



Techni
ENGINEERING SOLUTIONS

FIAT / GM
DOBLO / COMBO
1.6L MJ / CDTI EURO 5B+
90 / 105 PS (+AC)

CODE / CODICE: 0500.7292

COMPRESSOR / COMPRESSEUR / KOMPRES-
SOR / COMPRESSORE / COMPRESOR :
VALEO TM13 / 15
QUE QP13 / 15

FITTING INSTRUCTIONS
EINBAUANLEITUNGEN
INSTRUCTIONS POUR LE MONTAGE
ISTRUZIONI DI MONTAGGIO
INSTRUCCIONES DE MONTAJE

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PARTS LIST / NOMENCLATURE / TEILELISTE / ELENCO DELLE PARTI / LISTA DE PIEZAS

ITEM	CODE / CODICE / KODE / CODIGO	DESCRIPTION / DESCRIZIONE / BESCHREIBUNG / DESCRIPCION	QTY.	COMMENTS
1	0441.5411	Compressor mount bracket - Fiat Doblo 1.6 with AC	1	
2	1701.5321	Crankshaft drive pulley Ø 116 - Fiat Doblo 1.6	1	
3	1705.5022	Belt Tensioner Assembly	1	
4	0820.7321	Belt poly Groove 4PK 803	1	
5	2705.5281	Socket cap screw M10 x 45 : 1.25 - 12.9	1	
6	2704.5631	Hex socket head cap screw M8 x 60 : 1.25 - 12.9	4	
7	2704.5341	Hex socket head cap screw M8 x 45 : 1.25 - 12.9	1	
8	2760.1031	Rivet 4.0 x 12.0	7	
9	2732.0041	Hexagon flange nut Durlok - M6 : 1.00	3	
10	2702.0111	Hex flange bolt Durlok - M6 x 25 : 1.00 - 12.9	2	
11	2734.0021	Durlok Hexagon Flange Nut - M8 : 1.25	1	
12	2771.1091	Plastic Fir Tree Plug 16.5 x 12.7	3	
13	2702.5011	Hex Bolt M6 x 25 : 1.0 -8.8	1	
14	1537.1001	Turbo Pipe Clip	2	
15	2771.1041	P Clip 25mm	2	
16	2771.1031	P Clip 19mm	3	
17	2771.1081	P Clip 25mm M8 Fixing	1	
18	2803.5811	Threaded Pillar M8 x 40 Male female	1	
19	2763.0051	Cable Tie 4.8 x 370 - Black	10	
20	2705.0491	Hex flange bolt Durlok - M10 x 30 : 1.50 - 12.9	4	
21	2771.1071	P Clip 21mm	1	
22	2702.0521	Hex flange bolt M6 X 16 : 1.00	2	
23	1537.1041	Hose Clamp 20-32	1	
24	1490.5021	Doblo discharge hose assy	1	
25	1490.5031	Doblo suction hose assembly	1	
26	3020.5981	Compressor pipe clamp	1	
27	1490.5041	PAS hose assembly	1	
28	1500.5101	M16 Dowty self centering washer	1	
29	1443.5012	Adaptor M16 - 3/8th Modified for Fiat Doblo	1	
30	2002.5241	Underpanel Cover (steel)	1	
31	3020.5991	Hose support bracket	1	
32	3020.6141	Manifold pipe clamp C	1	
33	0426.5032	Compressor Fitting - Suction 7/8 -14 Type B	1	
34	0426.5042	Compressor Fitting - Discharge 3/4 -16- Type B	1	
35	2705.5301	Hex Flange Bolt -M10 x 35 : 1.50 -8.8	1	

**COMPATIBLE COMPRESSORS / COMPRESSEURS RECOMMANDÉS / EMPFOHLENE KOMPRESSOREN
RACCOMANDATO COMPRESSORI / RECOMENDADAS COMPRESORES**

SELTEC	TM13-HD	TM15-HD	TM16-HD
Comp No	0381.0202	0381.0002	-
Valeo No.	N204832G	N204825L	-
Mounting	EAR	EAR	-
Rotor	8PV	8PV	-
Armature	3E	3E	-
GL	46.55	46.55	-
Diameter	123	123	-
Voltage	12	12	-
Orientation	V	V	-
Fitting	3/4 x 7/8	3/4 x 7/8	-
Manifold	Bolt	Bolt	-

DELPHI	-	-	-
Comp No.	-	-	-
Delphi No.	-	-	-
Mounting	-	-	-
Rotor	-	-	-
Armature	-	-	-
GL	-	-	-
Diameter	-	-	-
Voltage	-	-	-
Orientation	-	-	-
Fitting	-	-	-

QUE	QP13-HD	QP15-HD	QP16-HD
Comp No	0391.0202	0391.0002	-
Que No.	QP13-1302	QP15-1171	-
Mounting	EAR	EAR	-
Rotor	8PV	8PV	-
Armature	3E	3E	-
GL	46.55	46.55	-
Diameter	123	123	-
Voltage	12	12	-
Orientation	V	V	-
Fitting	3/4 x 7/8	3/4 x 7/8	-
Manifold	Bolt	Bolt	-

SANDEN	-	-	-
Comp No	-	-	-
Sanden No.	-	-	-
Mounting	-	-	-
Rotor	-	-	-
Armature	-	-	-
GL	-	-	-
Diameter	-	-	-
Voltage	-	-	-
Orientation	-	-	-
Fitting	-	-	-

STANDARD FASTENER TORQUE VALUES

In the absence of specific torque values detailed in this fitting instruction manual, the following chart can be used as a guide to the maximum safe torque for specific size and grade of fastener.

COUPLES DE SERRAGE DES FIXATIONS STANDARDS

Si des chiffres de serrage au couple particuliers ne sont pas indiqués dans cette notice de montage, se référer au tableau suivant qui servira de guide pour le couple de sécurité maximum correspondant à une taille et un grade spécifiques de fixation.

ANZIEHMOMENTE FÜR STANDARDBEFESTIGUNGSMITTEL





Falls in dieser Einbauanleitung keine speziellen Anziehmomente angegeben sind, kann die folgende Tabelle als Richtlinie für das maximale sichere Anziehmoment für eine spezifische Größe oder Qualität von Befestigungsmitteln dienen.

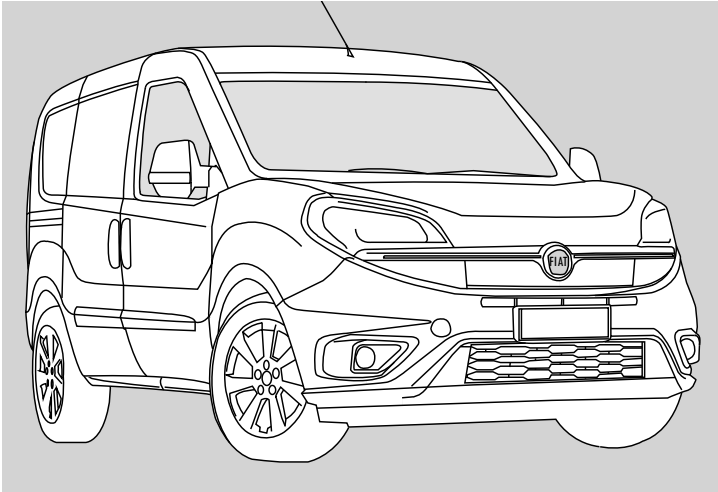
VALORI STANDARD DI SERRAGGIO PER DISPOSITIVI DI FISSAGGIO

In assenza di valori specifici di coppia nel presente manuale di istruzioni, si può utilizzare la seguente tabella come guida per conoscere la coppia massima sicura in base a dimensioni e grado del dispositivo di fissaggio.

VALORES ESTÁNDAR DE LOS PARES DE APRIETE Y FIJACIÓN

En ausencia de valores para los pares de apriete específicos detallados en este manual de instrucciones de montaje, se puede utilizar la siguiente tabla como guía para consultar el máximo par de torsión seguro para un tamaño concreto y su grado de fijación.

STRENGTH								
	Max Torque		Max Torque		Max Torque		Max Torque	
Dia / Pitch	lb.ft	Nm	lb.ft	Nm	lb.ft	Nm	lb.ft	Nm
M5 x 0.80	2	3	4.5	6	6.5	9	7.5	10
M6 x 1.00	4	5.5	7.5	10	11	15	13	18
M8 x 1.25	10	13	18	25	26	35	33	45
M10 x 1.25	20	27	39	53	57	78	66	90
M10 x 1.50	18	25	37	50	55	73	63	86
M12 x 1.75	33	45	63	85	97	130	111	150
M14 x 2.00	55	75	103	140	151	205	177	240
M16 x 2.00	85	115	159	215	232	315	273	370



VEHICLE DETAILS

Manufacturer	Fiat / GM
Model	New Doblo / Combo
Type	1.6L Multijet 16v E5b+ / 1.6 CDTI E5 b+
Engine Details	198A3000 - 90 / 105PS
Year	08.2011>
Chassis Nos.	N/A
LHD	YES
RHD	NO
PAS	YES
A/C	YES
Voltage	12v

KIT DETAILS

Kit Part No.	0500.7292
Description	Speed reduction Kit
Compressor RPM	3900 @ Max Engine Power Output
Fitting Time	240 Minutes
Suction Fitting	90°
Discharge Fitting	90°
Compressor Belt	4PK 805
Belt Part No.	0820.7321

FOREWORD

The purpose of this manual is to facilitate the installation of a direct drive compressor. The information given is merely instructive, should any complications arise contact the Technical department. The manufacturer's warranty does not cover any problems caused by defective installation or alterations made unless authorised. The manufacturer shall not be responsible for any injury, damage or loss caused directly or indirectly as a result of using this manual or the information contained within it.

