly.

5. Install the alternator with the main lug at the bottom and the smaller mounting tang at the top. A bushing sleeve is supplied to match the bottom mounting lug bolt. A nyloc nut and washer are supplied to fasten this bolt. The required bolts are packed in the alternator box. Refer to Figure 3.



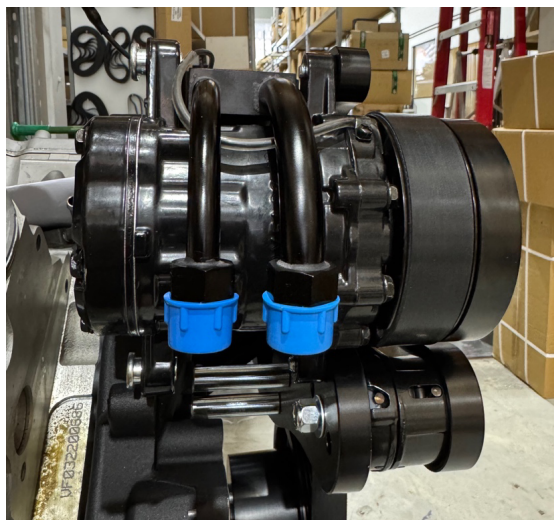
Figure 3. Alternator installation orientation.

6. Install the power steering pump. The bolts are installed through the pulley cut-outs. Starting with the top bolt first generally makes alignment easier. Tighten both bolts and torque to specification. Refer to Figure 4.



*Figure 4. Power steering pump installation through pulley cut-outs.*

7. Install the idler next to the power steering pump. Remove the cap and fasten the centre bolt to the main mounting bracket.
8. Install the air conditioning compressor, starting with the top bolt and then the bottom bolt before tightening to specification. Refer to Figure 5.

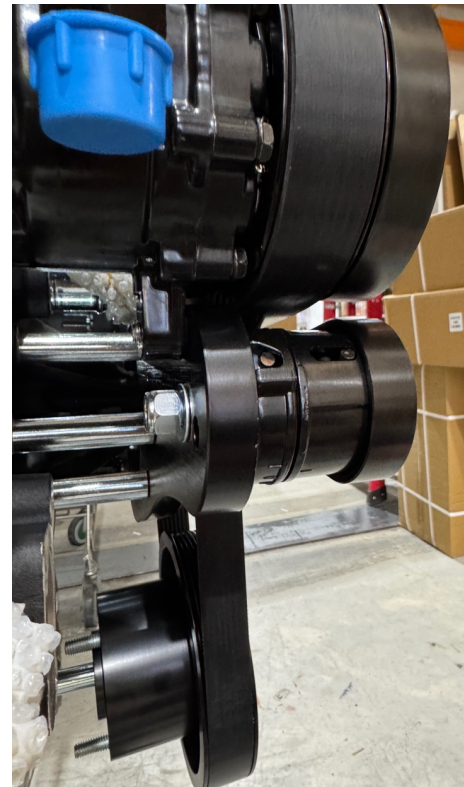


*Figure 5. Air conditioning compressor installation.*

9. Install the belt tensioner. Remove the front cover plate using the two Allen-head bolts. There are two locating lugs on the back of the tensioner that align with the recessed holes in the main mounting bracket. The centre bolt threads into the main bracket and is secured on the rear with a nyloc nut. Refer to Figures 6 and 7.



*Figure 6. Belt tensioner front cover installed.*



*Figure 7. Belt tensioner rear mounting detail.*

10. Install the crank pulley spacer to the balancer using the main centre bolt and the 3 pulley bolts in the original pulley location. The drive pulley is then bolted to this spacer. Torque the main centre bolt to the factory balancer specification for the engine.
11. Check that all pulleys are torqued correctly to their respective accessory.

12. Install the belt following the routing diagram. The tensioner will need to be pushed down to allow enough slack for the belt to roll on. Refer to Figure 9.

