STARLET GT TURBO/GLANZA

FAQ v1.2
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References and links for original sources and copyright owners.

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http://www.unit-Equip.com

http://www.toyotagtturbo.com

http://www.geocities.com/MotorCity/Pit/9975/tm_index.html

http://homepages.ihug.co.nz/~bhkeng/glanza/faq.htm

http://www.starlet-club.gr/

www.yahoo.com/

The internet in general.

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1.0 Introduction

'It's Japan's version of the Fiesta RS Turbo really,' says Chi-Wang Kwan, a huge grin plastered over his face. 'But nobody knows what it is.' (http://www.chpltd.com/japanese_performance/starlet.html)

This is, indeed, true. In standard form, the Toyota Starlet Turbo is one of the most discreet machines on the road. Unlike the fast Fords, or its other brother in spirit, the Renault 5 GT Turbo, it looks like something a district nurse might drive. But under the bonnet lurks enough fire-power to make it an extremely rude motor car.

The bad-boy Starlet has been around since 1987, when it was a rather more boxy affair than the car you see here. Encrusted with a body kit which gained no points for subtlety, it packed a 1295cc, single-cam, 12-valve four-pot of unusual violence. Thanks to an inte-rcooled turbocharger, it treated psychotic Tokyo commuters to 111bhp to shift its bantam 790kg weight. You had to wring 6000rpm out of it first, though. Peak torque of 111lb ft arrived much sooner, at just 3600rpm.

Between 1990 and 1995, at which point it gained a touch more weight and became more noticeably sporting in style, the Starlet GT Turbo enjoyed its best incarnation and its halcyon days. The astoundingly bland styling concealed a 1331cc, 16-valve twin-cam four-pot. The inter-cooled turbo was present and correct, and gave it 133bhp at an eye-watering 6400rpm. Heavy-hitting torque was still available at around-town revs, and the weight had only crept up to 830kg. Sixty mph? You'll be there in 6.9 seconds, sir. And if you like to live on the edge you can get it to 130mph.

2.0 Factory Specifications

Car	Toyota Starlet GT Turbo
Engine	4E-FTE L4 1331cc EFI DOHC 16valve
Aspiration	Toyota ct-9 Turbocharger (CT-9A)
Output	133hp @ 6400rpm (100kw @6400rpm)
Torque	16.0kgm @ 4800rpm (157Nm @ 4800rpm)
0-100 km/h (0- 60 mph)	6.9 Seconds
Redline	7200 rpm
Boost Settings (Dual-mode Turbo)	0.40bar (@6psi) @ LO setting - 0.65bar (@9.5psi) @ HI setting
Dry Weight	830 kg
Transmission/ Axle	C52 -522
LSD	C52 -523
Compression Ratio	8.2:1
Bore & Stroke	74 x 77.4
Injectors	4 x 295cc/min
Turbo Model	CT-9
Factory Boost	0.40bar(5psi)Lo - 0.65bar(9psi)Hi

3.0 Service/Maintenance Guide

Engine Oil	Castrol Formula R Synthetic 10W-60 : 5000km intervals
Oil Filter	TRD (Toyota Race Development) Sports oil filter : 5000km intervals - Product code # 90915-SP000
Transmission Fluid/ Oil	Castrol Syntrax 75W/90 Synthetic Manual transmission fluid : 10000km intervals
Brake and Clutch Fluid	Castrol Super Disc DOT 5.1 Brake fluid : 2000km / annual intervals
Fuel Filter	OEM (Toyota) standard replacement part # 23300- 19245 : 10000km intervals
Air Filter Element	OEM Toyota (# 17801 - 11050) : Replace with K&N OEM re-usable Replacement product # 33-2634 (if you dont want pod modification) : at 20000km intervals - K&N re-usable pod filter (filtercharge option) Product # FC-0183 Clean ever 20000km with K&N cleaning kit product # 99-5000
Turbocharger Oil Feed Pipe	Clean out at 10000km intervals
Engine Coolant (Radiator)	Castrol Engine Coolant : Replace at 10000km intervals
SparkPlugs and Leads	NGK "BKR-6EP" Laser Platinum plugs - Magnecor 48326 8mm Leads : Check / replace plugs at 10000km intervals

4.0 Models & Special Editions

Type	Model Description	Engine Description	Transmission
EP82-AGMQY	Starlet GT Turbo	4E-FTE L4 1331cc DOHC 16 Valve Turbo	5MT / C52
EP82-AGMVK	Starlet Gi	4E-FE L4 1331cc DOHC 16 Valve	5MT / C150
EP82-AGMXK	Starlet	4E-FE L4 1331cc DOHC 16 Valve	5MT / C150
EP82-AGPQY	Starlet	GT Turbo 4E-FTE L4 1331cc DOHC 16 Valve Turbo	4AT / A242L
EP82-AGPVK	Starlet	Gi 4E-FE L4 1331cc DOHC 16 Valve	4AT / A242L
EP82-AGPXK	Starlet	4E-FE L4 1331cc DOHC 16 Valve	4AT / A242L
EP82-AHMSK	Starlet	4E-FE L4 1331cc DOHC 16 Valve	5MT / C150
EP82-AHPSK	Starlet	4E-FE L4 1331cc DOHC 16 Valve	4AT / A242L
EP85-AGMSK	Starlet X-LTD	4E-FE L4 1331cc DOHC 16 Valve	5MT 4WD
EP85-AGPSK	Starlet Soliel L	4E-FE L4 1331cc DOHC 16 Valve	4AT 4WD

Year	Model Description	Features
01/92 - 05/94	GT-LIMITED	4 wheel ABS sunroof TEMS factory-fitted air-conditioning driver's SRS airbag electric windows and mirrors central locking 185/55/14 tyres on alloy rims.
05/94 - 01/96	GT-ADVANCE	4 wheel ABS TEMS front and rear stabilisers screw refuse LSD (MT) performance shifter and momo steering wheel driver's SRS airbag Recaro seats quad headlights and grill facelift electric windows and mirrors central locking 185/55/14 tyres on alloy rims.
12/89 - 01/92	GT-LIMITED	4 wheel ABS sunroof TEMS factory-fitted air-conditioning spot lights corner sensor electric mirrors 175/60/14 tyres on alloy rims.

5.0 Model Numbering Scheme

BEFORE "-": the letters indicate the engine family, for example in 18R-G the engine family is R, in 2JZ-GTE the family is JZ. The number(s) at the beginning is the number of the are for a certain bottom end version (block, bore, stroke). The larger the number, the newer the bottom end version. It may seem like the larger the number, the larger the displacement but this is not always true.

AFTER "-":

G = twin cam (wide angle, 45 degrees or more between the intake and exhaust valves)
F = "economical" twin cam (narrow angle, around 22 degrees)
T = turbocharged
Z = supercharged
E = fuel injection
i = single point fuel injection
L = transverse mounted engine (seems to be an obsolete code)
B = twin carbs (only used on non-twin cam engines, obsolete code)
R = air injection
S = swirl intake ports (only a few made in mid '80s)
S = direct injection & swirl pot pistons (starting from '97/98)
U = emission package (Japan)
C = emission package (California)
LPG = LPG fuel

Models

Model code consists of 2 letters followed by 2 or later 3 numbers. example: Celica Supra's model code is MA61 the first letter means that this model has a M-series engine, in this case a 5M-GE the second letter relates to the chassis family, other vehicles that have an A-type chassis are RWD Carinas and Celicas.

F Celsior (Lexus LS)
S Crown, Aristo (Lexus GS)
X Cressida, Mark II, Chaser, Cresta
Z Soarer (Lexus SC)
A RWD Carina Celica, Celica Supra, Supra
V Camry, Vista, (Lexus ES)
T Corona, FWD/4WD Celica, FWD Carina
W MR2
E Corolla
P Starlet
L Tercel
J Land Cruiser

the first (+second, if a total of 3) number stands for the model revision, in this case 6, for Celica Supras produced 1982-1986. Similarily, Carinas and Celicas produced 1982-1985 are of revision 6. Mk1 MR2's are of revision 1, Mk2's of revision 2.the last number will specify more accurately the options level and exact engine type.