1 SAFETY MEASURES:

Before fitting the Compressor adapter drive kit, ensure the following for damage:

- a Inner and outer trim and body work
- b Engine idle pace
- c Check all the vehicle functions

Check list:

- a Ensure that the right kit has been selected
- b Before installing, check that all the correct pieces are present; also ensure that there are no missing or broken pieces
- c When fitting, make sure the vehicle is properly protected against damage.

Installation apparatus

- a Calibrated torque wrench
- b Hand service tools
- c Protective covers and shields

2 PRECAUTIONS

- a Detach the battery negative lead.
- b Torque all bolts where stated using a calibrated torque wrench.
- c Take extreme care with moving parts.
- d Remove the vehicle's ignition key and keep it with you.
- e Wear safeguards and make sure that liquid refrigerant never touches your skin

Caution: Measures must be followed accurately to steer clear of the possibility of damage to individuals

Warning: This calls awareness to actions which must be pursued to avoid damage to the components.

NB: This calls awareness to make the job easier or gives useful information.

N.B Prior to commencing work, please examine the instructions with care. The alphabetical symbols on the diagram relate to written instructions, numerical symbols relate to the parts listing.

PRE - INSTALLATION

1. Recover the air-conditioning gas.
2. Remove engine under panel (A) and side panel (B) - Fig 1
3. Front bumper (C) 8 x M6 bolts and 10x screws - Fig 2
4. Head light (D) 3 x M6 bolts and disconnect wiring harness - Fig 2

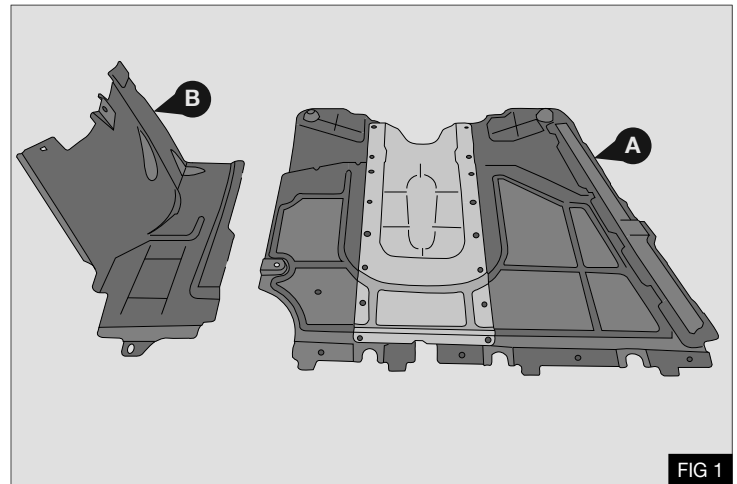


FIG 1

5. Remove bolt securing the oil cooler (E), and nut securing oil cooler pipes (E), Disconnect wiring harness supports, Remove the crash member (F) - Figs 3,4
6. Disconnect intercooler hoses (G) and (H) remove 3 x fasteners securing intercooler pipes to chassis. Fig 3

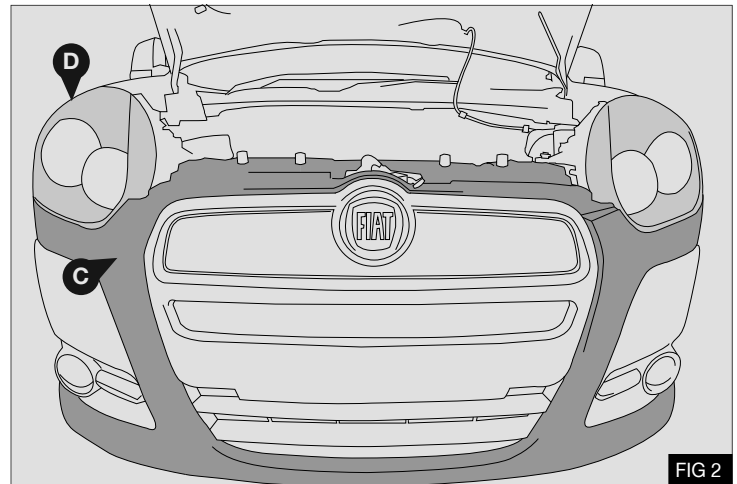


FIG 2

7. Remove bolt (I) securing the air-conditioning hoses to the condenser -retain bolt and seals - Fig 4
8. Remove discharge hose clip and bolt (J) - Fig 4

Note: Replacement hose clamps are provided with the mount kit

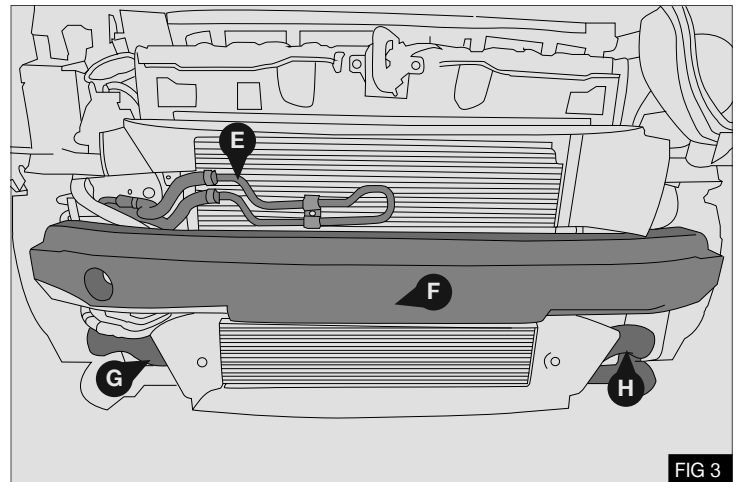


FIG 3

7. Remove bolt (I) securing the air-conditioning hoses to the condenser -retain bolt and seals - Fig 4

CAUTION: Ensure air-conditioning system gas is completely recovered before this operation.

8. Remove discharge hose clip and bolt (J) - Fig 4

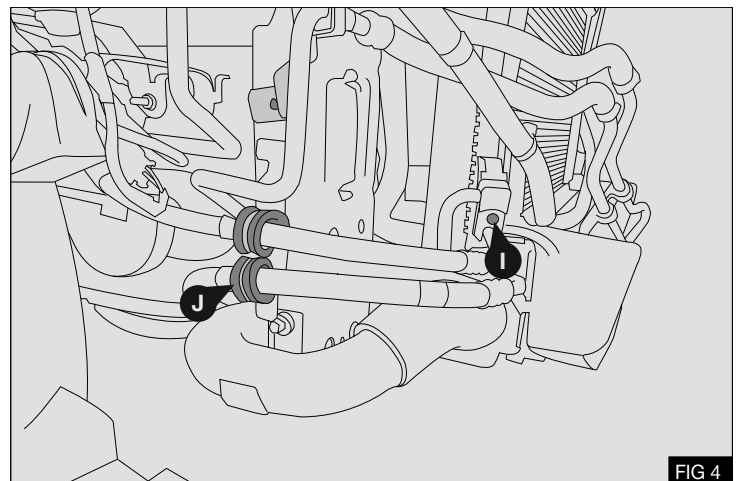
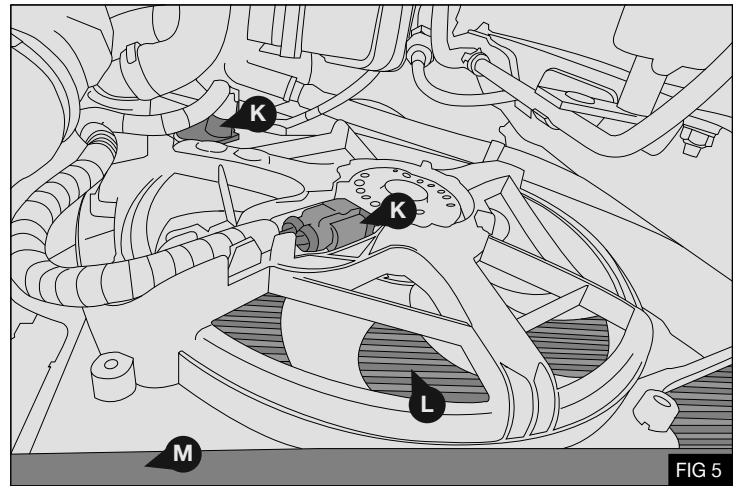


