

# DENCO

DIESEL AND TURBO

364 EDWARD STREET WAGGA WAGGA NSW 2650  
PHONE 02 6925 4348 FAX 02 6925 3314

AN AUSTRALIAN DISTRIBUTOR FOR BORGWARNER TURBOCHARGERS

---

## **TOYOTA HILUX 3L 2.8LTR FITTING INSTRUCTIONS**

AS AT 09.12.11

1. Remove complete exhaust system and exhaust manifold.
2. Remove oil pressure plug from rear of oil gallery and fit nipple, T piece and flare nipple then loosely fit oil supply line. If oil pressure sender unit is fitted at rear of block then relocate to end of T piece otherwise block off T piece with plug.
3. Remove oil drain on block for vacuum pump. Now fit banjo assembly with extended hose banjo bolt and connect vacuum pump oil return to banjo and fit oil drain hose for turbo with elbow to bottom.
4. Fit two whole stainless steel heatshield to firewall by using the two existing protruding screws and two nuts supplied.
5. Fit exhaust manifold with assembled turbo to engine using new gasket if required. Now connect turbo oil feed line and oil return line. When you have oil feed and return line situated so they don't rub on anything, tighten both ends using a spanner and hose clamps respectively.

Note: oil feed line should be facing around the back of the engine, then over rocker cover to turbo - keep away from heat source.

6. Remove engine breather from intake manifold and rocker cover, now block the outlet on the intake manifold with rubber cap plug and clamp. Attach the new breather hose loosely to rocker cover ready for attaching to new position.
7. Fit new airbox to front hold down bracket with original 6mm screws and connect to intake manifold with turbo hose and clamps supplied. Now connect air cleaner and turbo to air box using cast elbows, turbo hose and clamps. You may now connect engine breather to elbow underneath air box making sure that breather pipe does not kink as this will cause turbo to pass oil. Connect air cleaner to 4 ways casting with convoluted hose and 2 x 45° bends with steel spacers and hose clamps supplied.

8. Using exhaust V clamp attach the exhaust dump pipe to turbine outlet and tension so as dump pipe can still swivel from side to side. Fit the exhaust system according to the vehicle LN number then tighten V clamp and all oil fitting.
9. Because of the restrictive nature of the air pickup along the LHS mudguard it is necessary to disconnect the plastic pipe from the aircleaner to the inner guard; and fit a cold air pickup or snorkel.
10. Fit boost gauge and pyrometer start engine and allow it to idle for 5 minutes whilst checking for air and oil leaks. Re tighten clamps, pipes etc if necessary.
11. Road or dyno test vehicle and set maximum turbo boost to 60 KPA by adjustment of actuator rod. Set maximum fuel approximately turn in from factory standard and check pyrometer reading (with clean air cleaner) does not go above 500°C maximum.

## **WARNING TO ALL FITTING STATIONS**

INSTALLATION OF DIESEL TURBOCHARGER EMISSION CONTROL SYSTEMS SHOULD NOT BE UNDERTAKEN UNLESS YOU HAVE A BOOST GAUGE AND A PYROMETER.

**ALL DENCO DIESEL SYSTEMS RUN AT 60KPA BOOST MAXIMUM AND A MAXIMUM OF 500°C UNDER POWER LOAD UNLESS OTHERWISE STATED.**

REMEMBER: OVER FUELLING NOT ONLY CAUSES BLACK SMOKE IT ALSO GENERATES EXCESS HEAT. EXCESS HEAT CAN ALSO BE CAUSED BY AIR AND EXHAUST RESTRICTIONS SO CHECK ALL AIR CLEANERS AND DUCTING TO THEM FOR RESTRICTIONS BEFORE TESTING. EXHAUST BRAKES AND EXHAUST SYSTEMS SHOULD ALSO BE CHECKED FOR CORRECT OPERATION AND RESTRICTION.

EXCESS HEAT CAUSES MANY PROBLEMS INCLUDING HIGH N<sup>o</sup>X EMISSIONS, LAMINATION OF TURBINE HOUSING AND MANIFOLD, STUD STRETCH AND PREMATURE ENGINE FAILURE. DENCO DIESEL WILL NOT ACCEPT LIABILITY FOR ANY PARTS RETURNED FOR WARRANTY THAT SHOW ANY OF THE ABOVE SIGNS. WARRANTY WILL NOT BE CONSIDERED IF REPAIRS ARE CARRIED OUT WITHOUT DENCO DIESEL AND TURBOS AUTHORISATION.