6.0 Diagrams

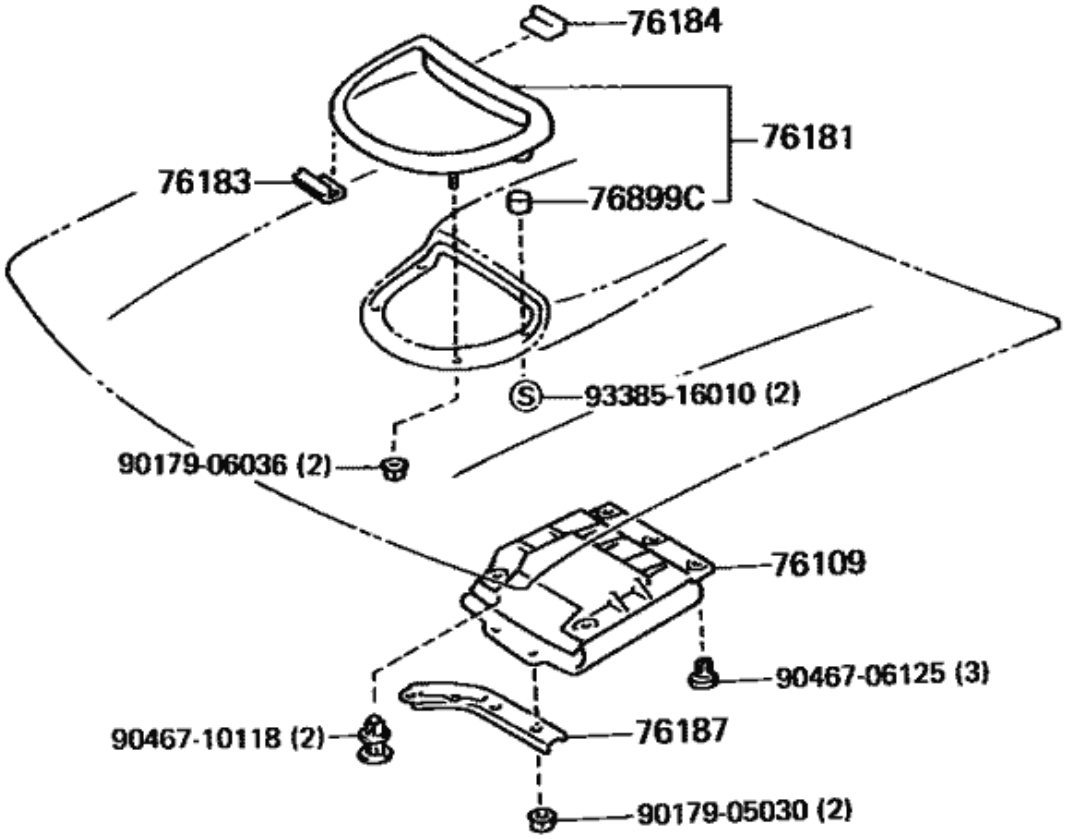


Figure 1:Bonnet 1

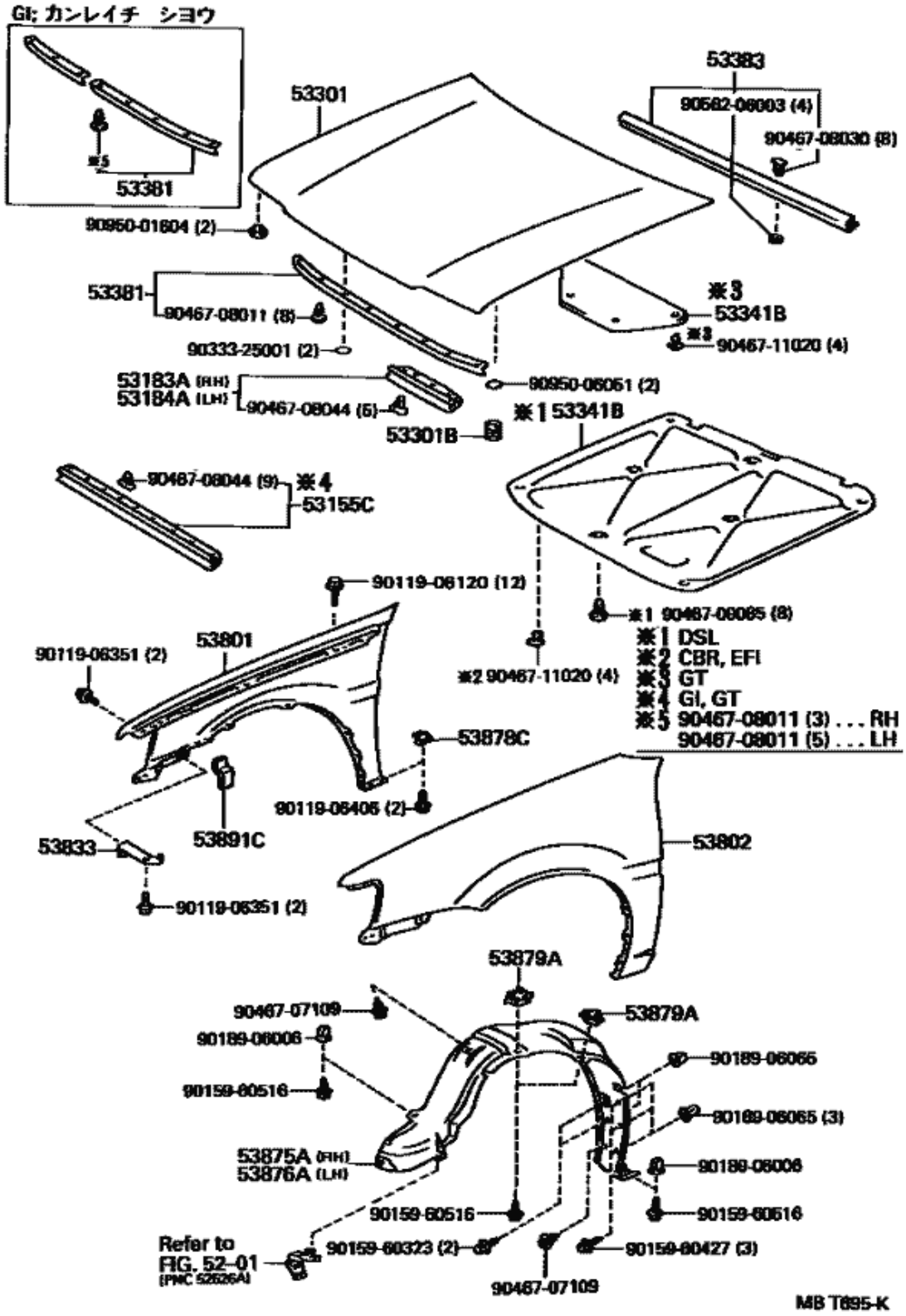


Figure 2:Bonnet 2

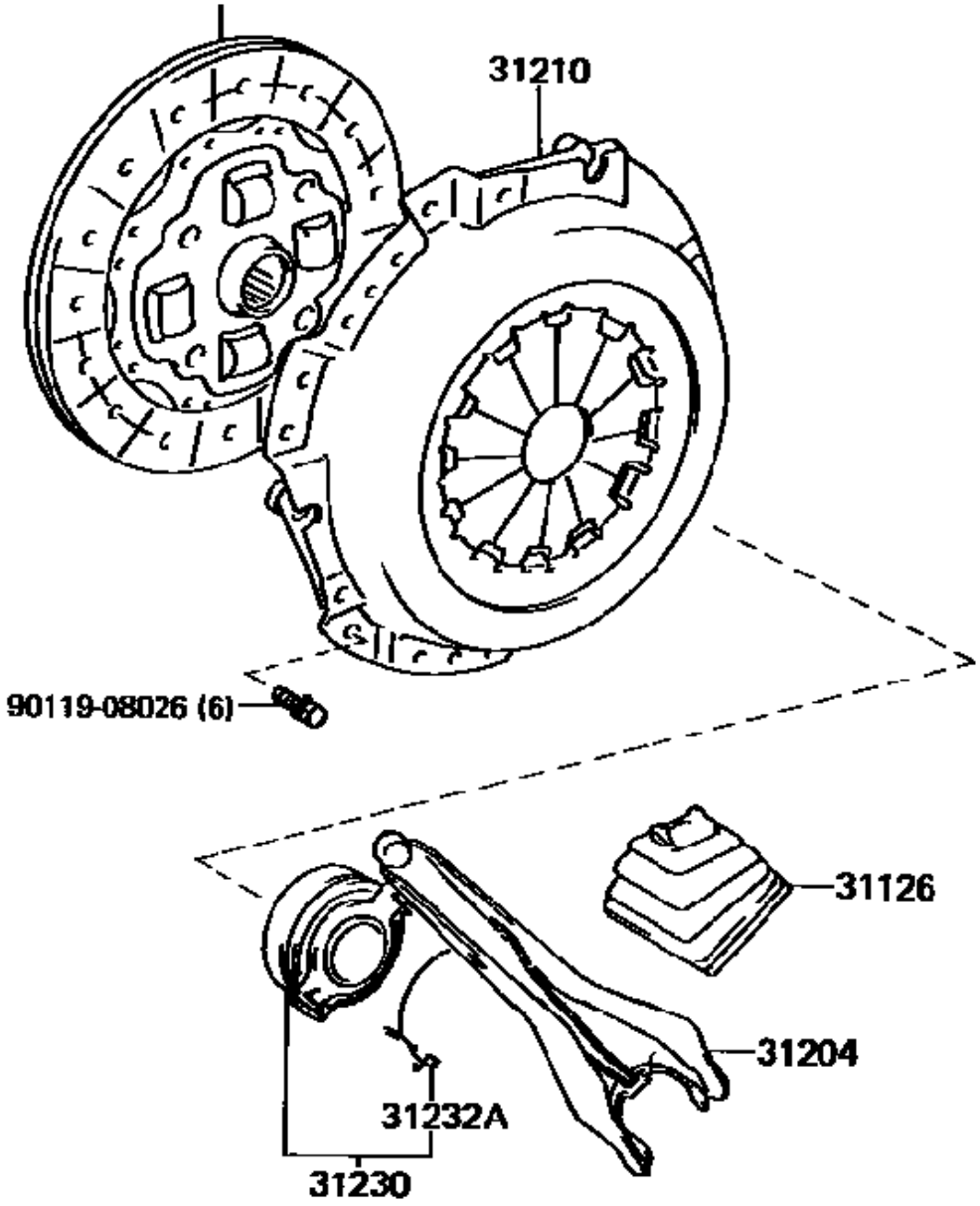


Figure 3:Clutch

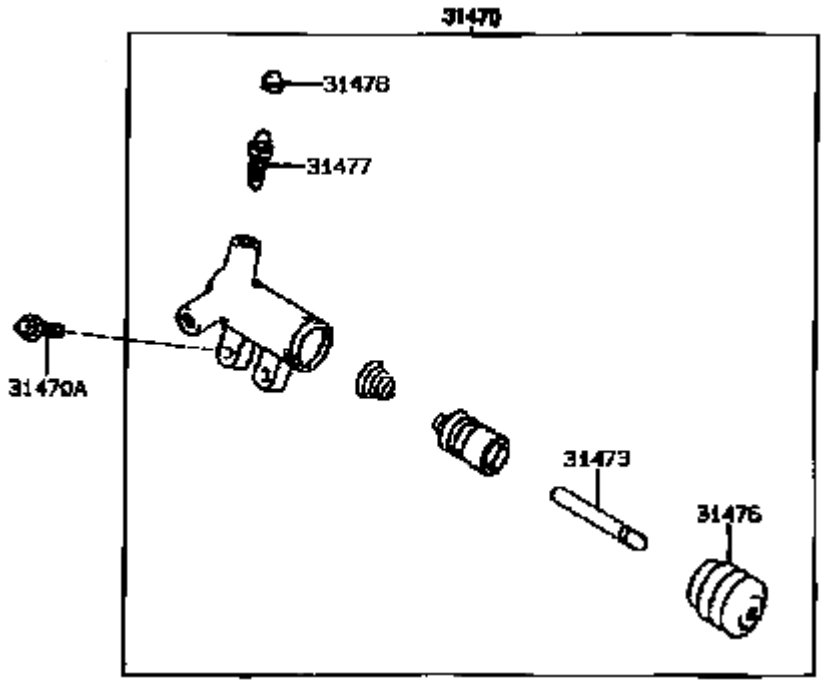


Figure 4:Clutch 2

制御システム

部品配置図

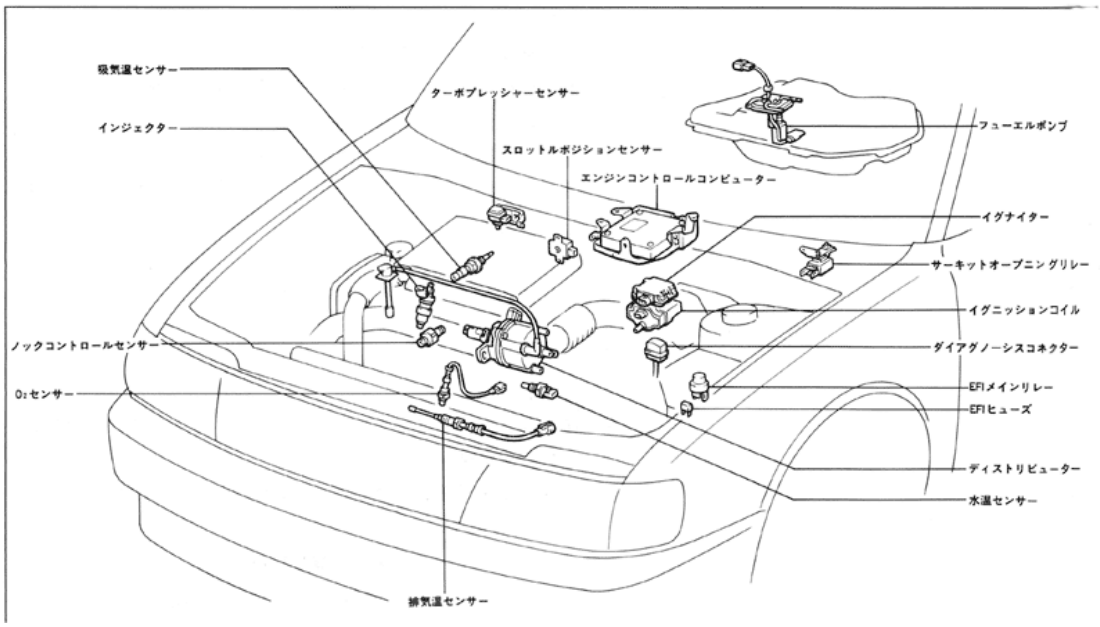
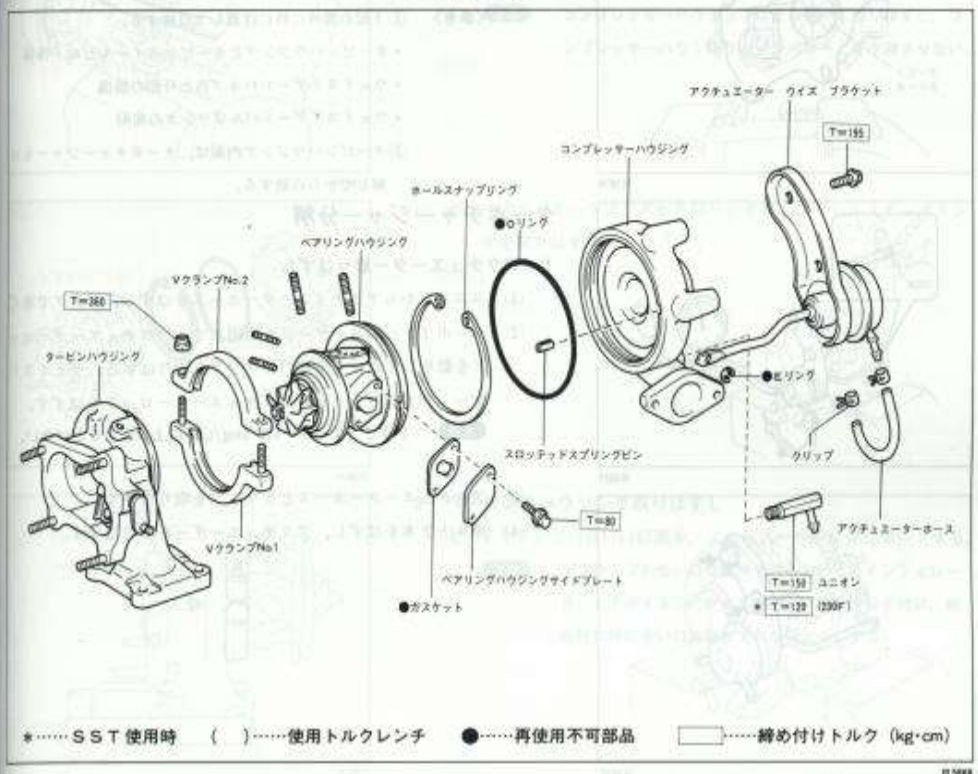