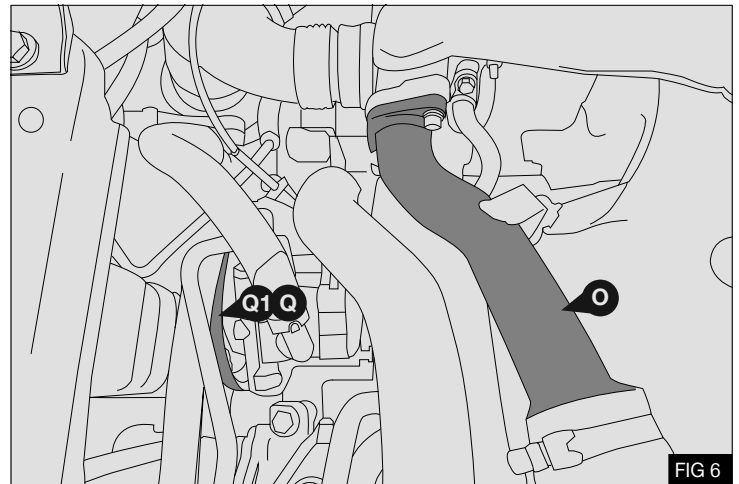
FIG 4

9. Disconnect wiring harness plugs (K) and release harness from its supports - Fig 5
10. Drain engine coolant into a suitable container and retain for re-use.
11. Disconnect all coolant hoses from radiator assembly (L) - Fig 5
12. Remove fasteners securing radiator lower support (M) and remove radiator assembly (L) - Fig 5

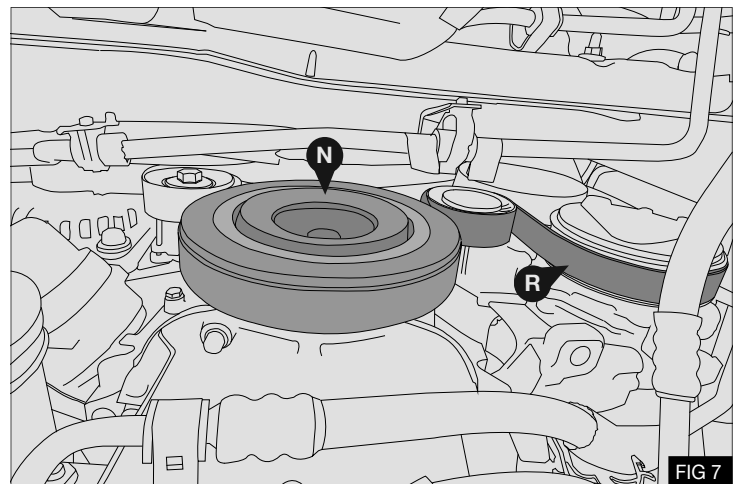
Note: Take care not to damage any vehicle components during this operation.



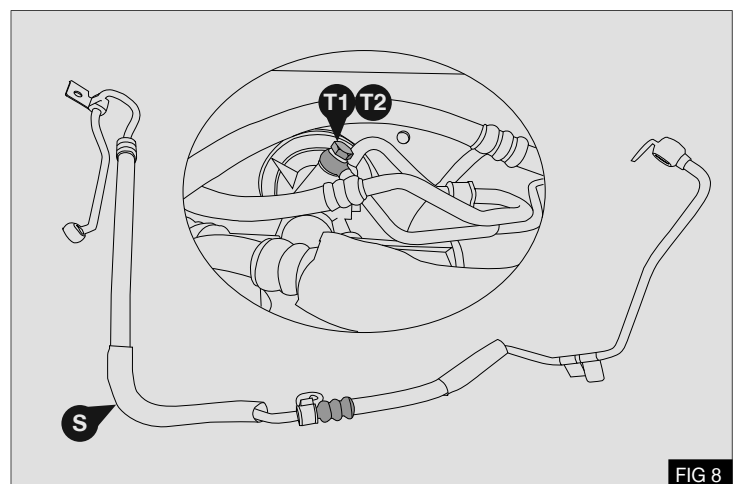
13. Remove turbo pipe (O) - Fig 6
14. Slacken the 3 x M8 bolts (Q1) securing the PAS drive pulley (Q) - Fig 6



15. Release the tension on the drive belt (R) and lock automatic belt tensioner using a 4mm dia pin. Remove drive belt (R) mark direction of rotation and retain belt for re-use. Remove and discard fasteners securing crankshaft pulley (N) - Fig 7



16. Drain PAS system into a suitable container. Remove and discard hose assembly (S) - retain connecting (banjo) bolt (T1) and copper seals (T2) from the steering rack. - Fig 8



17. Remove and discard the air-conditioning hose set (U) – retain fasteners and seals - Fig 9

NOTE: Protect the open compressor / condenser / evaporator ports after the pipes are removed.

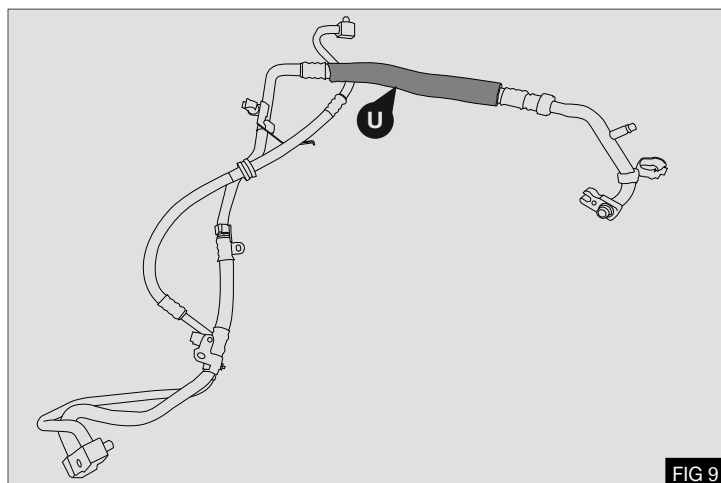


FIG 9

18. Remove the PAS pulley (Q), Disconnect PAS feed hose; remove the PAS pump (V) – Retain fasteners - Fig 10

19. Remove the air-conditioning compressor (W) – Retain fasteners. - Fig 10

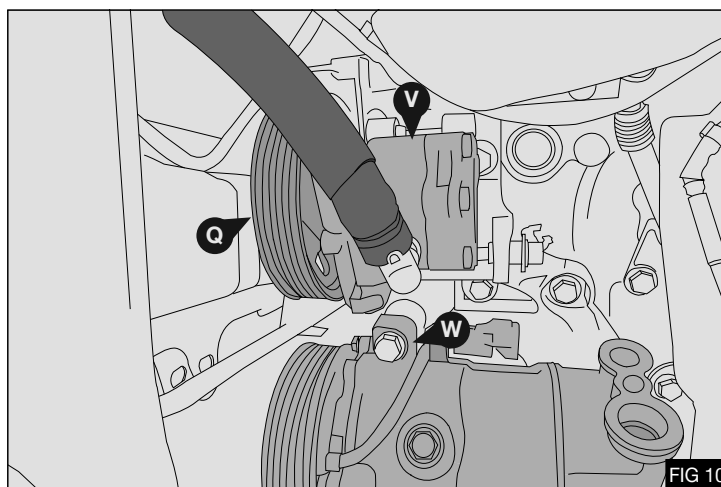


FIG 10

20. Remove the mounting bracket (Z) – retain fasteners (Z1) and Idle pulley (Z2) and sliding spacer (Z3) - Fig 11

NOTE: Alignment bushes must remain in the engine block.