ALL KITS NOW HAVE DUMP PIPES WITH THE PROVISION FOR VDO PYROMETERS. REMEMBER: IF SET CORRECTLY OUR PRODUCT IS ENVIRONMENTALLY FRIENDLY AND SAFER TO THE ENVIRONMENT THAN PETROL ENGINES.

# TOYOTA 3L 2.8 HILUX PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION	CHECK
1	1	313297	S1BG turbocharger assy	
2	1	TDMTOY5L	Turbo exhaust manifold	
3	1	TDM058	Actuator bracket	
4	1	TDM059	Manifold Heatshield	
5	2	826 0650	M8 x 16 Heatshield bolts	
6	2	826 7170	M8 s/s spring washers	
7	4	TDM010	M8 incanol manifold studs	
8	4	DNF	M8 Hi tensile nuts	
9	1	SP3-0407	¼ hose x 7/16 x 24 UNS	
10	1	80-025	24cm Purosil hose	
11	2	MS8241	Goss hose clips	
12	1	TDM060	Oil out pipe assy	
13	1	TDM061	S1BG turbo backplate	
14	5	826 0652	M8 x 25 exhaust bolts	
15	5	826 7170	M8 x s/s spring washer	
16	1	6020-002	3" V clamp	
17	1	DSF52	Manifold gasket	
18	1	TDM119	Four way casting	
19	1	A64-02	1/8 BSP plug for boost gauge	
20	1	BP6-0806	½" x 3/8 BSP hose elbow	
21	2	CWG4	Rubber grommet	
22	1	TDM062	2 leg bracket	
23	2	826 0604	M6 x 25 bolts	
24	4	826 6034	M6 Nylok nuts	
25	2	826 0606	¼" x ¼" flat washers	
26	1	TDM118	Air in pipe	
27	1	TDM117	Air out casting	
28	1	TDM3L005	Intake manifold casting	
29	3	670BLK-250	2 ½" turbo hose 2 ¾ " long	
30	6	HS40	No 40 hose clamps	
31	1	670BLK-225	2 ¼" turbo hose 2 " long	
32	2	HS36	No 36 hose clamps	
33	1	670BLK-275	2 ¾" turbo hose 2 ½" long	
34	2	HS44	No 44 hose clamps	
35	1	670BLK-200	2" turbo hose 2 ½ " long	
36	2	HS32	No 32 hose clamps	
37	1	NG-FS6068	½" blanking plug	
38	1	HS06	No 6 hose clamps	
39	1	FH1013	½" breather hose 15" long	
40	1	A7-0402	¼" x 1/8 BSP fitting	
41	1	HOS26	26" stainless steel oil supply hose X 45 degrees	
42	1	A27-02	1/8 BSP hex nipple	
43	1	A35-02	1/8 BSP T pieces	

# TOYOTA 3L 2.8 HILUX PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION	CHECK
44	1	A64-02	1/8 BSP plug	
45	1	TD80*270*16	90° oil out hose	
46	2	HS10	No 10 hose clamps	
47	1	PRE162	5/8 adaptor	
48	2	NW543	Copper washer	
49	1	B317	Banjo	
50		TDM534	Rubber Air in Assy 2.8	
		TDM051 x 2	Piece 2 ½" ex tube 2" long	
		P105543 x 2	45° x 2 ½" rubber elbows	
		CVRH63-70 x 1	2 ½" x 2 ¾" convoluted hose	
		HS44 x 1	NO 44 hose clamp	
		HS40 x 4	No 40 hose clamps	
51	1	TDM157	Dump pipe	
52	1	C12	2 5/8 exhaust clamp	
53	2	2826 6200	6mm nuts	
54	2	826 7051	6mm spring washers	
55	1	TDM530	Heatshield for fire wall	
56	1	TDM085	Curved Heatshield assy	
<b>106R EXHAUST</b>				
57	1	DDLN106-2MB	No 2 adaptor pipe	
58	7	C11	2 3/8 exhaust clamps	
59	1	TDM063	Gear box mount bracket	
60	1	TDM112	Rear support hanger	
61	1	TDM089	Tail Pipe Hanger	
62	1	DDLN106-3MB	No 3 pipe double 45°	
63	1	DDLN106-4MB	No 4 pipe 90°	
64	1	DDLN106-5MB	No 5 pipe 90°	
65	1	DDLN106-6MB	No 6 pipe 45°	
66	1	TR616CC225-GP	Muffler 2 ¼"	
67	1	DDLN106-7MB	Tailpipe No 7	
<b>107R EXHAUST</b>				
68	1	DDLN106-2MB	No 1 adaptor pipe	
69	5	C11	2 3/8 exhaust clamps	
70	1	TDM113	Centre support hanger	
71	1	TDM089	Tail Pipe Hanger	
72	1	DDLN107-3MB	No 3 pipe 45° x 90°	
73	1	DDLN107-4MB	No 4 pipe	
74	1	TR616CC225-GP	Muffler 2 ¼ "	
75	1	DDLN107-5MB	Tailpipe no 5	
76	1	TDM112	Rear support hanger	
<b>111R EXHAUST</b>				
77	1	DDLN106-2MB	No 2 adaptor pipe	
78	5	C11	2 3/8 exhaust clamps	
79	1	TDM113	Centre support hanger	