Figure 5:Control System

ターボチャージャー

分解構成図



ターボチャージャー点検

注意 アクチュエーターおよびタービンハウジングは，補給部品がないため不良の場合はターボチャージャーASSY交換となる。

1 アクチュエーター点検

(1) 目視により，アクチュエーターに著しい損傷がないことを確認する。

(2) ユニオンからアクチュエーターホースをはずし，プラグで塞ぐ。

(3) ターボプレッシャーゲージを使用して，アクチュエーターに圧力を加えたとき，ロッドが動くことを確認する。

基準値 0.36kg/cm²

注意 アクチュエーターに0.6kg/cm²以上の圧力をかけない。

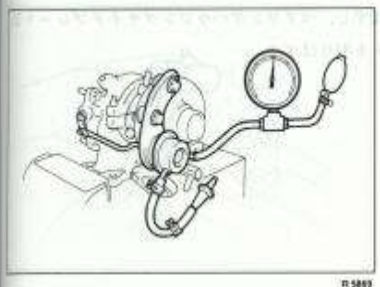


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Figure 6:CT9A

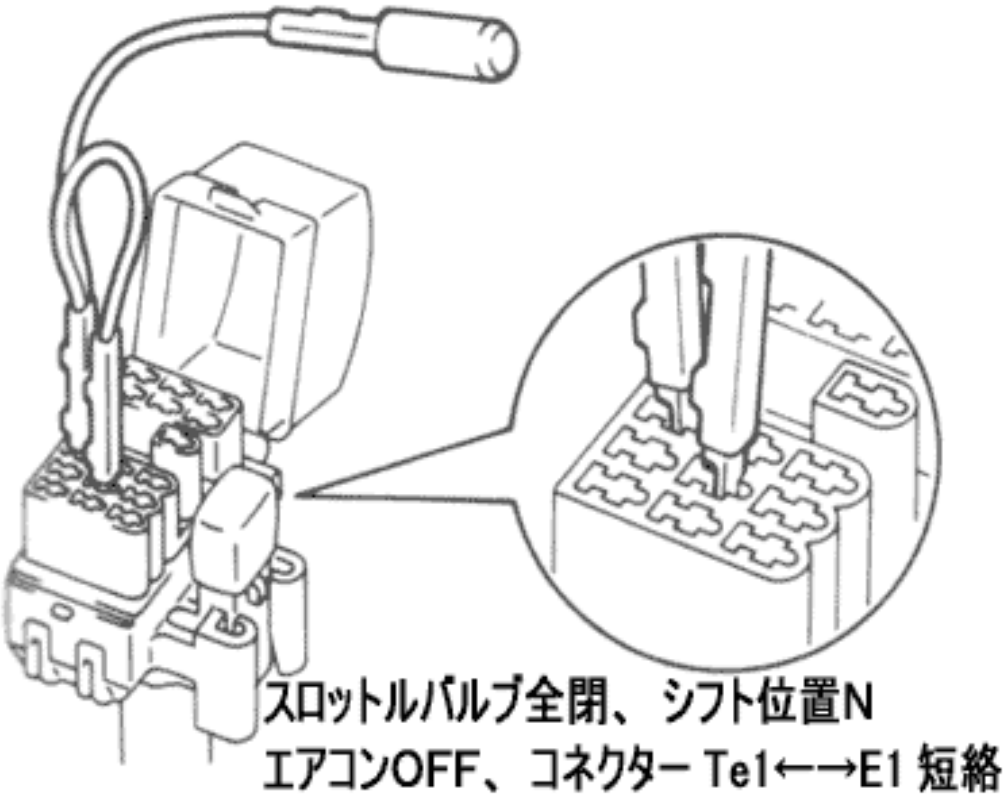


Figure 7:Diagnostics

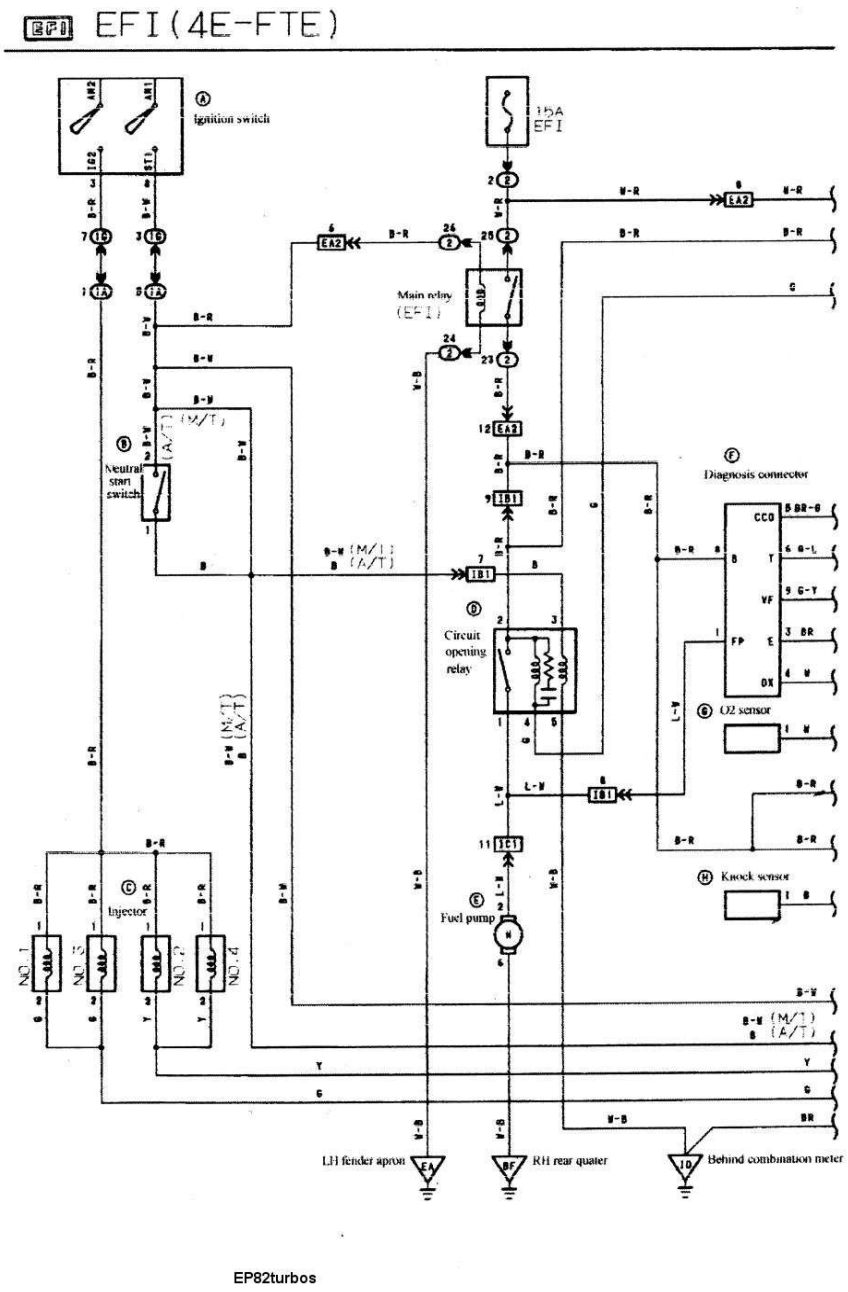


Figure 8:Ecu Wiring

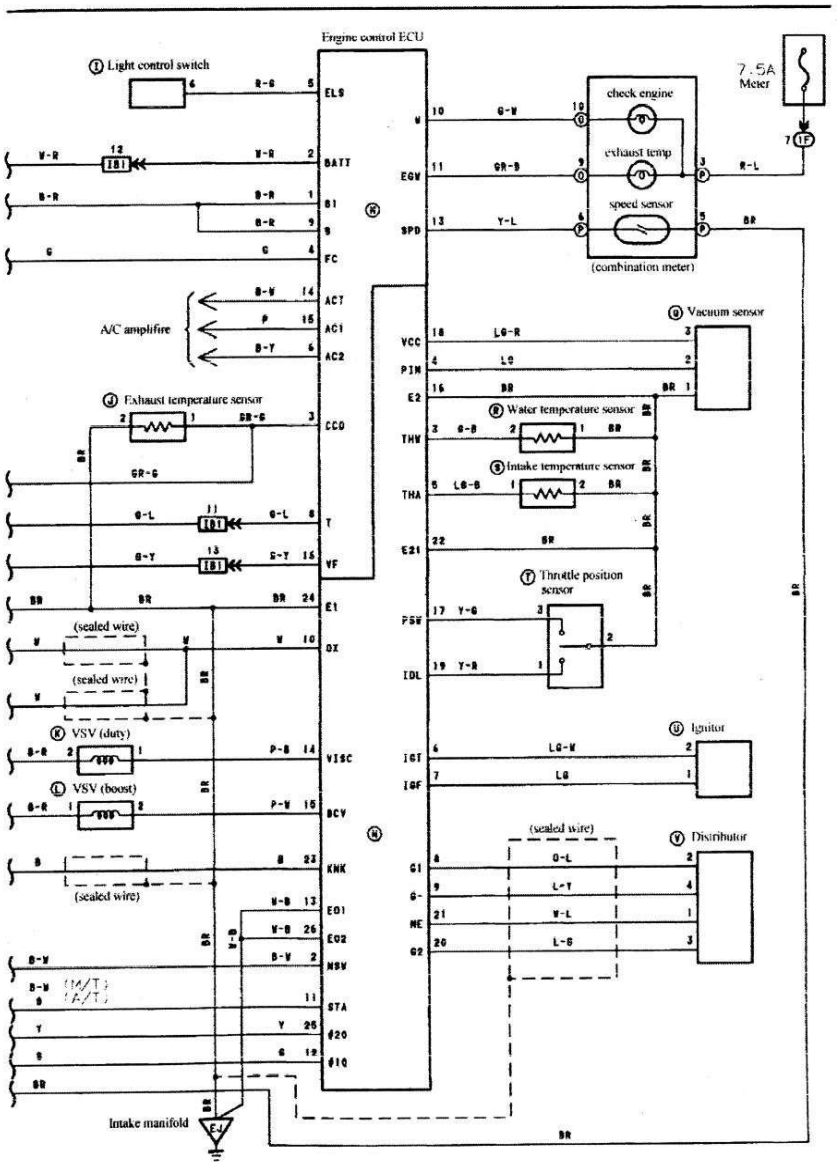


Figure 9:Ecu Wiring 2

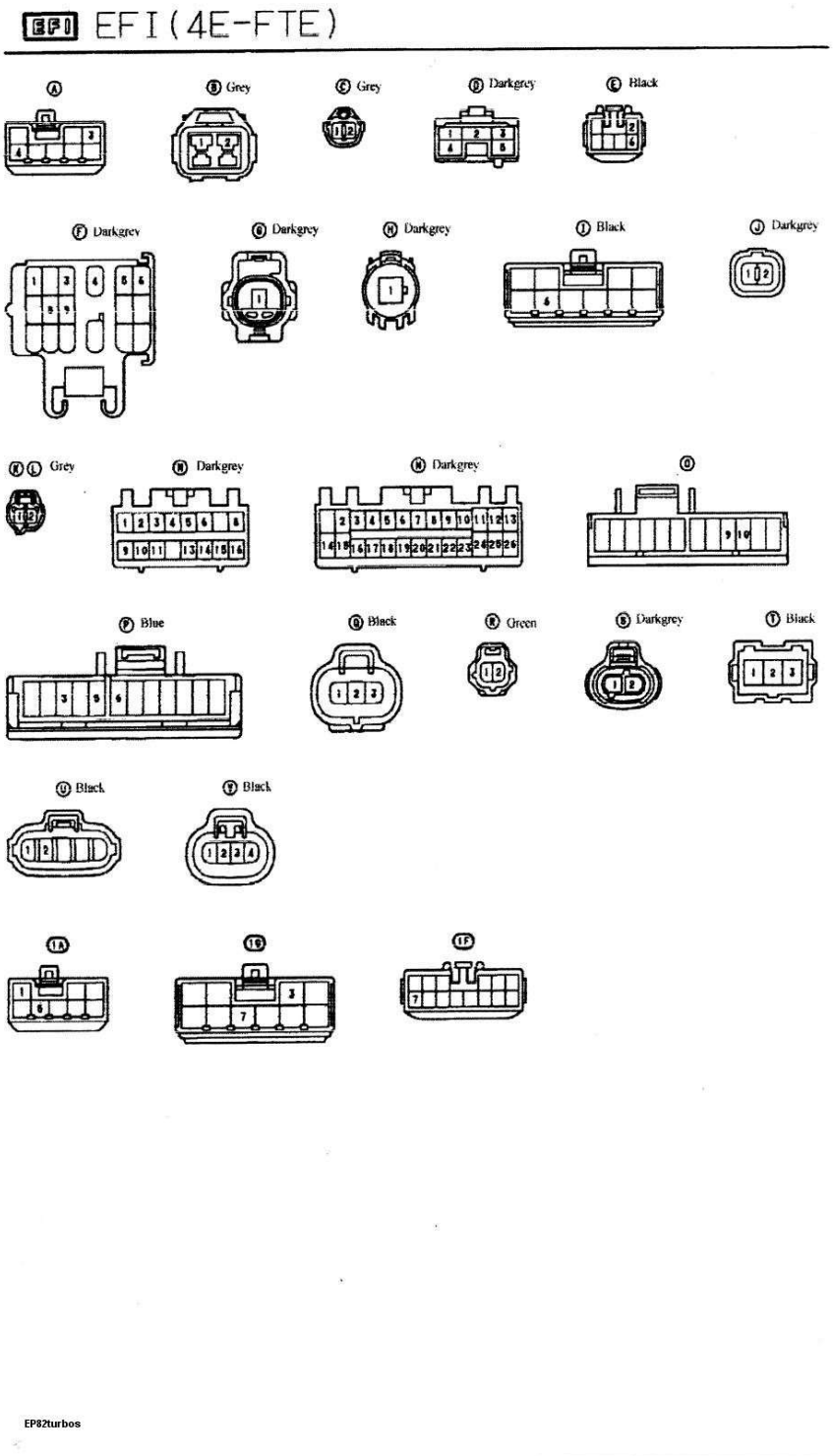


Figure 10:EFI Connectors 1

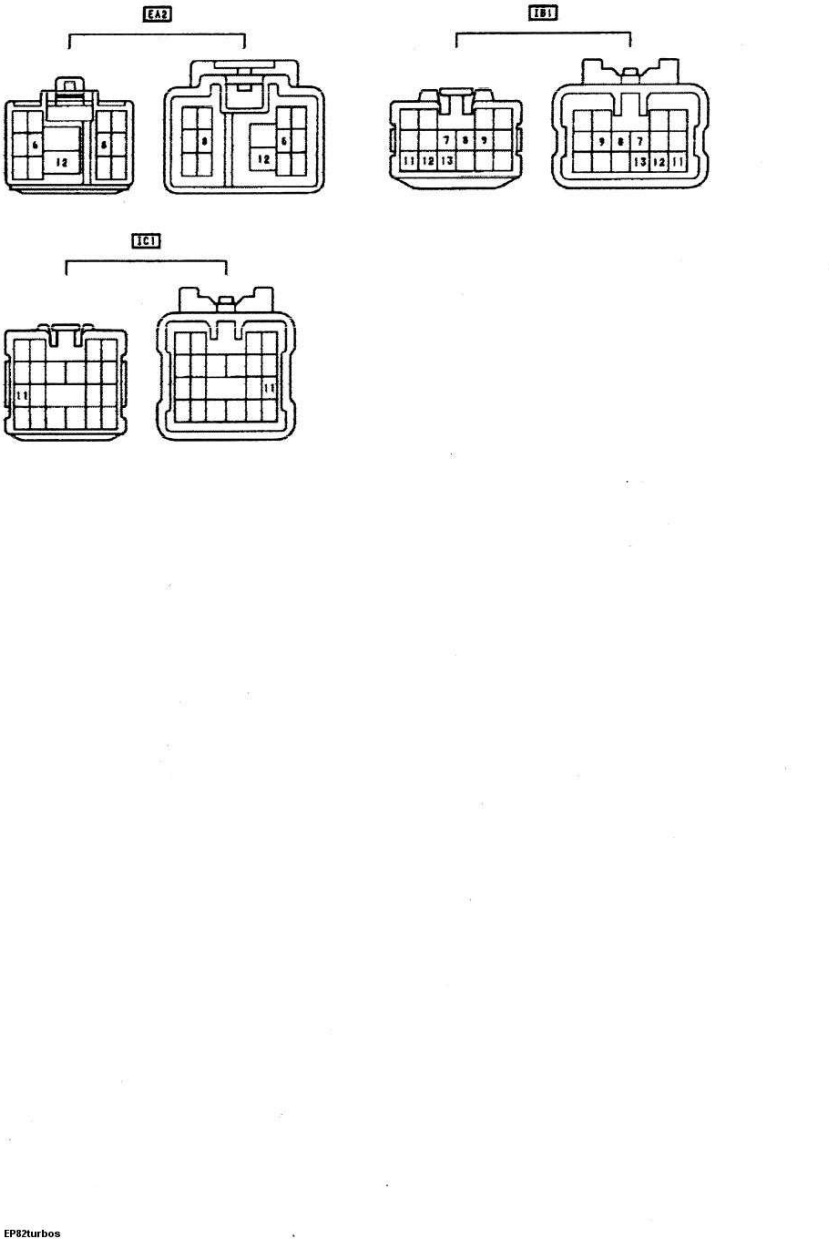


Figure 11:EFI Connectors 2

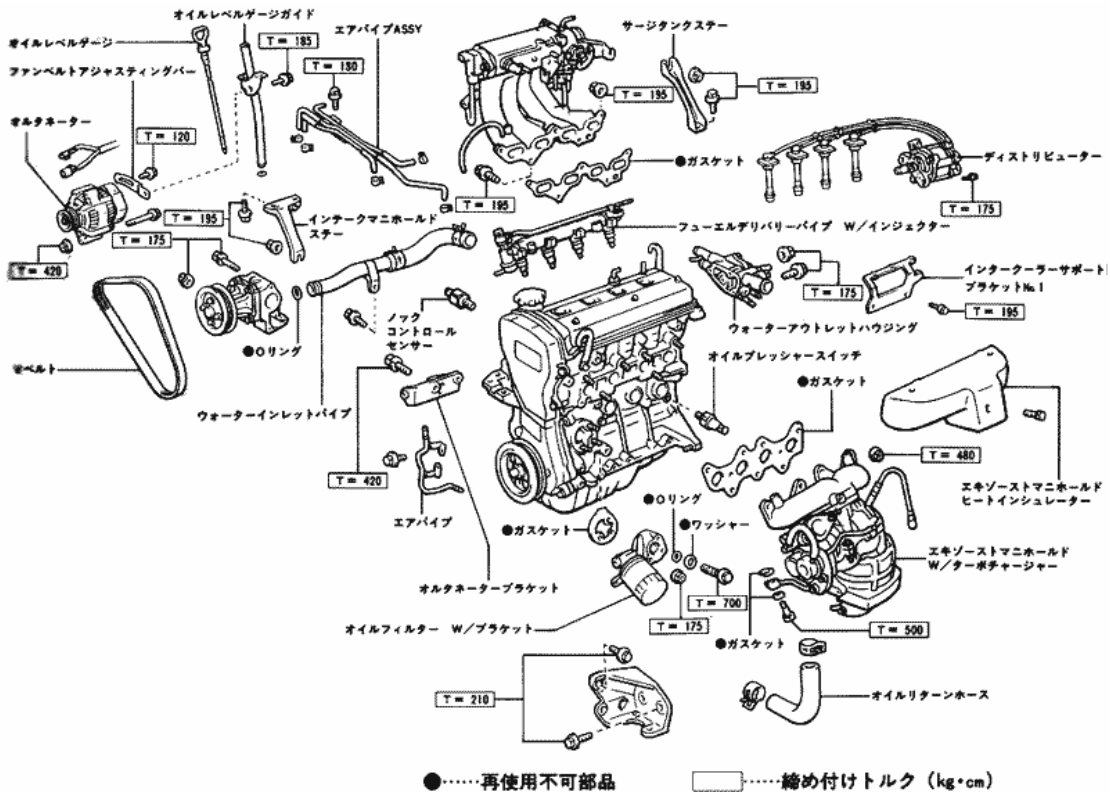