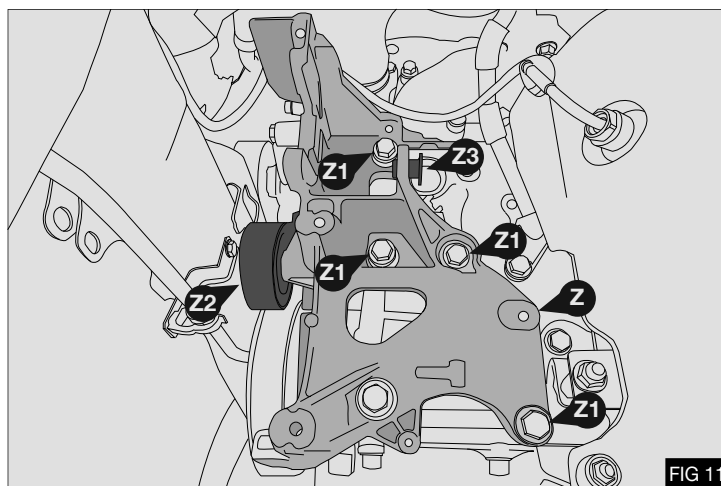


FIG 11

INSTALLATION

DRIVE PULLEY INSTALLATION

1. Fit the crankshaft pulley (2) using 4x M8x60 cap head bolts (6) - Fig 12
2. Torque bolts (6) to 35Nm/26Lbft

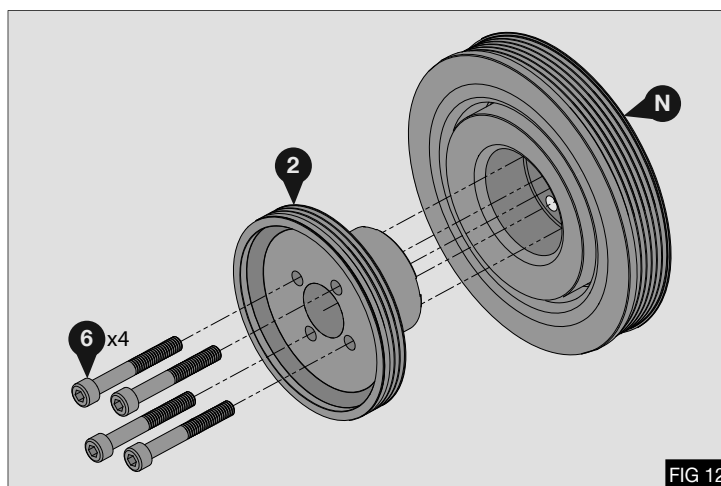


FIG 12

MOUNT BRACKET

3. Fit the original idle pulley (Z2) to the mount bracket (1) using the original fastener. Insert sliding spacer (Z3) - Fig 13
4. Torque bolt (Z2) to 45Nm/ 33Lbft
5. Fit the bracket assembly to the engine using original M10x45 bolts (Z1), and supplied M10x45 cap head bolt (5). Use original location dowels for alignment - Figs 14 &15
6. Torque bolts (Z1) to 45Nm/ 33Lbft
7. Torque bolt (5) to 50Nm/36.8Lbft

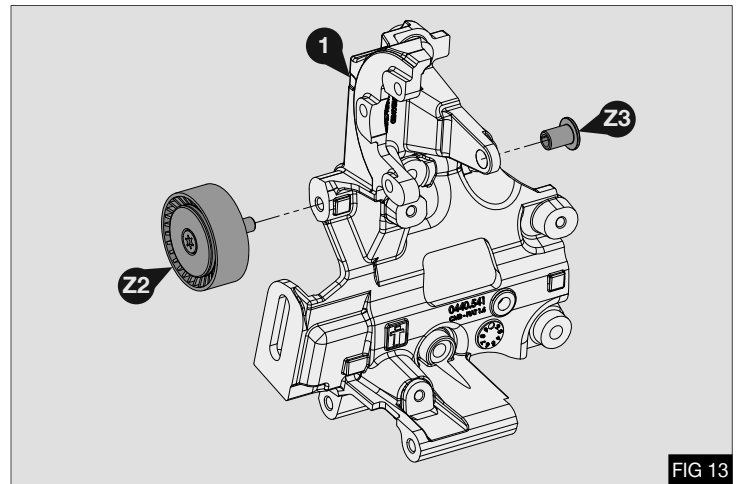


FIG 13

5. Fit the bracket assembly to the engine using original M10x45 bolts (Z1), and supplied M10x45 cap head bolt (5). Use original location dowels for alignment - Figs 14 &15

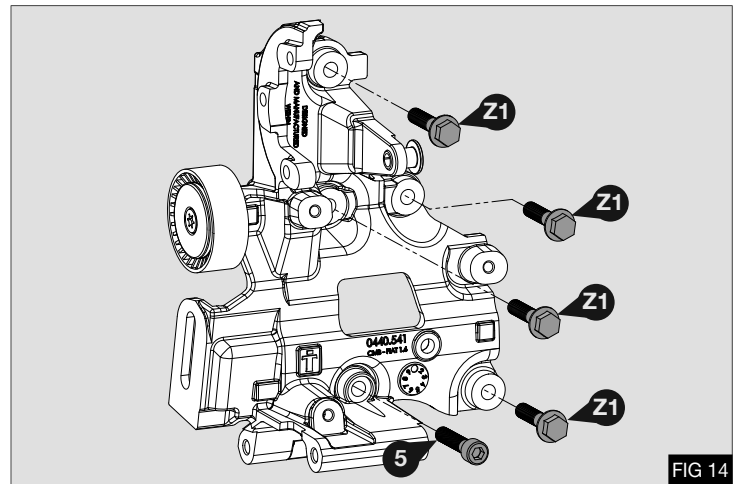


FIG 14

6. Torque bolts (Z1) to 45Nm/ 33Lbft
7. Torque bolt (5) to 50Nm/36.8Lbft

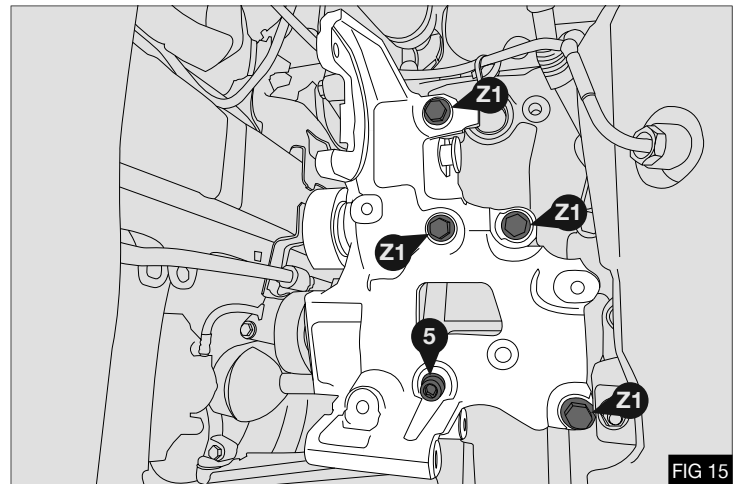


FIG 15

8. Fit the PAS pump (V) to the bracket (1) using original bolts with washers (V1), Fit PAS pulley (Q) and secure with original M8 bolts (V2) - Fig 16

Warning : Ensure PAS pulley is installed with the correct orientation.

9. Torque bolts (V1) to 25Nm/18.5Lbft
10. Torque bolts (V2) to 22Nm/16.2Lbft

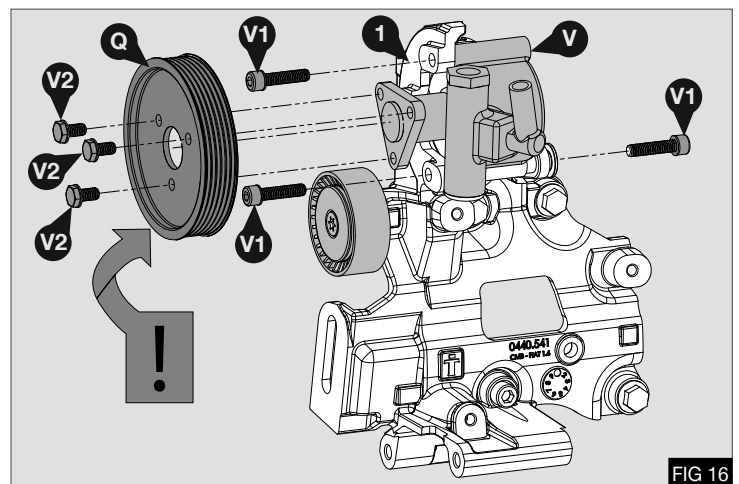
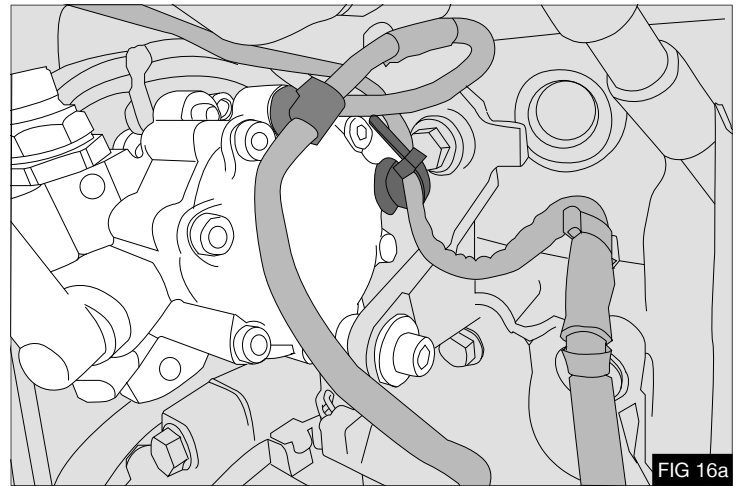


