

TOYOTA FJ-40 DIRECTIONS



*Please read the following directions prior to
installing this a/c system.*

The Nostalgic Air Parts team would like to thank you for your recent purchase of a complete a/c kit for your FJ Cruiser. There are a few steps that must be followed in order for your a/c system to operate properly.

- The **HIGH SIDE** gauge reading should not exceed 200 PSI. We **MUST** have the **HIGH SIDE** gauge reading if you need any assistance in correcting a potential problem.
- If you purchased the a/c compressor from **NAP, DO NOT ADD ANY OIL, DYE, LEAK SEALANTS, OR OTHER ADDITIVES TO ANY PART OF THE SYSTEM.** If oil is required NAP will provide an additional sheet with directions on filling the system with oil.
- Be sure you have the correct pulleys for the engine prior to installing the kit. Pulleys are not included unless specified when the kit is ordered.
- Insulation is very important. Be sure to insulate the firewall and floorboard prior to installing the evaporator unit. It is very important to insulate the floor and firewall behind the evaporator unit.
- There should be adequate airflow from the radiator fan, and a sufficient amount of room between the condenser and radiator. Make sure the **CONDENSER HAS A TUNNEL EFFECT OF AIRFLOW THAT FLOWS THROUGH THE CONDENSER AND RADIATOR.** Foam can be put in between condenser and the radiator edges to achieve a proper airflow effect. There should be ¼” to 1” gap in between the radiator and condenser. **EFFECTS OF INADEQUATE AIRFLOW:** the compressor may act like it is “locking up”, warm air only from the vents, overheating of the engine, high head pressure, air blows cold at idle and blows warm while driving, and more.
- Find the proper flow of the water prior to installing the heater control valve. Water should be turned off prior to entering the evaporator / heating unit. It should only be turned off when the heat is needed. If you are experiencing warm air out of the evaporator check the compressor low side fitting. If it is ice cold then the heater valve is not hooked up properly.
- **DO NOT USE THE SIGHT GLASS!** The system should be charged with R-134a ONLY. If you do not follow this instruction your warranty may be void and you may not be eligible for technical assistance. **EFFECTS OF OVERCHARGING:** Compressor is “noisy”, engine overheating, warm air only from the vents, and more.
- If a problem exists after checking all these conditions you may call or email for technical assistance. **IF YOU DO NOT HAVE THE HIGH SIDE GAUGE READING WE WILL NOT BE ABLE TO ASSIST YOU IN FIXING THE PROBLEM.**

Parts Checklist

Toyota FJ-40 complete a/c kit

- | | |
|---|--------------|
| <input type="checkbox"/> COMPRESSOR | PN: 15-5001 |
| <input type="checkbox"/> CONDENSER | PN: 44-1618 |
| <input type="checkbox"/> STANDARD ORING DRIER | PN: 4-1000 |
| <input type="checkbox"/> DRIER STRAP | PN: 999-1002 |
| <input type="checkbox"/> CONDENSER MOUNT KIT | PN: CS1000 |
| <input type="checkbox"/> HIGH LOW PRESSURE SWITCH | PN: 119-9900 |
| <input type="checkbox"/> R-134a HOSE KIT | PN: HK-920 |
| <input type="checkbox"/> COMPRESSOR MOUNT KIT (ENGINE SPECIFIC) | PN: _____ |
| <input type="checkbox"/> EVAPORATOR KIT | PN: UD-180 |
| <input type="checkbox"/> 2" DUCT HOSE 4 FEET | PN: DH20 |
| <input type="checkbox"/> BLOCK OFF PLATE | PN: P-414 |
| <input type="checkbox"/> BLOCK OFF PLATE | PN: P-415 |
| <input type="checkbox"/> EVAPORATOR MOUNT BRACKET RIGHT | PN: 999-1014 |
| <input type="checkbox"/> EVAPORATOR MOUNT BRACKET LEFT | PN: 999-1015 |
| <input type="checkbox"/> EVAPORATOR SUPPORT BRACKET | PN: 999-1035 |
| <input type="checkbox"/> EVAPORATOR PARTS BAG | PN: 77-4014 |

77-4014 IS LOCATED IN THE EVAPORATOR KIT BOX

Parts included in 77-4014:

77-9402 Drain tube two foot

G101 Grommets x 4

Self tapping screws x 10

1/4-20 X 3/4 Bolts, washers, and lock washer

77-3007 bowden cable x 2

77-3002 heater control valve with clips

8mm nut w/ washers

77-1001 x 1 Cork tape

- KIT DIRECTIONS

Checked by _____

*This checklist serves as a reference of all the parts included with this kit.

STEP ONE

Installing the Evaporator unit:

- 1) Remove the old heater system from inside the Cruiser. The old heater lines, and heater control valve, on the outside of the firewall, need to be removed also.
- 2) Remove the original blower fan located on the passenger side firewall.
- 3) Install the new firewall block off plate with grommets. Use the original bolts from the blower fan assembly to mount the block off plate. See Figure 1.1