Figure 12:Engine 1

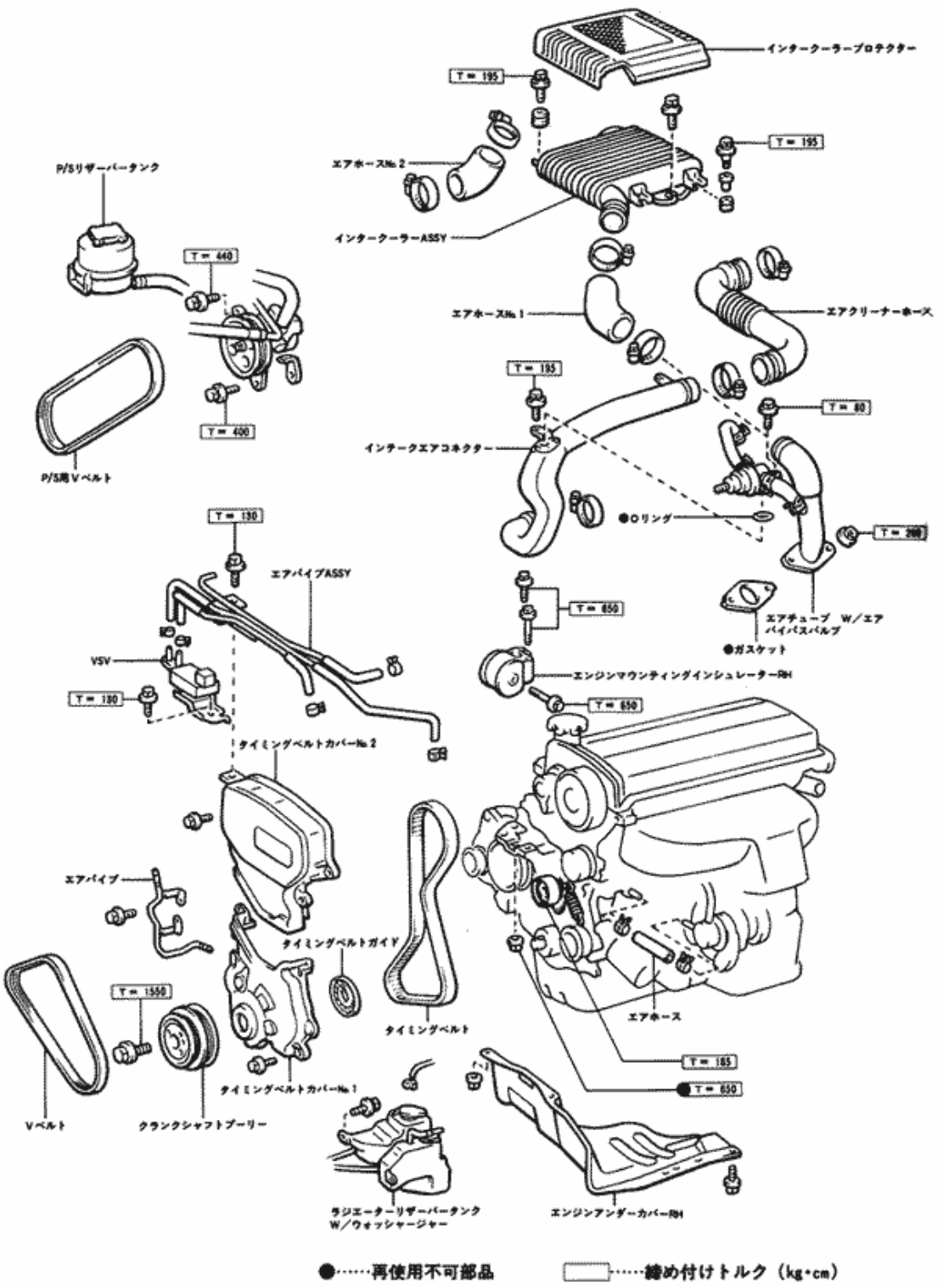


Figure 13:Engine 2

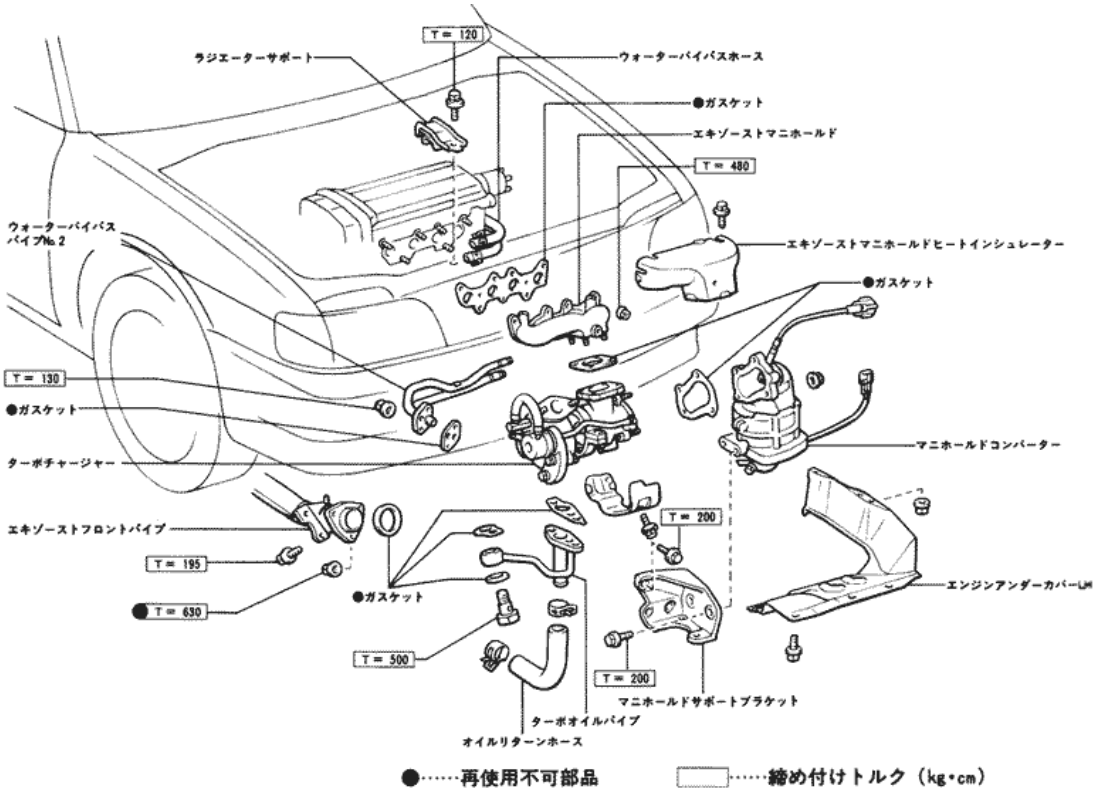


Figure 14:Engine 3

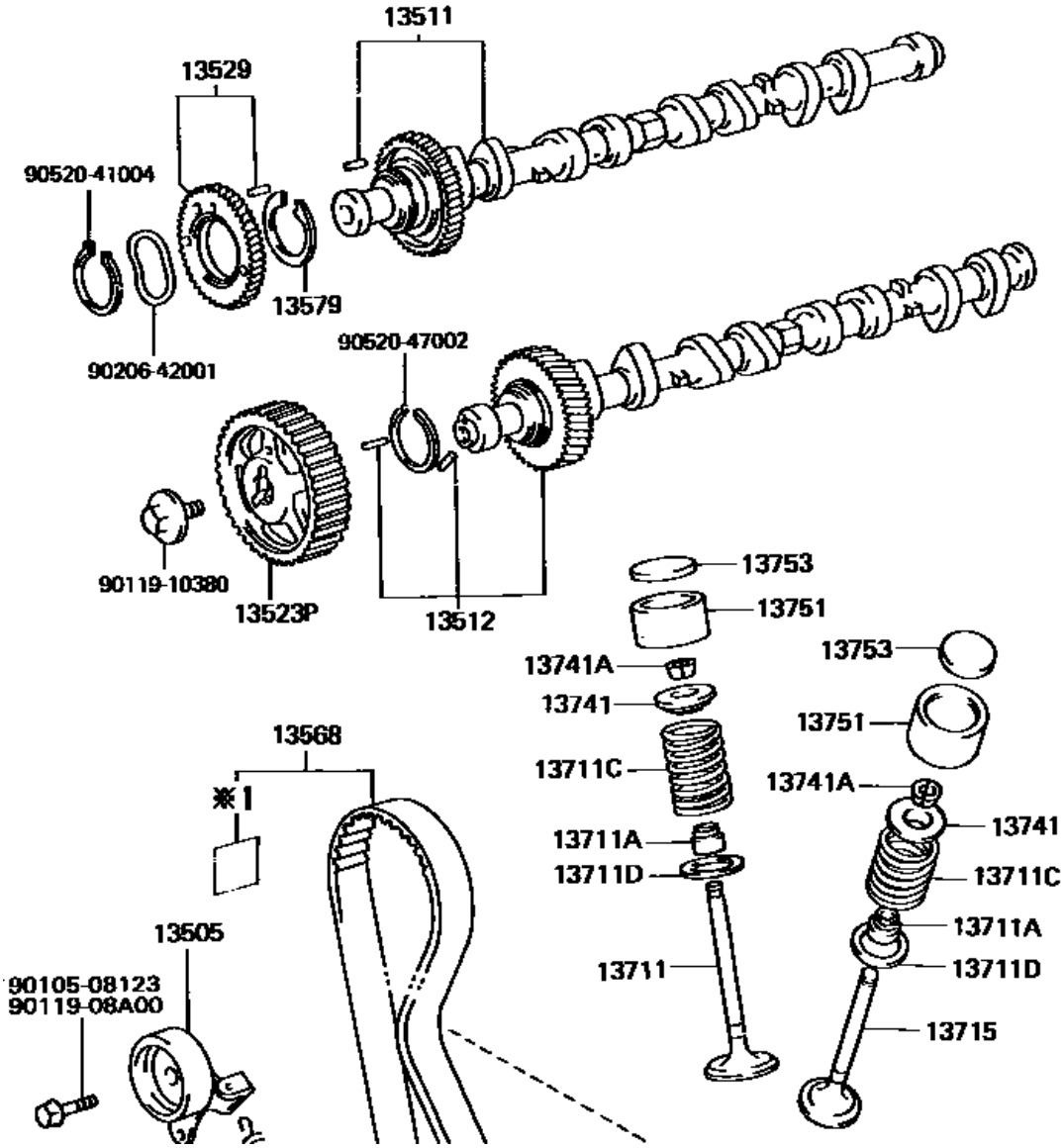


Figure 15:Sim

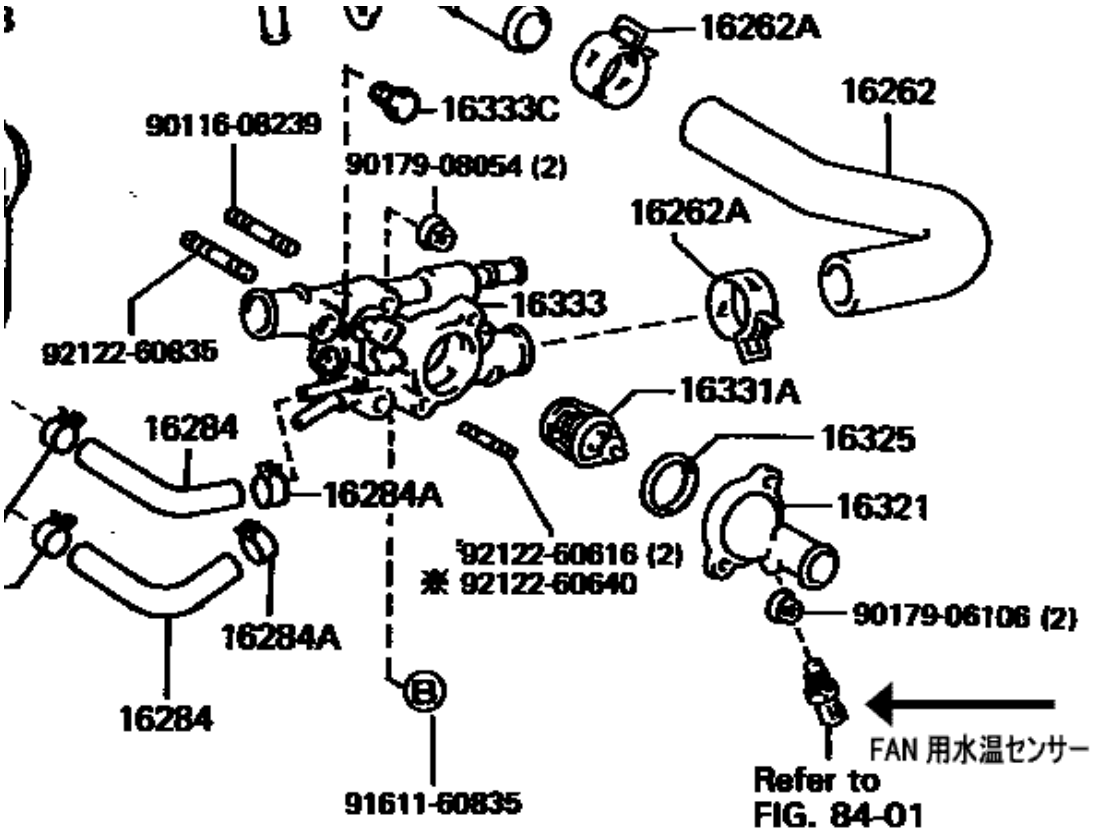


Figure 16:Fan Sensor

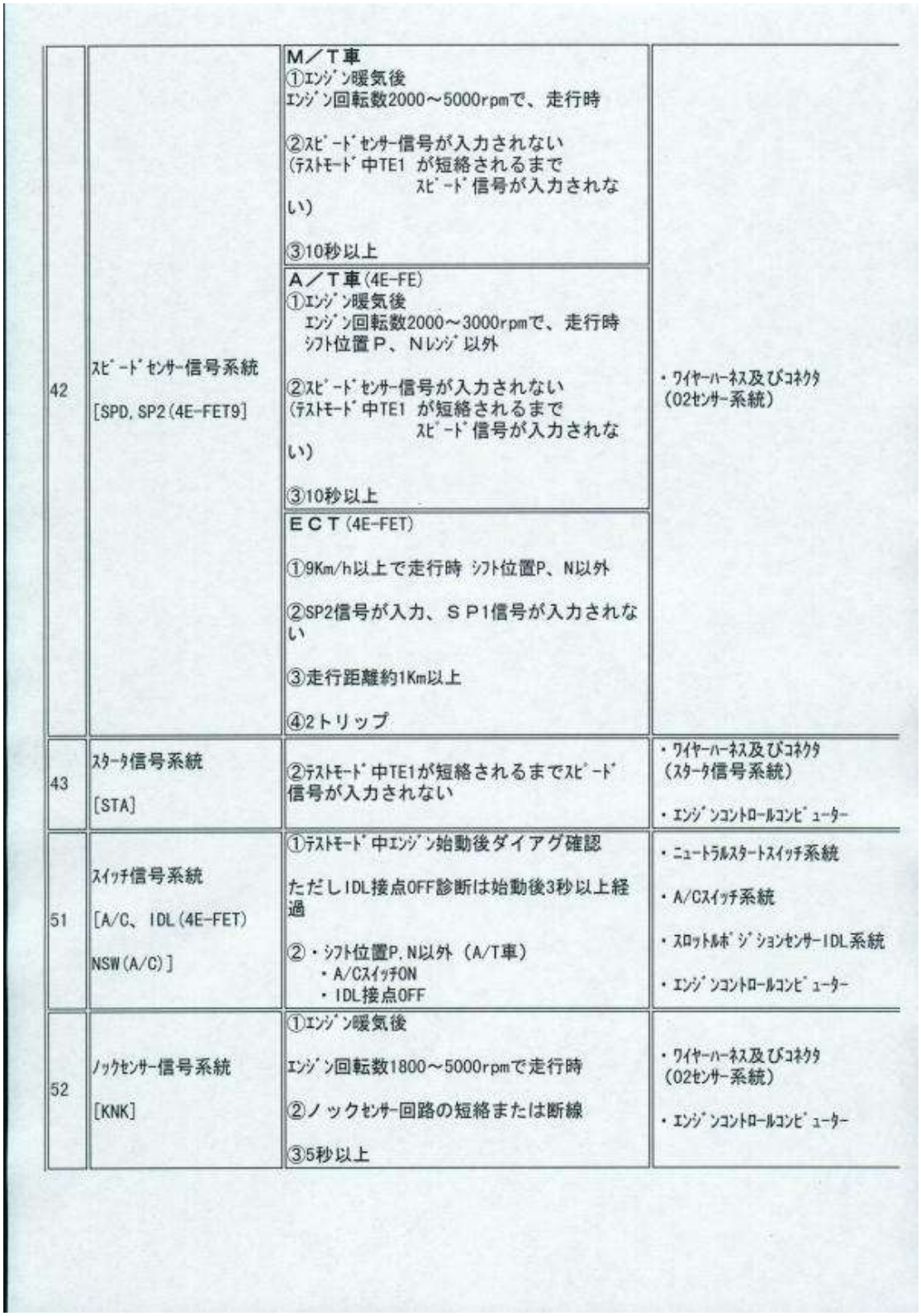
ダイアグノーシスコード

ｺｰﾄﾞ番号	診断項目 [端子記号]	診断内容 ①診断条件②異常状態③異常期間④その他	点検部位
12	回転信号系統１ [NE, G1 (4E-FET)]	①クランキング中 ②ＧＩまたはＮＥ信号が入らない ③５秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ (G, NE信号系統) ・ﾃﾞｨｽﾄﾘﾋﾞｭｰﾀｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
13	回転信号系統２ [NE]	①エンジン回転数1500rpm以上 ②ＮＥ信号が入力されない ③１秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ ・ＩＩＡ，ﾃﾞｨｽﾄﾘﾋﾞｭｰﾀｰ（NEｲ-） ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