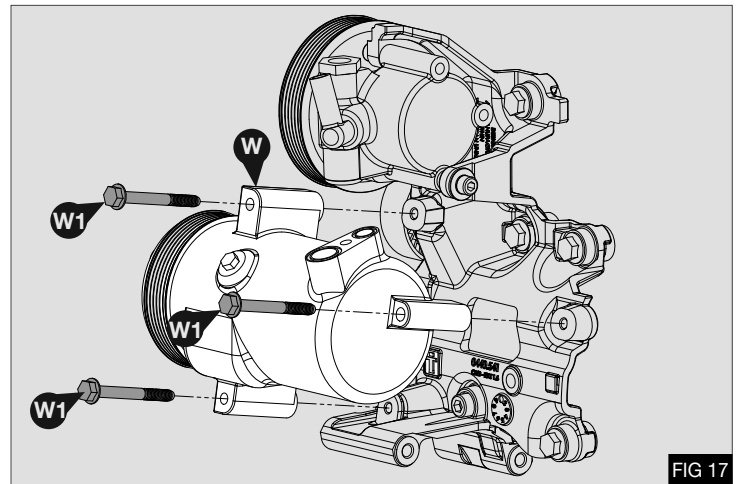
FIG 16

11. Secure harness clips to holes in PAS pump - Fig 16a

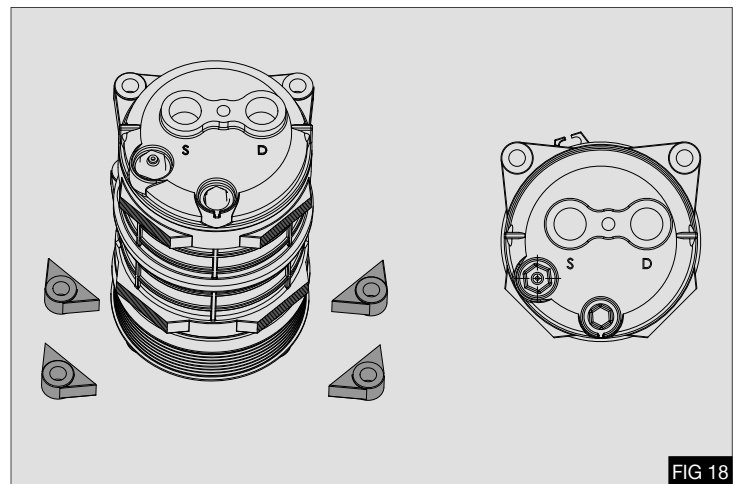


12. Install the air-conditioning compressor (W) using original Bolts (W1) - Fig 17

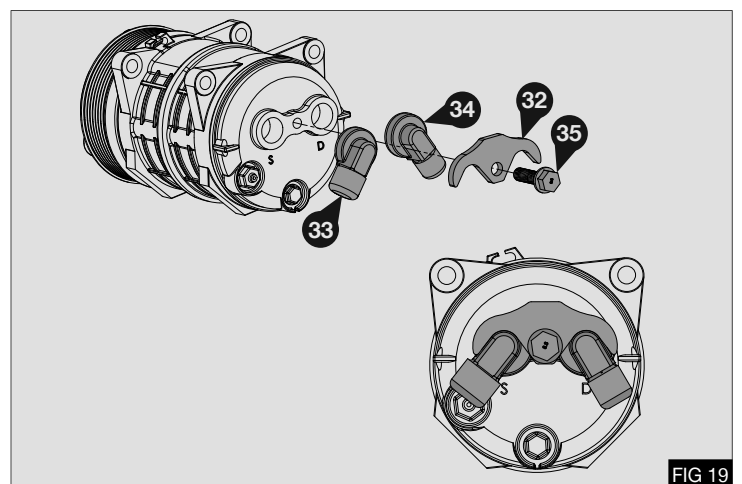
13. Torque bolts (W1) to 25Nm/18.5Lbft



14. Remove compressor ears as indicated. - Fig 18



15. Assemble the compressor manifold parts (32), (33), (34), (35) onto the compressor. - Fig 19



COMPRESSOR INSTALLATION

1. Fit compressor assembly to the mount bracket (1) using 4 x M10 x 30 bolts (20) - Fig 20
2. Torque the bolts (20) to 58Nm/43Lbft

NOTE: Torque bolts at the front of the compressor first.

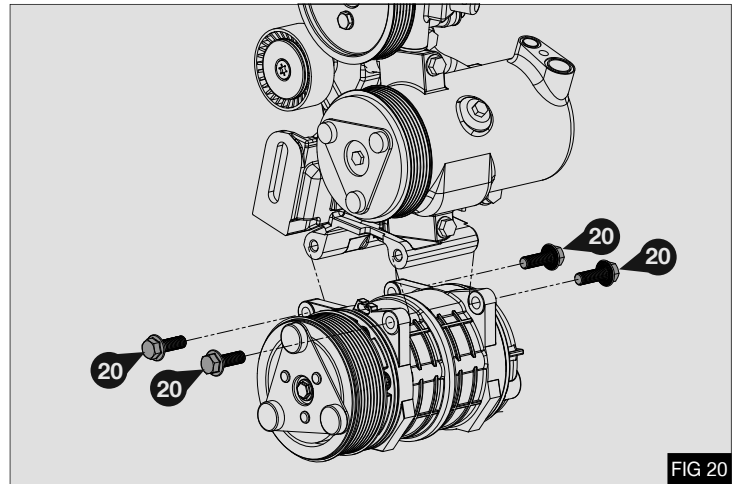


FIG 20

3. Fit the original drive belt (R) as shown. - Fig 21

- A. Crankshaft pulley
- B. Automatic tensioner
- C. Alternator
- D. Reverse idle pulley
- E. PAS pump
- F. AC compressor
- G. Reverse idle pulley

4. Release the automatic tensioner

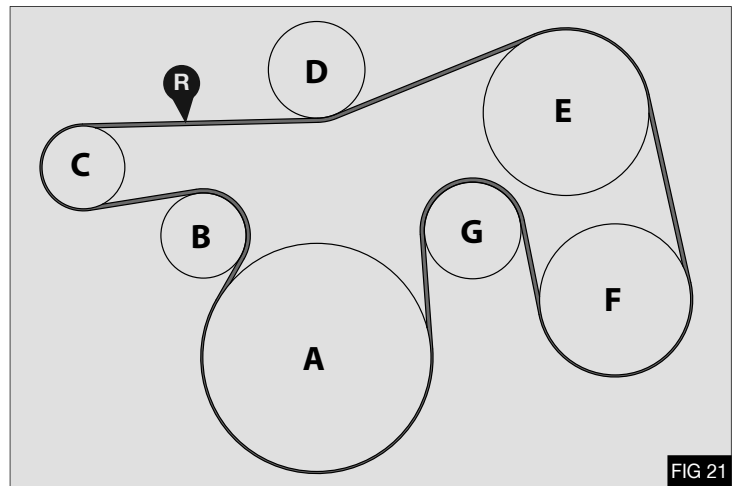
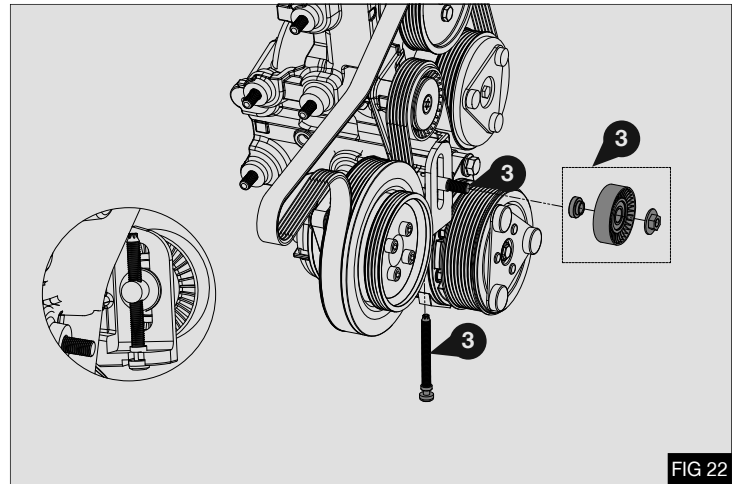