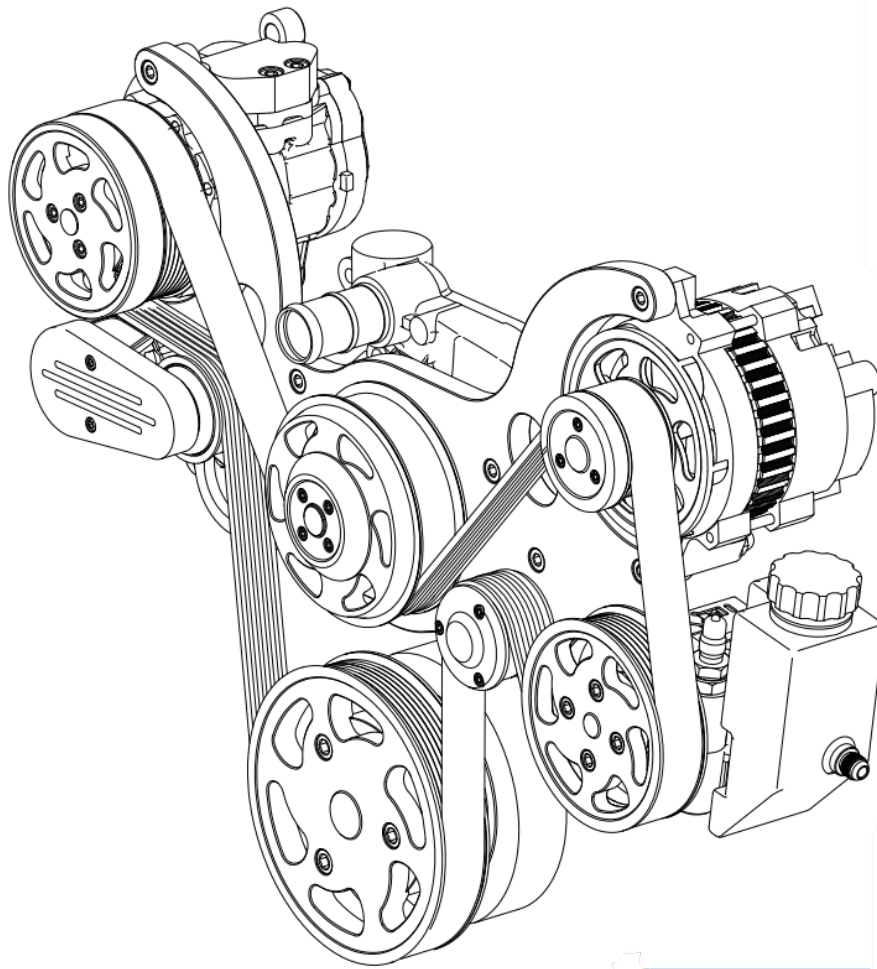


Figure 9. Belt routing diagram.

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## Final connection and setup notes

The alternator is a 1-wire, 105 amp internally regulated alternator. The 'BAT' stud is the charging feed and the other rear stud can be used for an earth connection. The alternator will generally earth through the body, however paint and coatings can impede continuity, so the separate earth provides a more reliable connection.

The power steering pump has a pressure outlet and a return feed back to the reservoir. Connect these to the steering system accordingly. After initial start-up, bleed air from the power steering system by raising the front of the car on jack stands and slowly steering from full left lock to full right lock repeatedly. Check the fluid level frequently and top up as required.

The air conditioning compressor is supplied pre-oiled with approximately 150 ml of PAG68 A/C oil from the manufacturer. Confirm this quantity is suitable for your complete A/C system with an air conditioning professional before charging the system. The clutch wire is located on the compressor, and the compressor is pre-fitted with a pad-mount A/C line connector for a neater installation. Check that the pipe connector is torqued correctly before gassing the system.