14	点火信号系統 [IGF, IGT]	①アイドル回転時 ②ＩＧＴ信号が出力されているのにもかかわらず ＩＧＦが入力されない ③1秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（ｲｸﾞﾅｲﾀｰ＋B及びIGF、IGT 系統、ｲｸﾞﾆｯｼｮﾝｺｲﾙ＋B系統） ・ｲｸﾞﾅｲﾀｰ、ｲｸﾞﾆｯｼｮﾝｺｲﾙ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
16	ＥＣＴ，ＣＰＵ系統 [4E-FET A/T]	①ＩＧスイッチＯＮ ②ＥＣＴ，ＣＰＵ以上 ③1秒以上	・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
21	Ｏ２センサー信号系統 [OX]	①エンジン暖気後、エンジン回転数2500rpm以上 ②02ｾﾝｻｰ出力電圧振幅が0.3未満 ③５秒以上	・02ｾﾝｻｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
	Ｏ2ｾﾝｻｰﾋｰﾀｰ異常 (4E-FET)	①IGｽｲｯﾁ　ON ②02ｾﾝｻｰﾋｰﾀｰ回路の断線 ③1秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（02ｾﾝｻｰﾋｰﾀｰ系統） ・02ｾﾝｻｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
22	水温ｾﾝｻｰ信号系統 [THW, E2]	①ＩＧｽｲｯﾁ　ＯＮ ②水温ｾﾝｻｰ回路の短絡または断線 ③1秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（水温ｾﾝｻｰ系統） ・水温ｾﾝｻｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ