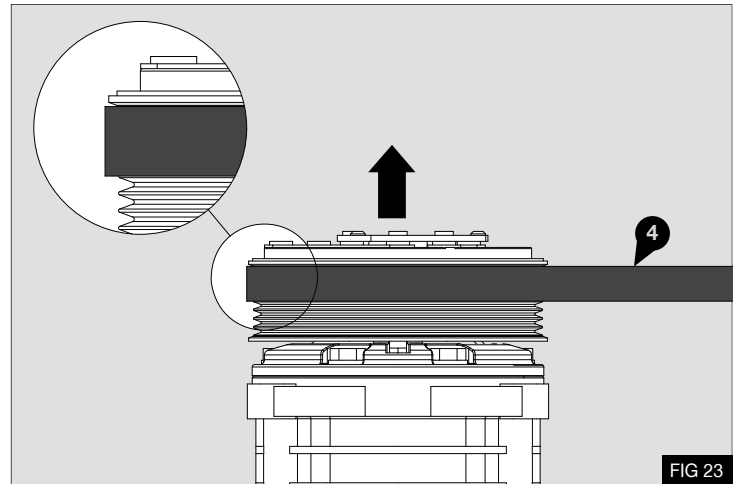
FIG 21

COMPRESSOR BELT

1. Assemble the tensioner parts (3) onto the bracket (1) - Fig 22

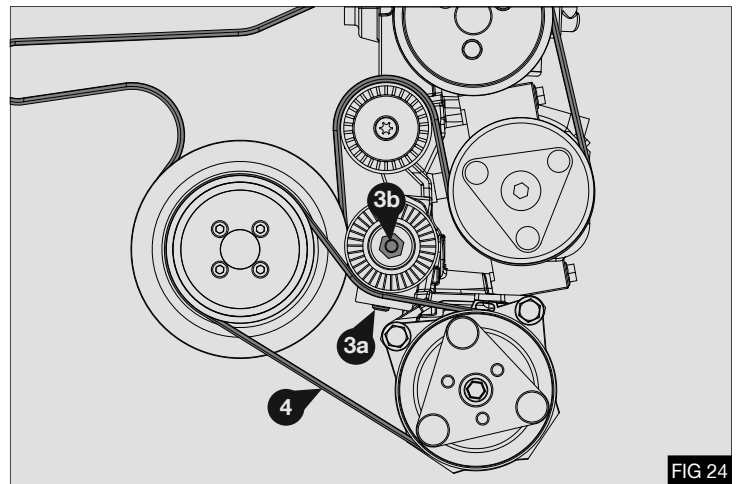


2. Install the compressor belt (4) into the correct grooves - Fig 23



3. Tension belt using bolt (3a), once correct tension is achieved (see table) tighten pulley nut (3b) - Fig 24

4. Torque nut (3b) to 25Nm / 18Lbft



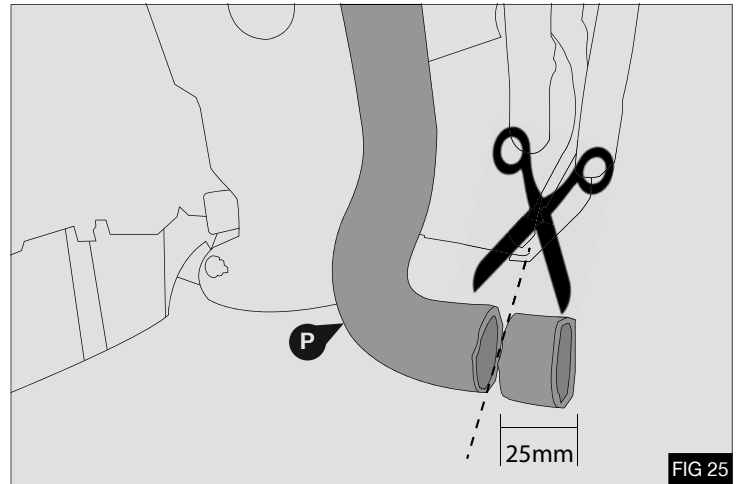
BELT TENSION TABLE

Belt	Belt Age	Belt Tension Using Belt Tension Gauge
4PK	New Belt	48 - 56 kg
4PK	Used Belt	36 - 40 kg

HOSES

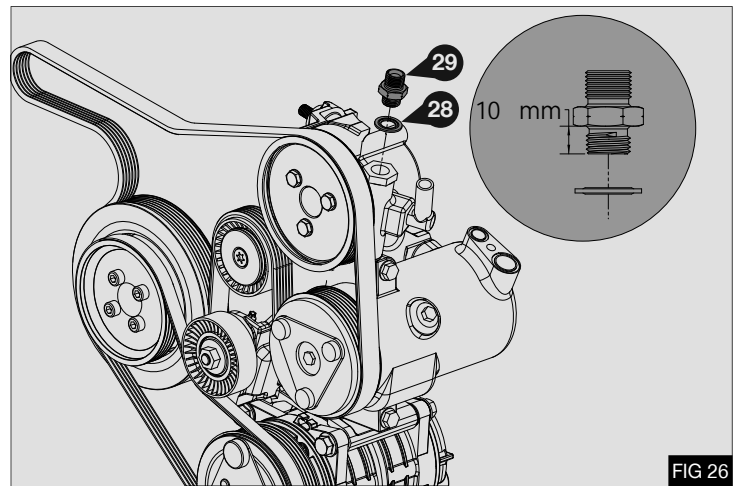
1. Modify the coolant hose (P) by removing a 20mm section - Fig 25

NOTE: This operation is necessary to improve clearance to the refrigeration compressor.



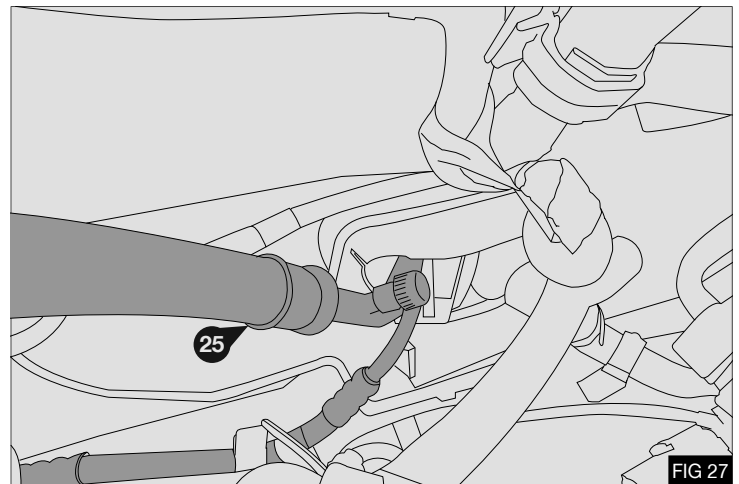
2. Fit the adaptor (29) with sealing washer (28) to the PAS pump, lubricate thread prior to installation.

CAUTION: Ensure the adaptor (29) is orientated correctly as indicated in Fig 26

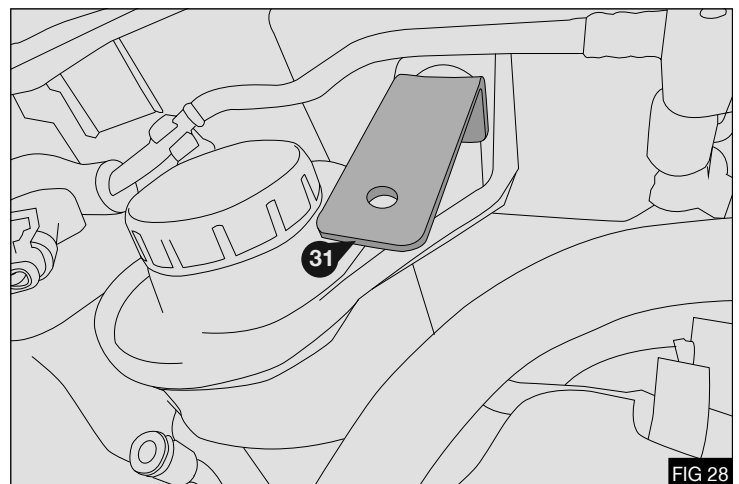


3. Torque adaptor (29) to 45Nm / 33Lbft

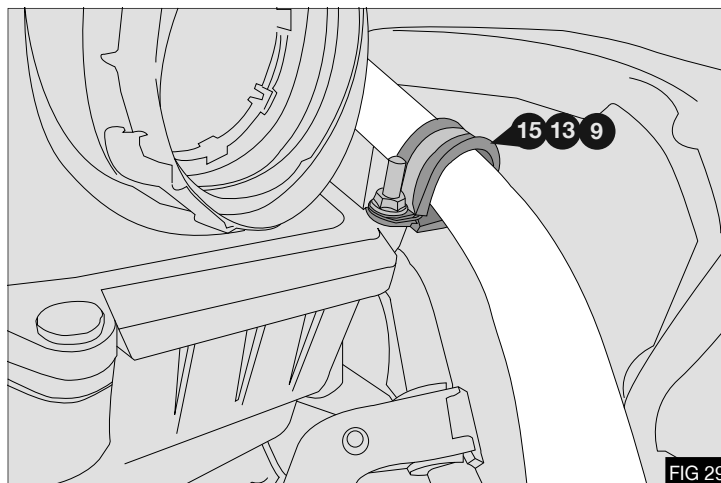
4. Fit original 'O' ring seal to suction hose assembly (25)
5. Connect hose assembly (25) and original hose assembly to the expansion valve, position as shown and secure using the original M6 nut - Fig 27



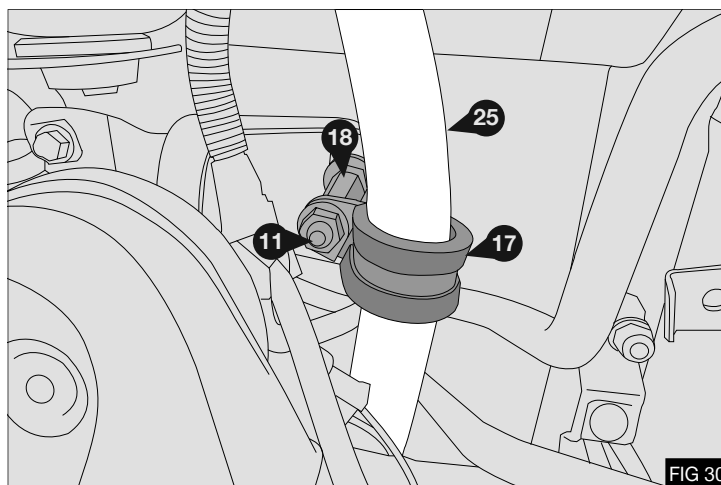
6. Fit hose support plate (31) re-using the original M6 nut - Fig 28