## Parts and components list

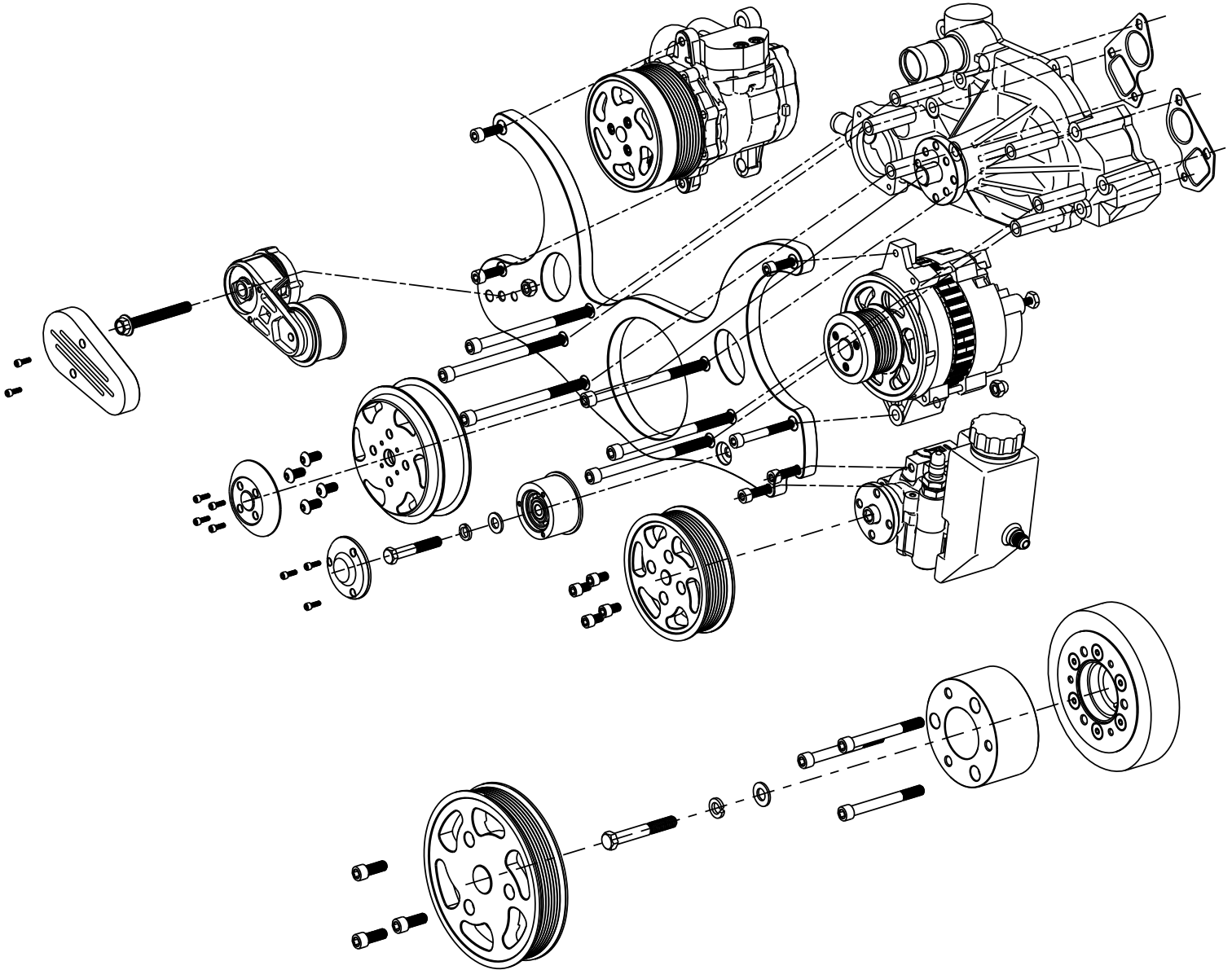
Box	Description
1	Universal AC Compressor w/ Pulley, Fitting & Hardwares
2	Universal Alternator w/ Pulley & Hardwares
3	Universal Belt Tensioner & Hardwares
4	Universal Idler Pulley & Hardwares
5	Universal GM Type II Power Steering Pump w/ Reservoir, Pulley & Hardwares
6	Chevy LS Crank Pulley Spacer & Hardwares
7	Chevy LS Crank Pulley & Hardwares
8	Chevy LS Water Pump w/ Pulley, Spacers & Hardwares
9	Chevy LS Main Bracket
10	Chevy LS 8 Rib Belt - 2100 mm

## Hardware pack list

Hardware Pack List			
Pack	Description	Comments	Qty
1	M8*25 SHCS	Bolts for AC Compressor	2
2	M8*25 SHCS	Bottom Alternator Bolt	1
	M8*65 SHCS	Top Alternator Bolt	1
	M8 Cap Nut	Nut for Top Alternator Bolt	1
3	M8*150 SHCS	Bolts for Water Pump to Bracket	6
	63mm Spacers	Spacers for Water Pump to bracket	6
4	3/8-16*3" Hexagon Bolt	Bolt for Belt Tensioner	1
	3/8-16 Self-locking Nut	Nut for Belt Tensioner Bolt	1
	3/8 Plain Washer	Washer for Belt Tensioner Bolt	1
5	3/8-16*3.25" SHCS	Bolts for Crank Spacer	3
	M16*150 Hexagon Bolt	Bolt for Crank Spacer	1
	M16 Plain Washer	Washer for Crank Spacer Bolt	1
	M16 Spring Washer	Washer for Crank Spacer Bolt	1
6	3/8-16*1"SHCS	Bolts for Crank Pulley	3
7	M8*30 SHCS	Bolts for Power Steering Pump	2