Figure 17:Faults 1

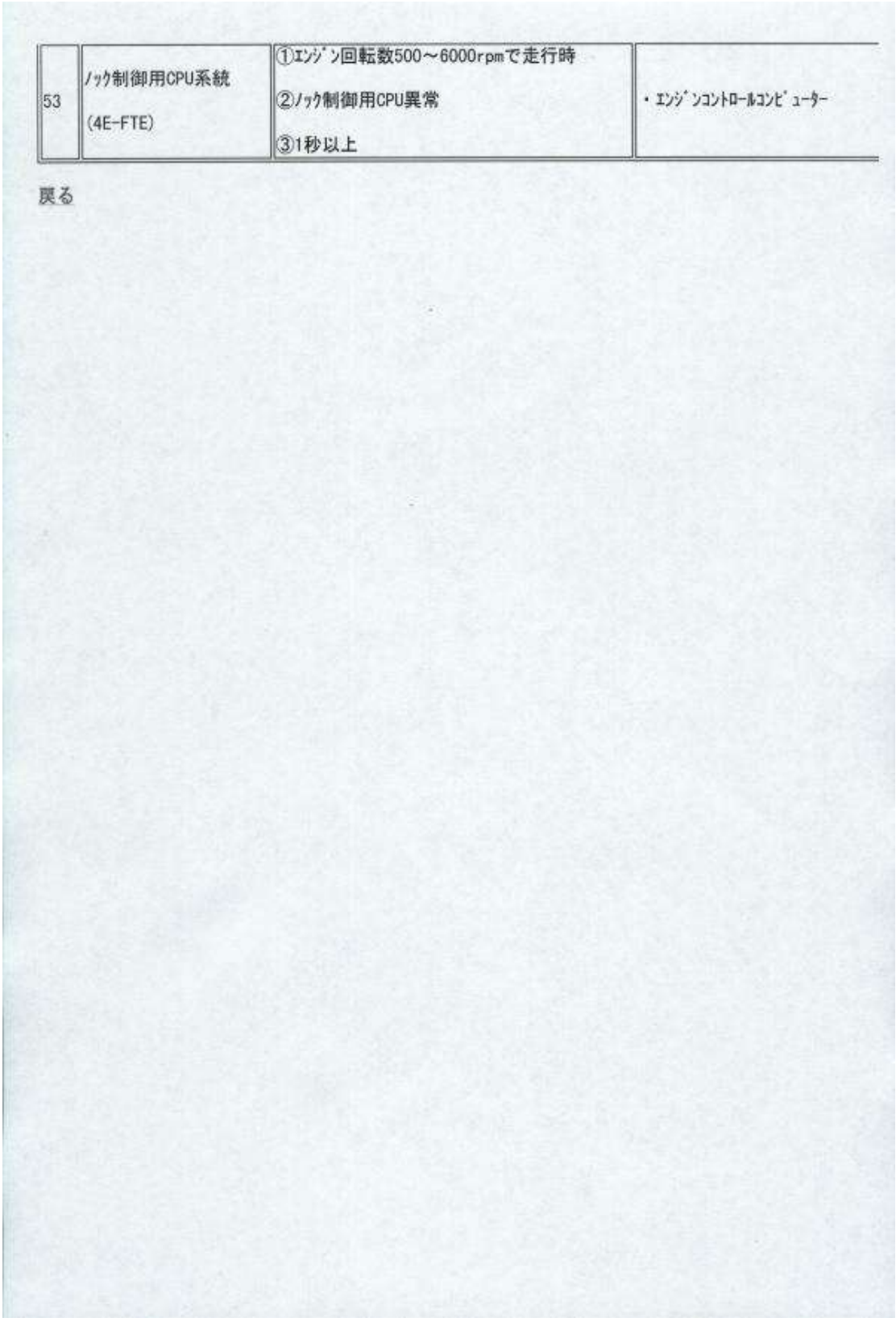
24	吸気温ｾﾝｻｰ信号系統 [THA, E2]	①ＩＧｽｲｯﾁ　ＯＮ ②吸気温 ③５秒以上ｾﾝｻｰ回路の短絡または断線	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（吸気温ｾﾝｻｰ系統） ・吸気温ｾﾝｻｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
25	リーン異常系統 ［ＯＸ］	①ｴﾝｼﾞﾝ暖気後ｴﾝｼﾞﾝ回転数２５００rpm以上 ②Ｏ2ｾﾝｻｰがリッチ信号を出力しない ③60秒以上 ④2トリップ	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（O2ｾﾝｻｰ系統） ・02ｾﾝｻｰ ・燃料系統（インジェクター、圧） ・点火系統（ｽﾊﾟｰｸﾌﾟﾗｸﾞ、ｲｸﾞﾀｰ） ・吸気系統（ﾊﾞｷｭｰﾑｾﾝｻｰ） ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
31	ﾊﾞｷｭｰﾑｾﾝｻｰ信号系統 ［ＰＩＭ，ＶＣ，Ｅ２］	①IGｽｲｯﾁＯＮ ②ﾊﾞｷｭｰﾑｾﾝｻｰ回路の短絡または断線 ③1秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（ﾊﾞｷｭｰﾑｾﾝｻｰ系統） ﾊﾞｷｭｰﾑｾﾝｻｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
33	ＩＳＣＶ系統 ［ＲＳＯ，ＲＳＣ］ （４Ｅ－ＦＥ）	①アイドル回転時ＯＮ ②ＩＳＣＶ回路の短絡または断線 ③10秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（ＩＳＣＶ系統） ・ＩＳＣＶ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
34	過吸圧系統 （４Ｅ－ＦＴＥ）	②過吸圧異常と判断し、ﾌｭｰｴﾙｶｯﾄ実施	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（ﾀｰﾎﾞﾌﾟﾚｯｼｬｰｾﾝｻｰ系統） ・ﾀｰﾎﾞﾌﾟﾚｯｼｬｰｾﾝｻｰ ・ﾀｰﾎﾞﾁｬｰｼﾞｬｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
41	ｽﾛｯﾄﾙﾎﾟｼﾞｼｮﾝｾﾝｻｰ信号系統	①IGｽｲｯﾁＯＮ ②ｽﾛｯﾄﾙﾎﾟｼﾞｼｮﾝｾﾝｻｰ回路の短絡か、断線 ③５秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ（ｽﾛｯﾄﾙﾎﾟｼﾞｼｮﾝｾﾝｻｰ系統） ・ｽﾛｯﾄﾙﾎﾟｼﾞｼｮﾝｾﾝｻｰ ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ

Figure 18:Faults 2



42	ｽﾋﾟｰﾄﾞｾﾝｻｰ信号系統 [SPD, SP2(4E-FET9]	M／T車 ①ｴﾝｼﾞﾝ暖気後 ｴﾝｼﾞﾝ回転数2000～5000rpmで、走行時 ②ｽﾋﾟｰﾄﾞｾﾝｻｰ信号が入力されない (ﾃｽﾄﾓｰﾄﾞ中TE1 が短絡されるまで ｽﾋﾟｰﾄﾞ信号が入力されない) ③10秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ (O2ｾﾝｻｰ系統)
		A／T車(4E-FE) ①ｴﾝｼﾞﾝ暖気後 ｴﾝｼﾞﾝ回転数2000～3000rpmで、走行時 ｼﾌﾄ位置P、Nﾚﾝｼﾞ以外 ②ｽﾋﾟｰﾄﾞｾﾝｻｰ信号が入力されない (ﾃｽﾄﾓｰﾄﾞ中TE1 が短絡されるまで ｽﾋﾟｰﾄﾞ信号が入力されない) ③10秒以上	
		ＥＣＴ(4E-FET) ①9Km/h以上で走行時 ｼﾌﾄ位置P、N以外 ②SP2信号が入力、ＳＰ1信号が入力されない ③走行距離約1Km以上 ④2トリップ	
43	ｽﾀｰﾀ信号系統 [STA]	②ﾃｽﾄﾓｰﾄﾞ中TE1が短絡されるまでｽﾋﾟｰﾄﾞ信号が入力されない	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ (ｽﾀｰﾀ信号系統) ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
51	ｽｲｯﾁ信号系統 [A/C、IDL(4E-FET) NSW(A/C)]	①ﾃｽﾄﾓｰﾄﾞ中ｴﾝｼﾞﾝ始動後ダイアグ確認 ただしIDL接点OFF診断は始動後3秒以上経過 ②・ｼﾌﾄ位置P, N以外 (A/T車) ・A/CｽｲｯﾁON ・IDL接点OFF	・ﾆｭｰﾄﾗﾙｽﾀｰﾄｽｲｯﾁ系統 ・A/Cｽｲｯﾁ系統 ・ｽﾛｯﾄﾙﾎﾟｼﾞｼｮﾝｾﾝｻｰIDL系統 ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ
52	ﾉｯｸｾﾝｻｰ信号系統 [KNK]	①ｴﾝｼﾞﾝ暖気後 ｴﾝｼﾞﾝ回転数1800～5000rpmで走行時 ②ﾉｯｸｾﾝｻｰ回路の短絡または断線 ③5秒以上	・ﾜｲﾔｰﾊｰﾈｽ及びｺﾈｸﾀ (O2ｾﾝｻｰ系統) ・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ

Figure 19:Faults 3



53	ﾉｯｸ制御用CPU系統 (4E-FTE)	①ｴﾝｼﾞﾝ回転数500～6000rpmで走行時 ②ﾉｯｸ制御用CPU異常 ③1秒以上	・ｴﾝｼﾞﾝｺﾝﾄﾛｰﾙｺﾝﾋﾟｭｰﾀｰ