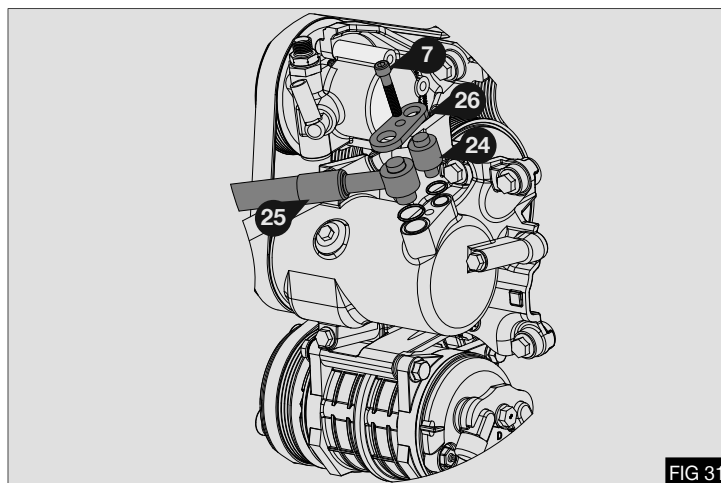
7. Route suction hose (25) along the side of the air box secure to existing hole using pipe clamp (15) with M6 x 25 bolt (13) and nut (9) - Figs 29, 32



8. Connect to the compressor (W) re using the original seal.
- Fig 31
9. Fit threaded pillar (18) to the existing stud for the horn bracket and secure hose (25) with Pipe clamp (17) and M8 nut (11) - Fig 30

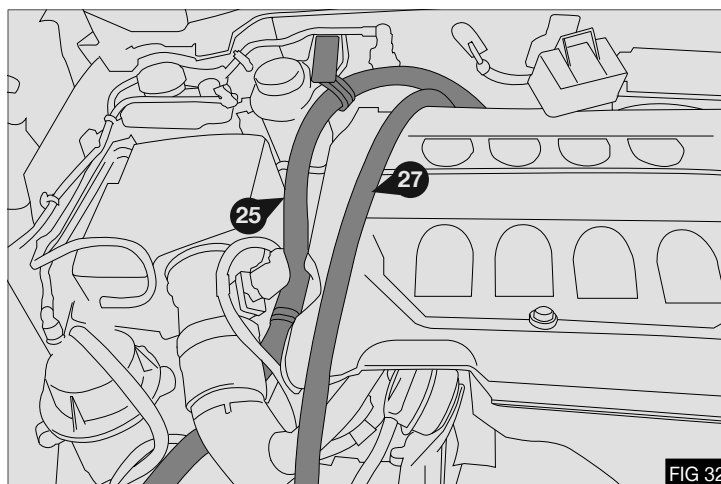


10. Position the discharge hose (24) and connect to the compressor (W) re-using the original seal. Secure using clamp (26) and M8x45 Bolt (7) - Fig 31



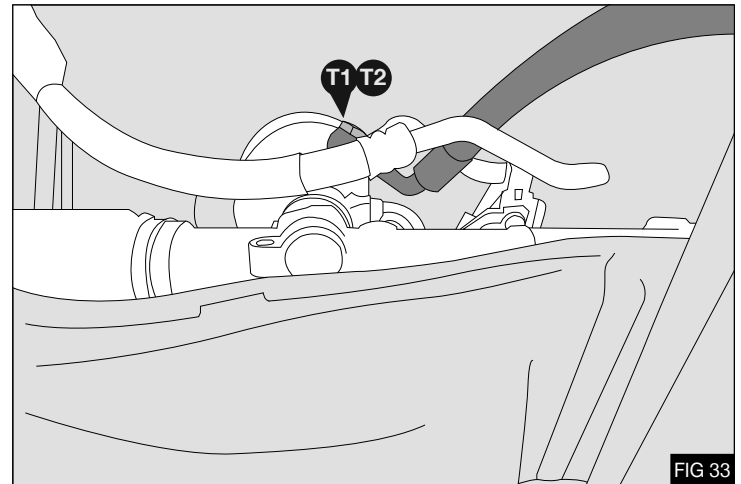
11. Torque bolt (7) to 35Nm/26Lbft

12. Connect PAS hose assembly (27) to the PAS pump adaptor (29) (do not tighten at this stage), route hose as shown and down towards the steering rack - Fig 32

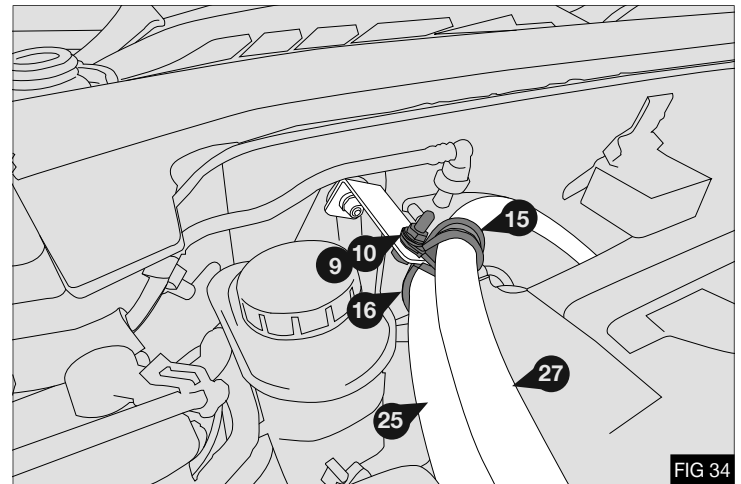


13. Connect hose to steering rack re-using the original seals (T2) and banjo bolt (T1). Position hose for maximum clearance - Fig 33

14. Tighten banjo bolt (T1) to 35Nm/26Lbft



15. Secure PAS hose (27) and Suction hose (25) using pipe clamps (15), (16) with M6 x 25 bolt (10) and nut (9) - Fig 34



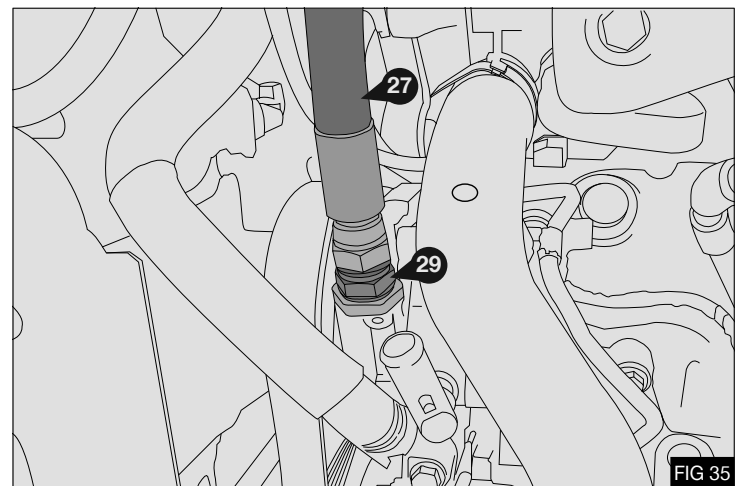
16. Tighten PAS pump hose connection to 47Nm/35Lbft. Re connect PAS feed hose.

CAUTION: Support the adaptor (29) with a wrench to prevent over tightening during this operation

17. Secure wiring as necessary using cable ties (19) - Fig 35

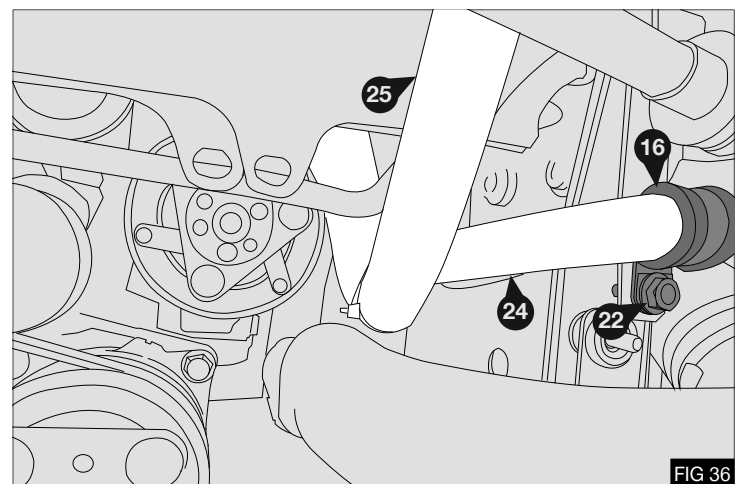
18. Re fit turbo pipe (C).

19. Re fit the radiator assembly (L), re-connect hoses and wiring harness. Use hose clamp (23) to secure the modified hose (P) and hose clamps (14) to secure the intercooler hoses as necessary.