## Appendix A - Exploded view reference

Use this exploded view as a general reference during installation and hardware identification.



*Appendix A. General exploded view of the Chevy LS serpentine front drive kit.*

## Appendix B - Fastener torque setting chart

Refer to the chart below for general fastener torque settings where applicable.

METRIC FASTENERS																	
Nominal Dia. (mm)	Pitch	4.6				8.8				10.9				12.9			
		Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque			Clamp Load (lbs)	Tightening Torque		
			K = 0.15	K = 0.17	K = 0.20		K = 0.15	K = 0.17	K = 0.20		K = 0.15	K = 0.17	K = 0.20		K = 0.15	K = 0.17	K = 0.20
4	0.7	333	7.9 in-lbs	8.9 in-lbs	10.5 in-lbs	858	20.3 in-lbs	23 in-lbs	27 in-lbs	1228	29 in-lbs	32.9 in-lbs	38.7 in-lbs	1436	33.9 in-lbs	38.4 in-lbs	45.2 in-lbs
5	0.8	538	15.9	18.0	21.2	1387	40.9	46.4	54.6	1985	58.6	66.4	78.1	2319	68.5	77.6	91.3
6	1	763	27.0	30.7	36.1	1968	69.7	79.0	92.9	2816	99.8	113.1	133.0	3291	116.6	132.1	155.4
7	1	1095	45.3	51.3	60.3	2822	116.6	132.2	155.5	4039	167	189	223	4720	195	221	260
8	1.25	1389	65.6	74.4	87.5	3580	169.1	191.6	225.4	5123	242	274	323	5987	283	320	377
10	1.5	2200	10.8 ft-lbs	12.3 ft-lbs	14.4 ft-lbs	5671	27.9 ft-lbs	31.6 ft-lbs	37.2 ft-lbs	8115	39.9 ft-lbs	45.2 ft-lbs	53.2 ft-lbs	9484	46.7 ft-lbs	52.9 ft-lbs	62.2 ft-lbs
12	1.75	3197	18.9	21.4	25.2	8240	48.7	55.1	64.9	11792	69.6	78.9	92.8	13781	81.4	92.2	108.5
14	2	4379	30.2	34.2	40.2	11289	77.8	88.1	103.7	16154	111.3	126.1	148.4	18879	130.0	147.4	173.4
16	2	5943	47	53	62	15320	121	137	161	21924	173	196	230	25622	202	229	269
18	2.5	7301	65	73	86	18822	167	189	222	26934	239	270	318	31477	279	316	372
20	2.5	9286	91	104	122	23938	236	267	314	34256	337	382	449	40034	394	446	525
22	2.5	11509	125	141	166	29669	321	364	428	42457	460	521	613	49619	537	609	716
24	3	13372	158	179	211	34471	407	461	543	49329	582	660	777	57649	681	771	908
27	3	17428	232	262	309	44924	597	676	796	64288	854	968	1139	75132	998	1131	1331
30	3.5	21266	314	356	419	54819	809	917	1079	78448	1158	1312	1544	91680	1353	1534	1804
33	3.5	26310	427	484	570	67821	1101	1248	1468	97055	1576	1786	2101	113425	1842	2087	2455
36	4	30982	549	622	732	79866	1415	1603	1886	114291	2024	2294	2699	133569	2386	2681	3154

\* Tightening Torque (in-lbs through ME; M10 & over R-lbs)