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Figure 20:Faults 4

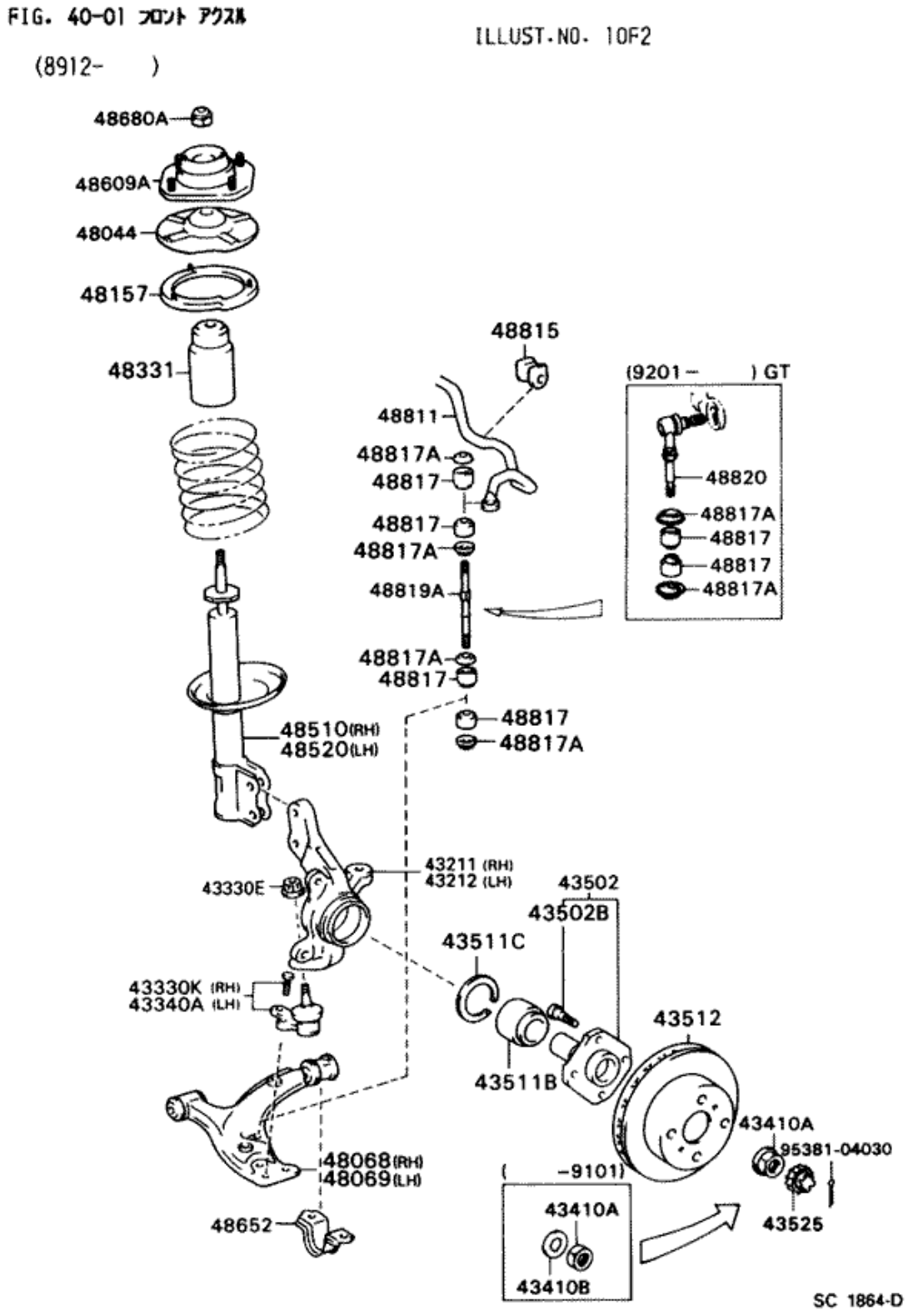


Figure 21:Front Axle

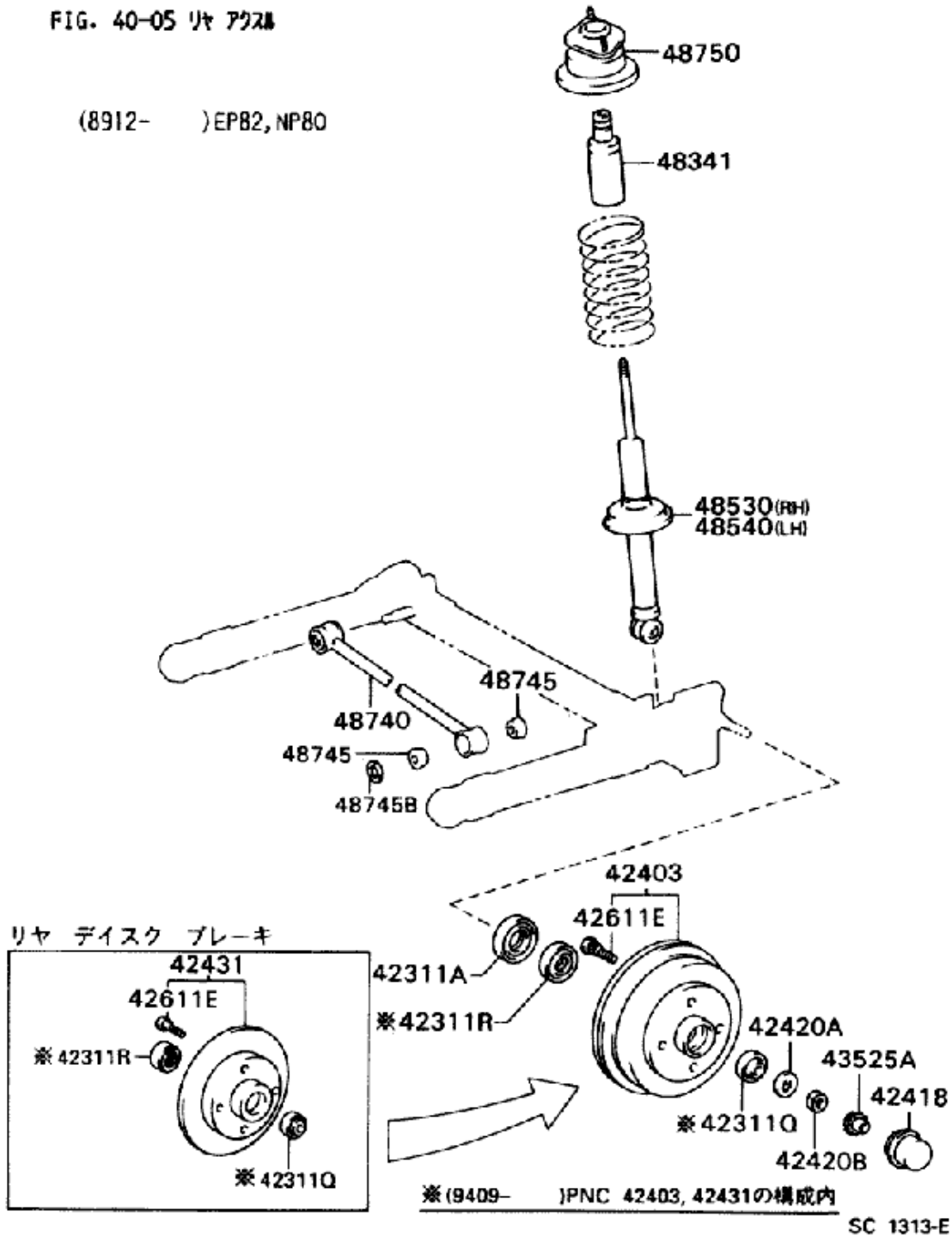


Figure 22:Read Axle

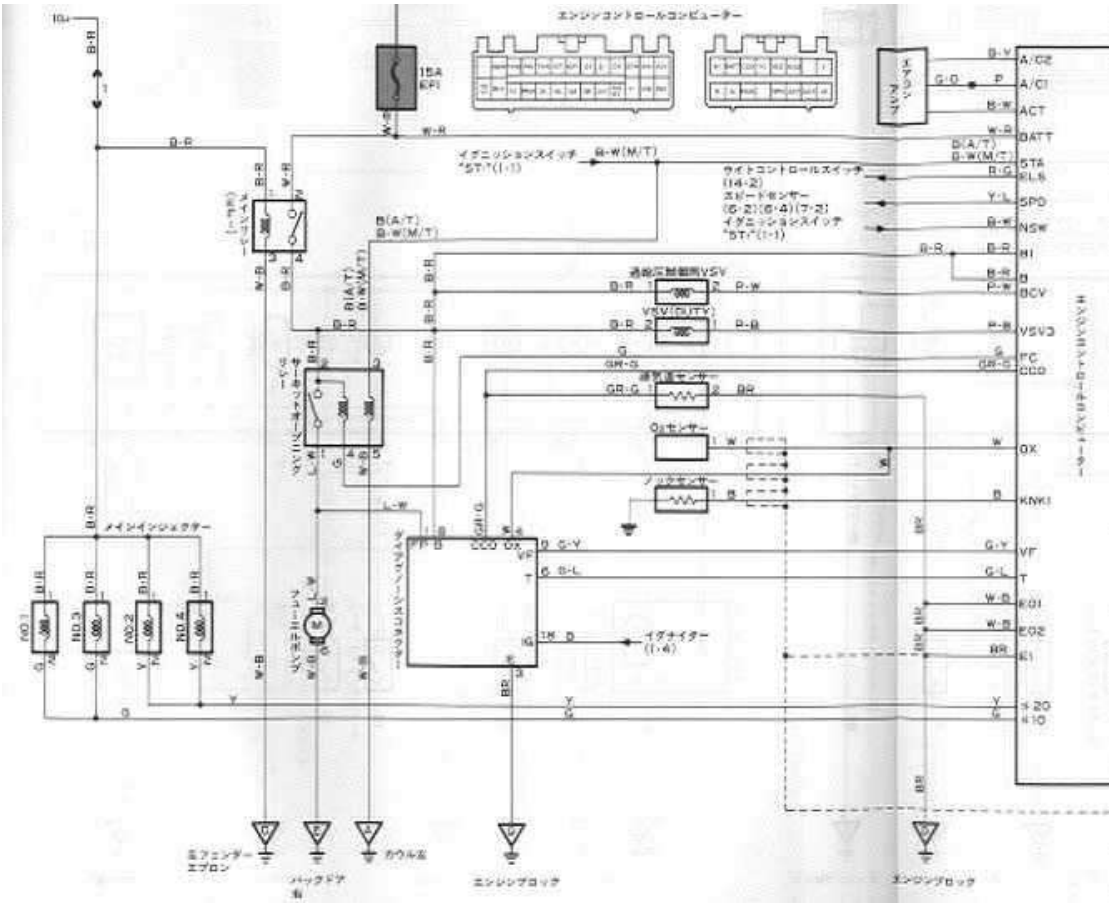


Figure 23:Misc 1

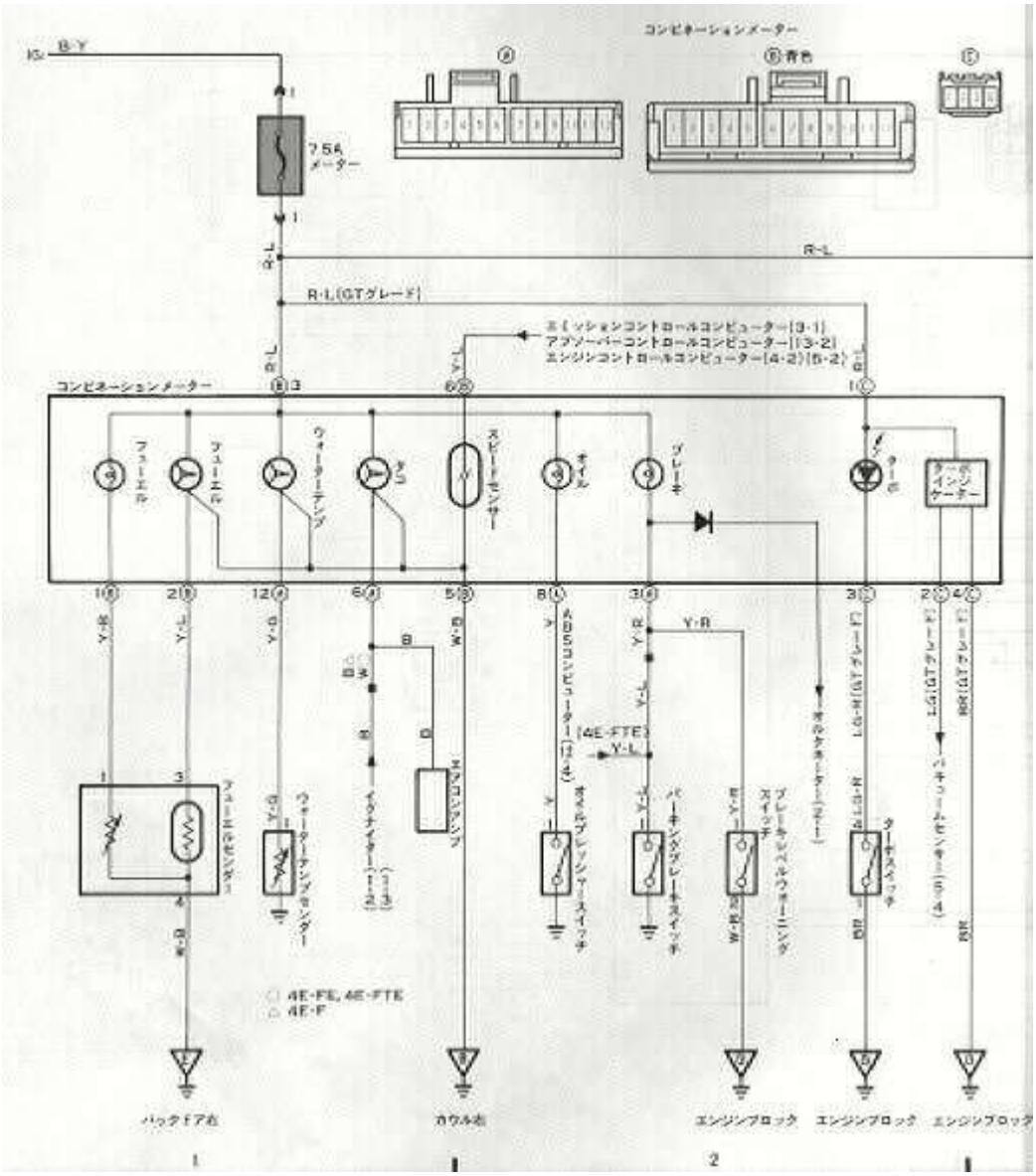
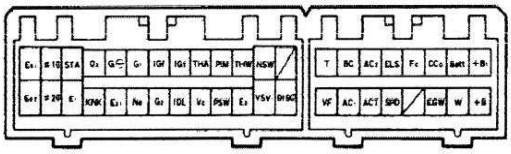


Figure 24:Misc 2

4E-FTEエンジン－EFIシステム



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点検系統	端子	測定条件	基準値(V)
Power	Batt – body earth	Always	10～14
	+B – body earth	——	10～14
	+B1 – body earth		
Throttle position sensor	IDL – body earth	Throttle valve fully close	0.5 or less
		Throttle valve open (1.5° or more)	10～14
	PSW – body earth	Throttle valve fully close	11 or more
		Throttle valve fully open	0.5 or less
Turbo pressure sensor	PIM – body earth	Port pressure is atmosphere pressure	2.3～2.9
		Port pressure is negative pressure 200mmHg	drop voltage 0.3~0.7 against atmosphere pressure output voltage
	Vc – body earth	——	4.5～5.5
Intake temperature sensor	THA – body earth	Atmosphere temperature is approximately 20°C	2.0～2.5
Water temperature sensor	THW – body earth	Water temperature is approximately 80°C	0.4～0.7
Starter signal	STA – body earth	Cranking	6 or more
Injection signal	≠10 – body earth	——	10～14
	≠20	Idling	generation pulse
Igniter	IGf – body earth	——	0.5 or less
			generation pulse
	IGt – body earth		generation pulse
Distributer	G1 – G⊖	Idling	generation pulse
	G2 – G⊖		
	Ne – G⊖		
Other	NSW – body earth	P, N range (A/T)	0.5 or less
		Other than P, N range (A/T)	10～14
	SPD – body earth	Rotate drive wheel slowly	0 ↔ 10～14 changes
	CC0 – body earth	——	4.0～5.5
	O2 – body earth	After warmed up engine, hold engine for 90 seconds	0 ↔ 1.0 changes
	W – body earth	When check engine warning lamp illuminates (ex; disconnect water temperature sensor)	3.3 or less
		Idling (no warning lamp illuminates)	10～14
	EGW – body earth	Exhaust warning lamp illuminates (connect CC0 and E1 of the check connector)	3.3 or less
		Idling (no warning lamp illuminates)	10～14
	VF – body earth	After warmed up engine, keep running at 2500rpm and hold it for 90 seconds. Connect T and E1 of the diagnosis check connector.	0 ↔ 5.5 changes
	Fc – body earth	——	10～14
		Idling	0～3