## TOYOTA 3L 2.8 HILUX PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION	CHECK
80	1	TDM089	Tail Pipe Hanger	
81	1	DDLN107-3MB	No 3 pipe 45° x 90°	
82	1	DDLN111R-4MB	No 4 pipe	
83	1	TR616CC225-GP	2 ¼" muffler	
84	1	DDLN111-5MB	111R tail pipe no 5	
85	1	TDM112	Rear support hanger	
<b>130R EXHAUST</b>				
86	1	DDLN106-2MB	No 1 Adaptor pipe	
87	5	C11	2 3/8 exhaust clamp	
88	1	TDM113	Centre support hanger	
89	1	DDLN107-3MB	No 3 pipe 45° x 90°	
90	1	DDLN130-4MB	No 4 pipe with 15° bend Cut 10 ½" from end of tube exp and notch. A further 7" is cut from pipe	
91	1	TR616CC225-GP	2 1/4" muffler	
92	1	DDLN130-5MB	LN130 tail pipe no 5	
93	1	TDM112	Rear support hanger	
94	1	TDM307	Tail pipe hanger	
95	1		Stickers	
96	1		Warranty form	
97	1		Instructions	

# TOYOTA 3L 2.8 HILUX PICKING LIST

ITEM	QTY	PART NO.	DESCRIPTION						
1	1	313297	S1BG turbocharger assy						
2	1	TDMTOY5L	Turbo exhaust manifold						
3	1	TDM058	Actuator bracket						
4	1	TDM059	Manifold Heatshield						
5	2	826 0650	M8 x 16 Heatshield bolts						
6	2	826 7170	M8 s/s spring washers						
7	4	TDM010	M8 incanol manifold studs						
8	4	DNF	M8 Hi tensile nuts						
9	1	SP3-0407	¼ hose x 7/16 x 24 UNS						
10	1	80-025	24cm Purosil hose						
11	2	MS8241	Goss hose clips						
12	1	TDM060	Oil out pipe assy						
13	1	TDM061	S1BG turbo backplate						
14	5	826 0652	M8 x 25 exhaust bolts						
15	5	826 7170	M8 x s/s spring washer						
16	1	6020-002	3" V clamp						
17	1	DSF52	Manifold gasket						
18	1	TDM119	Four way casting						
19	1	A64-02	1/8 BSP plug for boost gauge						
20	1	BP6-0806	½" x 3/8 BSP hose elbow						
21	2	CWG4	Rubber grommet						
22	1	TDM062	2 leg bracket						
23	2	826 0604	M6 x 25 bolts						
24	4	826 6034	M6 Nylok nuts						
25	2	826 0606	¼" x ¼" flat washers						
26	1	TDM118	Air in pipe						
27	1	TDM117	Air out casting						
28	1	TDM3L005	Intake manifold casting						
29	3	670BLK-250	2 ½" turbo hose 2 ¾ " long						
30	6	HS40	No 40 hose clamps						
31	1	670BLK-225	2 ¼" turbo hose 2 " long						
32	2	HS36	No 36 hose clamps						
33	1	670BLK-275	2 ¾" turbo hose 2 ½" long						
34	2	HS44	No 44 hose clamps						
35	1	670BLK-200	2" turbo hose 2 ½ " long						
36	2	HS32	No 32 hose clamps						
37	1	NG-FS6068	½" blanking plug						
38	1	HS06	No 6 hose clamps						
39	1	FH1013	½" breather hose 15" long						
40	1	A7-0402	¼" x 1/8 BSP fitting						
41	1	HOS26	26" stainless steel oil supply hose x 45 degrees						
42	1	A27-02	1/8 BSP hex nipple						
43	1	A35-02	1/8 BSP T pieces						
44	1	A64-02	1/8 BSP plug						