TORQUE-TENSION RELATIONSHIP FOR A307A, GRADE 5, 8 & 9 BOLTS																				
Nominal Dia. (in.)	Threads per inch	307A ASTM A307 Grade A						SAE J429 Grade 5				SAE J429 Grade 8				FNI Grade 9				
		Clamp Load (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque			Clamp Load (Lbs.)	Tightening Torque					
			K = 0.15	K = 0.17	K = 0.20		Eco-guard*	K = 0.15	K = 0.17		K = 0.20	Eco-guard*	K = 0.15		K = 0.17	K = 0.20	Eco-guard*	K = 0.15	K = 0.17	K = 0.20
Coarse Thread Series																				
1/4	20	859	32 in-lbs	37 in-lbs	43 in-lbs	2029	61 in-lbs	76 in-lbs	86 in-lbs	10 in-lbs	2864	86 in-lbs	107 in-lbs	122 in-lbs	143 in-lbs	3357	101 in-lbs	126 in-lbs	143 in-lbs	168 in-lbs
5/16	18	1416	66	75	88	3342	125	157	178	209	4719	177	221	251	295	5531	207	259	294	346
3/8	16	2092	10 ft-lbs	11 ft-lbs	13 ft-lbs	4940	19 ft-lbs	23 ft-lbs	26 ft-lbs	31 ft-lbs	6974	26 ft-lbs	33 ft-lbs	37 ft-lbs	44 ft-lbs	8174	31 ft-lbs	38 ft-lbs	43 ft-lbs	51 ft-lbs
7/16	14	2870	16	18	21	6777	30	37	42	49	9568	42	52	59	70	11214	49	61	70	82
1/2	13	3831	24	27	32	9046	45	57	64	75	12771	64	80	90	106	14969	75	94	106	125
9/16	12	4912	35	39	46	11599	65	82	92	109	16375	92	115	130	154	19193	108	135	153	180
5/8	11	6102	48	54	64	14408	90	113	128	150	20340	127	159	180	212	23840	149	186	211	248
3/4	10	9030	85	96	113	21322	160	200	227	267	30101	226	282	320	376	35281	265	331	375	441
7/8	9	12467	136	155	182	29436	258	322	365	429	41556	364	455	515	606	48707	426	533	604	710
1	8	16355	204	232	273	38616	386	483	547	644	54517	545	681	772	909	63899	639	799	905	1065
1-1/4	7	26166	409	463	545	53786	672	840	952	1121	87220	1090	1363	1545	1817	102229	1278	1597	1810	2130
1-3/8	6	31182	536	607	715	64096	881	1102	1249	1469	103939	1429	1768	2025	2382	121826	1675	2094	2373	2792
1-1/2	6	37942	711	806	949	77991	1170	1462	1657	1950	126473	1897	2371	2688	3162	148237	2224	2779	3150	3706
Fine Thread Series																				
1/4	28					2319	70 in-lbs	87 in-lbs	99 in-lbs	116 in-lbs	3274	98 in-lbs	123 in-lbs	139 in-lbs	164 in-lbs	3837	115 in-lbs	144 in-lbs	163 in-lbs	192 in-lbs
5/16	24					3702	139	174	197	231	5226	196	245	278	327	6125	230	287	325	383
3/8	24					5599	21 ft-lbs	26 ft-lbs	30 ft-lbs	35 ft-lbs	7905	30 ft-lbs	37 ft-lbs	42 ft-lbs	49 ft-lbs	9265	35 ft-lbs	43 ft-lbs	49 ft-lbs	58 ft-lbs
7/16	20					7568	33	41	47	55	10684	47	58	66	78	12523	55	68	78	91
1/2	20					10197	51	64	72	85	14396	72	90	102	120	16873	84	105	120	141
9/16	18					12940	73	91	103	121	18268	103	128	146	171	21412	120	151	171	201
5/8	18					16317	102	127	144	170	23036	144	180	204	240	27000	169	211	239	281
3/4	16					23776	178	223	253	297	33566	252	315	357	420	39343	295	369	418	492
7/8	14					32479	284	355	403	474	45853	401	502	568	669	53743	470	588	666	784
1	14					43343	433	542	614	722	61190	612	765	867	1020	71720	717	896	1016	1195
1-1/4	12					59548	744	930	1055	1241	96565	1207	1509	1710	2012	113182	1415	1768	2004	2358
1-3/8	12					72967	1003	1254	1421	1672	118324	1627	2034	2305	2712	138686	1907	2384	2701	3278
1-1/2	12					87747	1316	1645	1865	2194	142292	2134	2668	3024	3557	166778	2502	3127	3544	4169

Appendix B. General fastener torque setting chart.