20. Connect discharge hose assembly (24) and original hose assembly to the condenser, re-use seals and secure using original bolt (1). - Not Shown

21. Position hoses (24) and (25) for maximum clearance between air-conditioning compressor pulley and chassis, fit pipe clamp (16) using M6 x 16 Bolt (22), join hoses together using 2x cable ties (19) - Fig 36



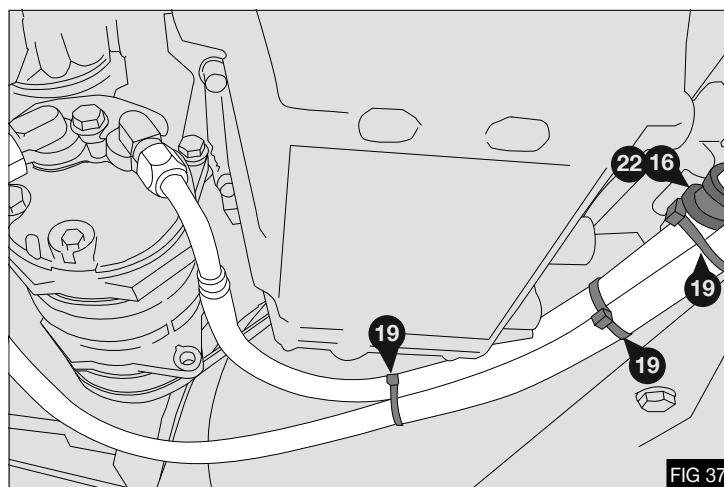
POST INSTALLATION

1. Re-fit the parts previously removed :
 - Oil cooler
 - Crash member
 - Headlight
 - Bumper
 - Engine coolant
 - PAS fluid
 - Re-charge Air conditioning system

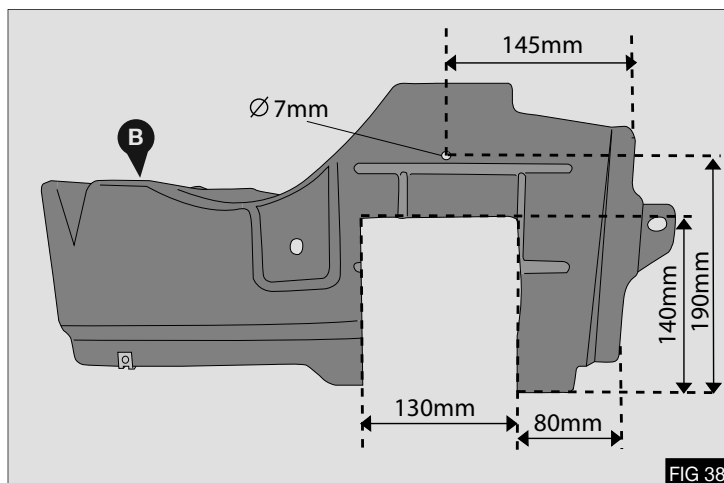
REFRIGERANT HOSES

1. Connect the refrigerant hoses to the manifold(s), position as shown. Secure using cable ties (19) and pipe clamp (16) with M6x16 bolt (22) into the original threaded hole - Fig 37

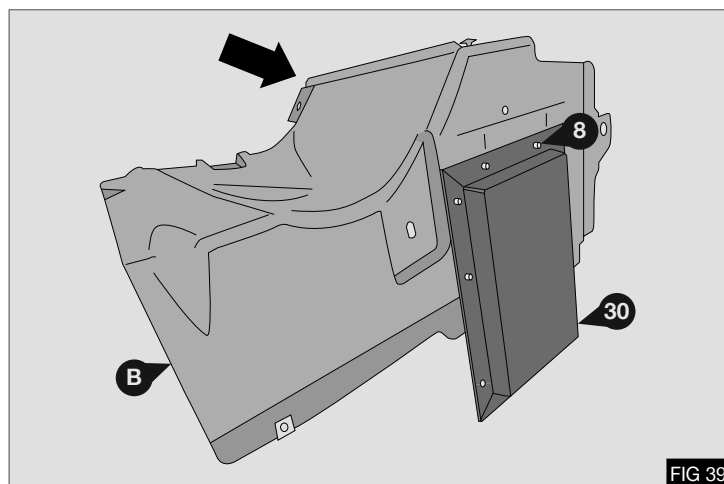
NOTE: The suction hose will later be secured to the side panel.

**UNDER PANEL**

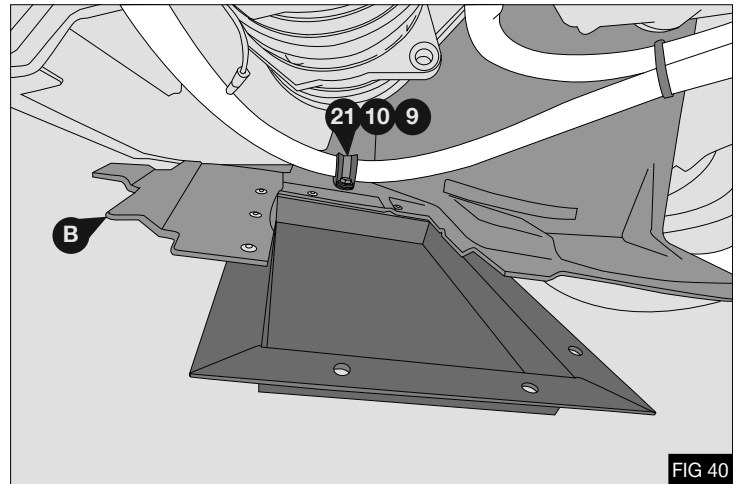
1. Cut section from the side panel (B) and drill a 7mm diameter hole as indicated - Fig 38



2. Using the under panel cover (30) as a guide drill 7 x 4.5mm diameter holes. Secure the cover (30) to the side panel (B) using 7 x rivets (8), Insert rivets from the direction shown - Fig 39

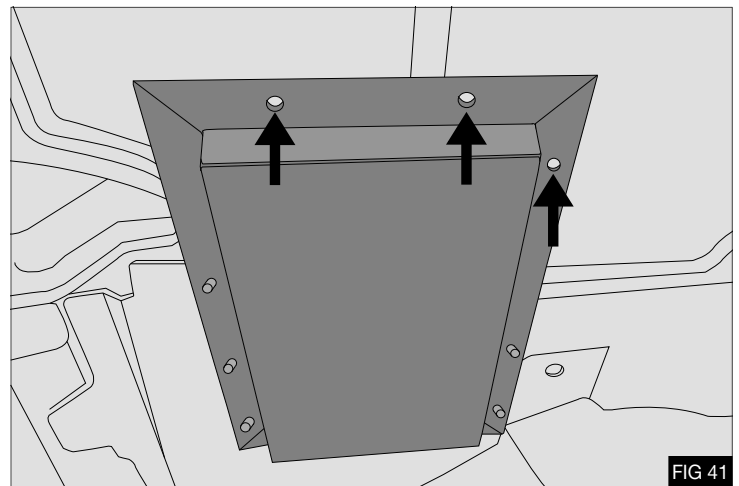


3. Re-fit the side panel assembly (B) using the original fasteners, during this operation secure the suction hose to the side panel using M6x25 bolt (10) and Pipe clamp (21) with M6 nut (9) into pre prepared 7mm hole - Fig 40

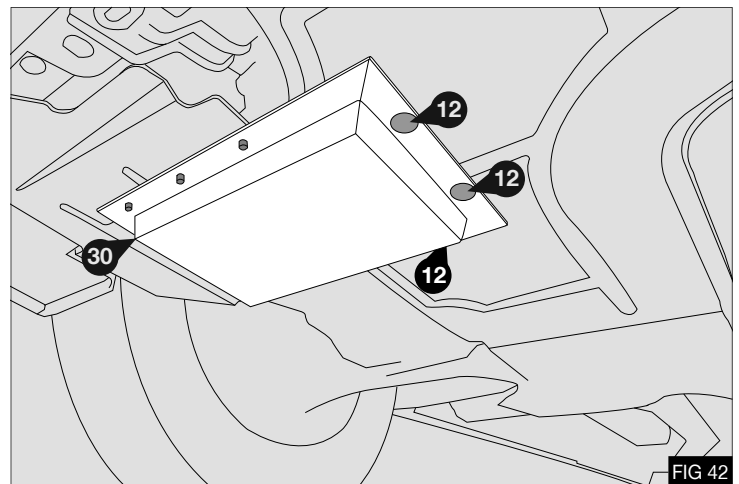


4. Temporarily fit the under panel (A) and mark the position of the 3x 6mm diameter holes from the under panel cover (30), remove the under panel (A) and drill 3x 6mm diameter holes in the under panel (A) - Fig 41

CAUTION: to prevent damage to components DO NOT perform this operation whilst the under panel (A) is fitted to the vehicle.



5. When the installation is complete fit the modified under panel (A) to the vehicle using original fasteners and secure it to the panel cover (30) using 3x plugs (12) - Fig 42



POST INSTALLATION

1. Before starting the engine check all the installed parts and ensure that the belt is installed correctly. Run the unit for at least ten minutes, then check the whole mounting assembly and previously removed parts. Attach the supplied warning label on to a suitable location.
2. Run engine with refrigerant compressor engaged for 10 minutes, Allow drive belts to cool and re-tension as necessary (See table).

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