# TOYOTA 3L 2.8 HILUX PICKING LIST

ITEM	QTY	PART NO.	DESCRIPTION						
45	1	TD80*270*16	90° oil out hose						
46	2	HS10	No 10 hose clamps						
47	1	PRE162	5/8 adaptor						
48	2	NW543	Copper washer						
49	1	B317	Banjo						
50	1	TDM534	Rubber Air in Assy 2.8						
		TDM051 x 2	Piece 2 ½" ex tube 2" long						
		P105543 x 2	45° x 2 ½" ex tube 2" long						
		CVRH63-70 x 1	2 ½" x 2 ¾" convoluted hose						
		HS44 x 2	NO 44 hose clamp						
		HS4 x 4	No 40 hose clamps						
51	1	TDM157	Dump pipe						
52	1	C12	2 5/8 exhaust clamp						
53	2	2826 6200	6mm nuts						
54	2	826 7051	6mm spring washers						
55	1	TDM530	Heatshield for fire wall						
56	1	TDM085	Curved Heatshield assy						
<b>106R EXHAUST</b>									
57	1	DDLN106-2MB	No 2 adaptor pipe						
58	7	C11	2 3/8 exhaust clamps						
59	1	TDM063	Gear box mount bracket						
60	1	TDM112	Rear support hanger						
61	1	TDM089	Tail Pipe Hanger						
62	1	DDLN106-3MB	No 3 pipe double 45°						
63	1	DDLN106-4MB	No 4 pipe 90°						
64	1	DDLN106-5MB	No 5 pipe 90°						
65	1	DDLN106-6MB	No 6 pipe 45°						
66	1	TR616CC225-GP	Muffler 2 ¼"						
67	1	DDLN106-7MB	Tailpipe No 7						
<b>107R EXHAUST</b>									
68	1	DDLN106-2MB	No 1 adaptor pipe						
69	5	C11	2 3/8 exhaust clamps						
70	1	TDM113	Centre support hanger						
71	1	TDM089	Tail Pipe Hanger						
72	1	DDLN107-3MB	No 3 pipe 45° x 90°						
73	1	DDLN107-4MB	No 4 pipe						
74	1	TR616CC225-GP	Muffler 2 ¼ "						
75	1	DDLN107-5MB	Tailpipe no 5						
76	1	TDM112	Rear support hanger						
<b>111R EXHAUST</b>									
77	1	DDLN106-2MB	No 2 adaptor pipe						
78	5	C11	2 3/8 exhaust clamps						
79	1	TDM113	Centre support hanger						
80	1	TDM089	Tail Pipe Hanger						
81	1	DDLN107-3MB	No 3 pipe 45° x 90°						

## TOYOTA 3L 2.8 HILUX PICKING LIST

ITEM	QTY	PART NO.	DESCRIPTION					
82	1	DDLN111R-4MB	No 4 pipe					
83	1	TR616CC225-GP	2 ¼" muffler					
84	1	DDLN111-5MB	111R tail pipe no 5					
85	1	TDM112	Rear support hanger					
<b>130R EXHAUST</b>								
86	1	DDLN106-2MB	No 1 Adaptor pipe					
87	5	C11	2 3/8 exhaust clamp					
88	1	TDM113	Centre support hanger					
89	1	DDLN107-3MB	No 3 pipe 45° x 90°					
90	1	DDLN130-4MB	No 4 pipe with 15° bend Cut 10 ½" from end of tube exp and notch. A further 7" is cut from pipe					
91	1	TR616CC225-GP	2 1/4" muffler					
92	1	DDLN130-5MB	LN130 tail pipe no 5					
93	1	TDM112	Rear support hanger					
94	1	TDM307	Tailpipe hanger					
95	1		Stickers					
96	1		Warranty form					
97	1		Instructions					