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Figure 25:Pinouts 1

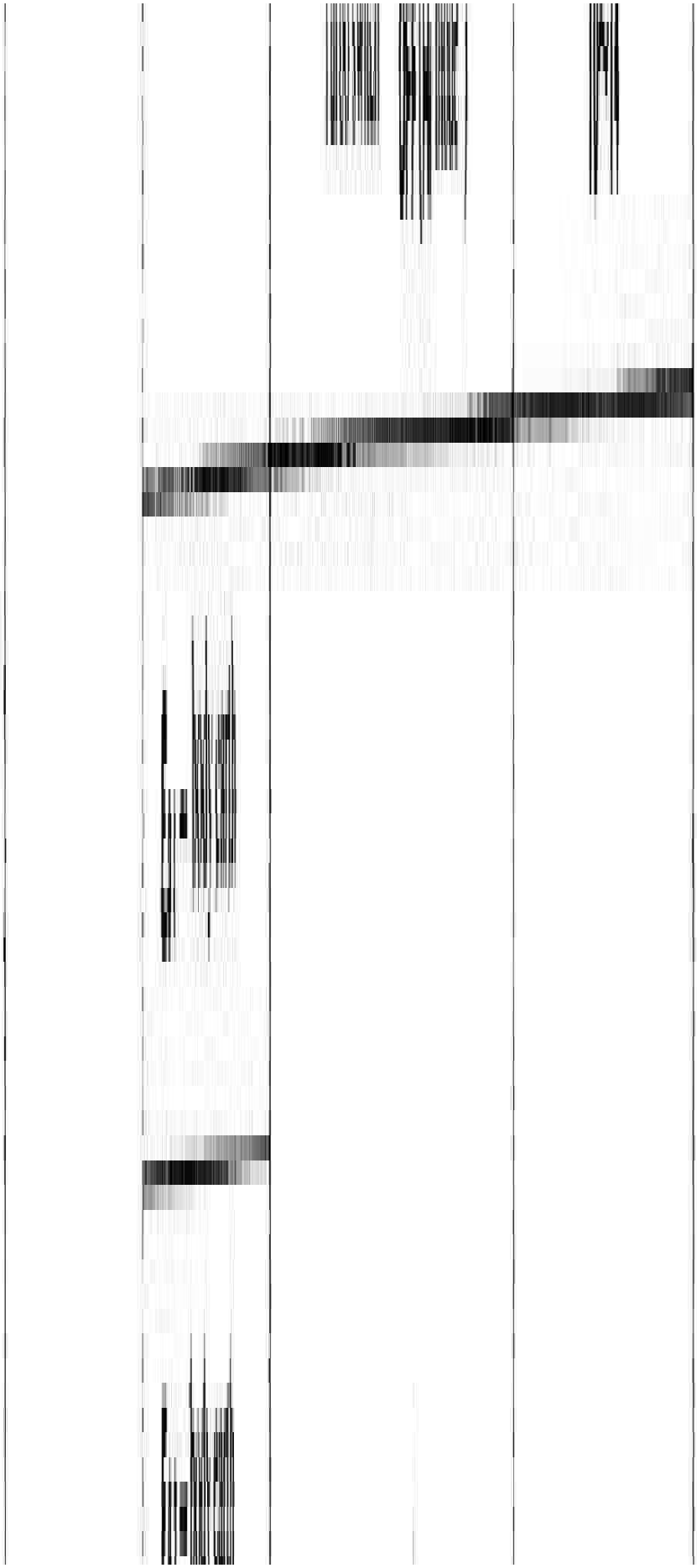

Figure 26:Pinouts 2

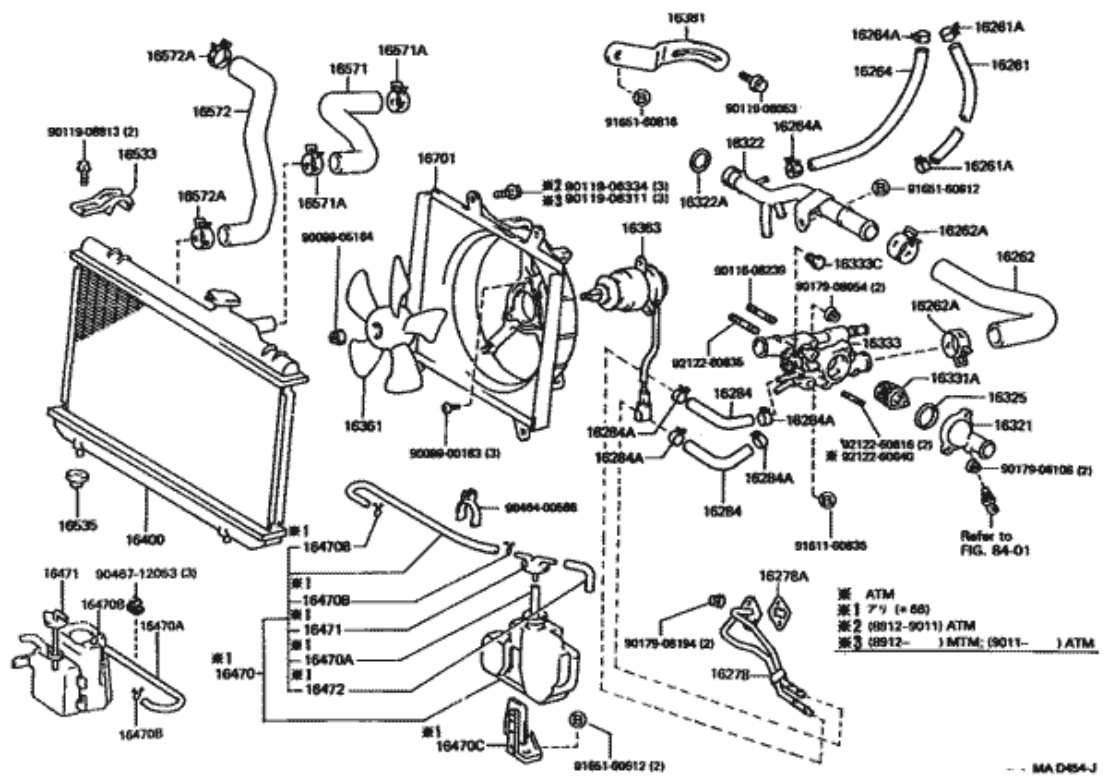

Figure 27:Radiator

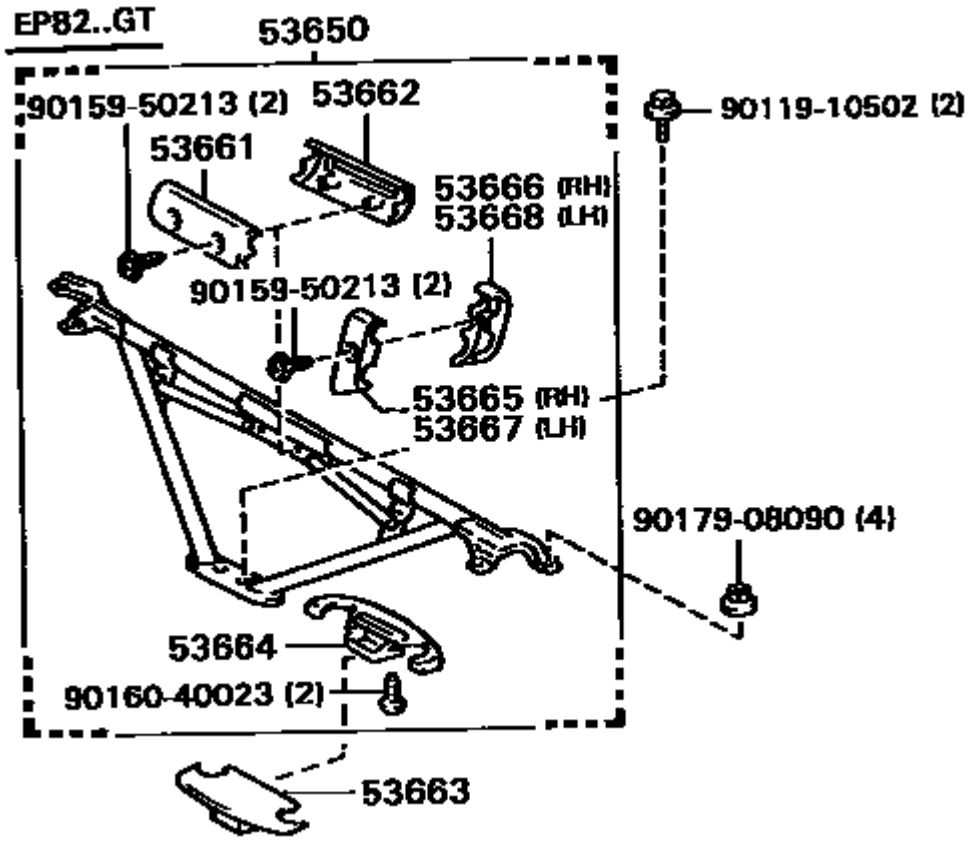

Figure 28:Read tow bar

W/ RECARO SEAT

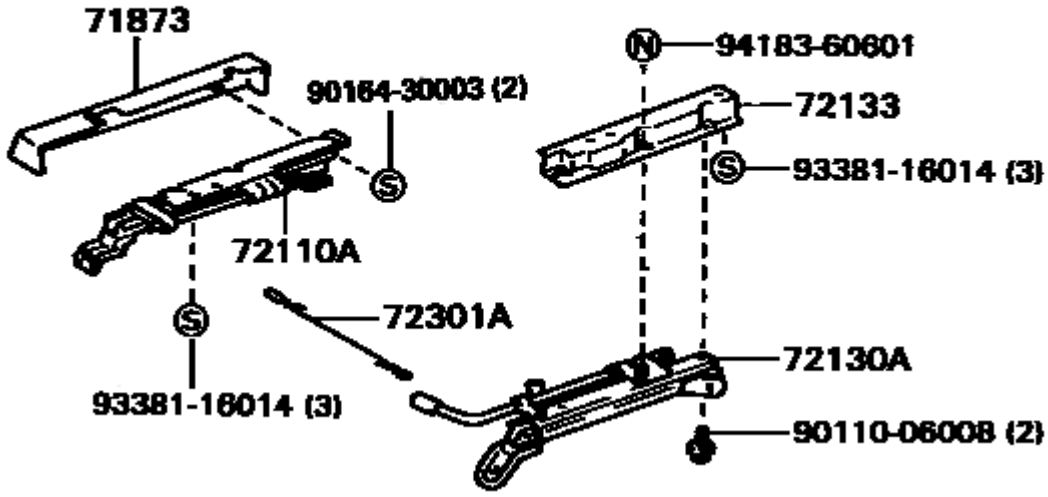

Figure 29:Seat Rail 1

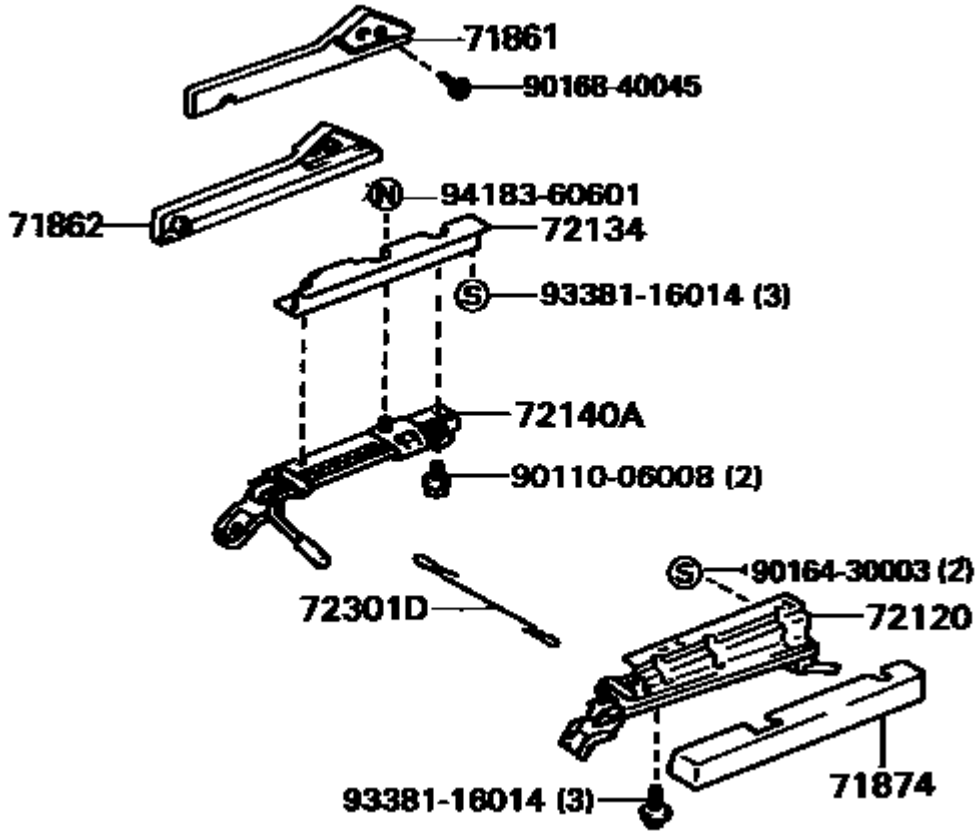

Figure 30:Seat Rail 2

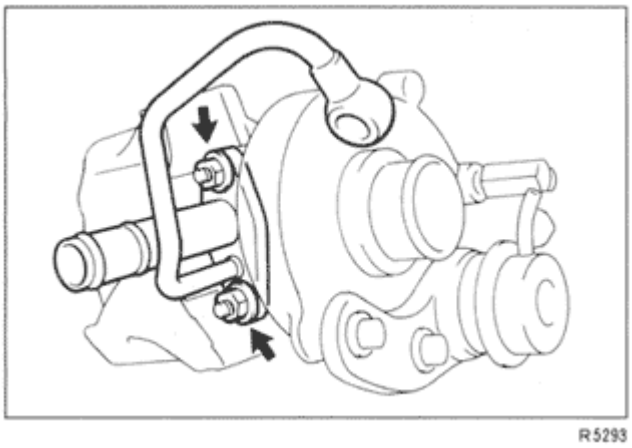

Figure 31:Turbo 1

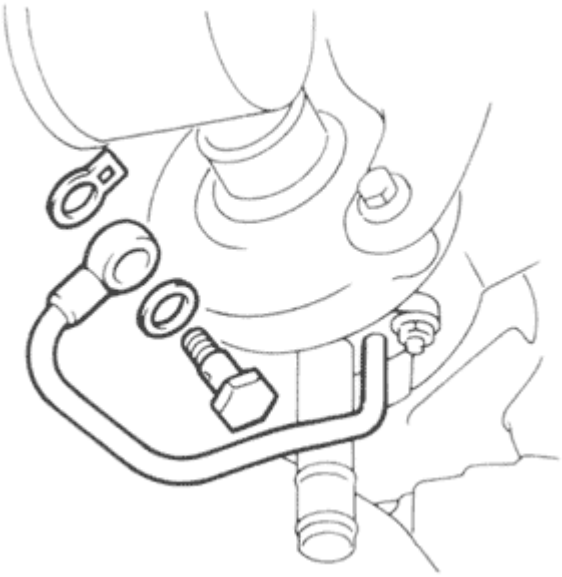

Figure 32:Turbo 2

7.0 Other

To contribute to this document, please send amendments / new sections via email to **s0nic@maltanet.net**.