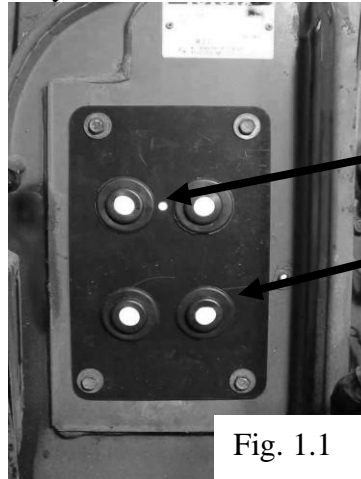
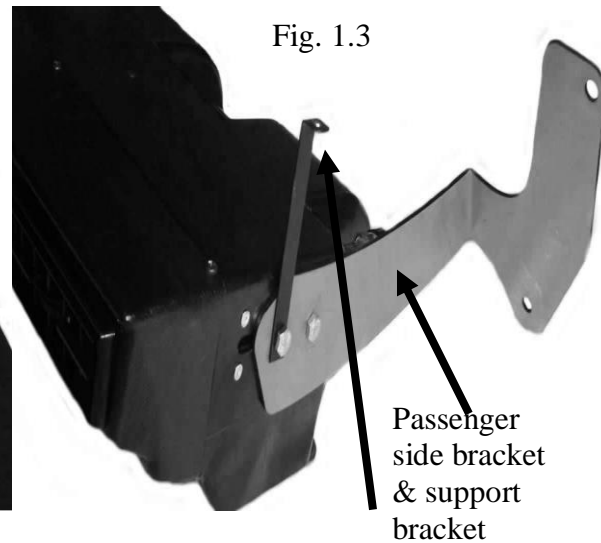
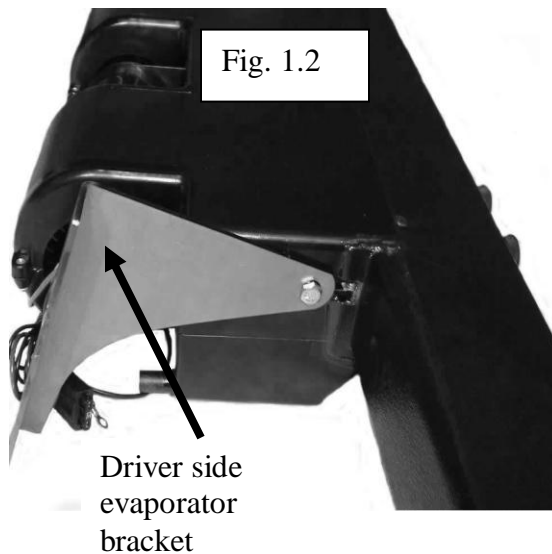
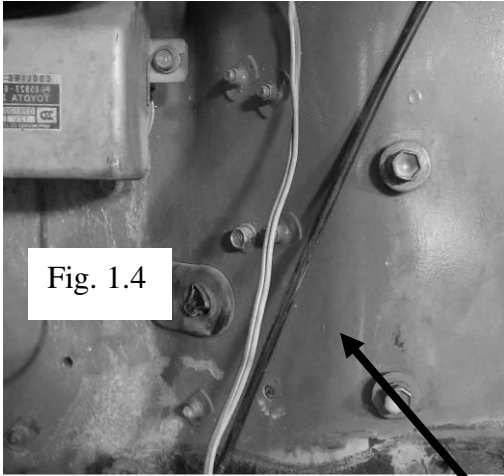


Fig. 1.1

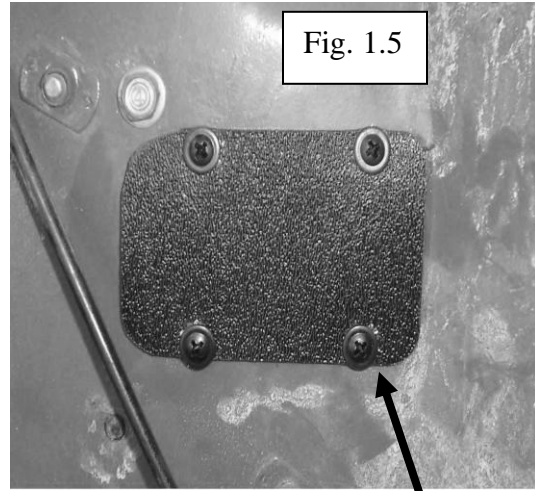
- 4) Attach the brackets to the evaporator unit. Attach the support bracket to the passenger side as well. Use only one bolt on the driver side bracket; use two on the passenger side. Do not tighten the bolts until final installation (after a/c lines and heater hoses are attached). See figure 1.2 & 1.3



- 5) Remove original grommet from heater tube hole in firewall. Attach new block off plate on the inside of the firewall, with enclosed four self-tapping screws. See figure 1.4 and 1.5



Original heater line grommet



Heater line block off plate

- 6) Mount the evaporator unit to the firewall. Use three of the original bolts that and one 8mm nut with washer and lock washer. (The two bolts in fig. 1.4 are for mounting the evaporator unit. Above and below the box that says “Fig. 1.4”). See figure 1.6 for passenger side hole locations.

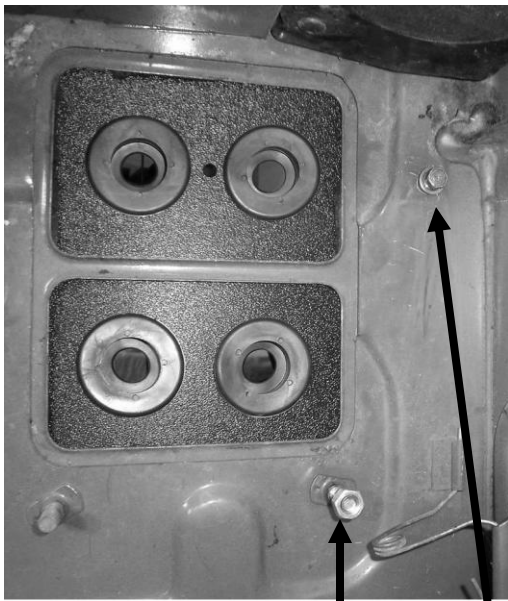


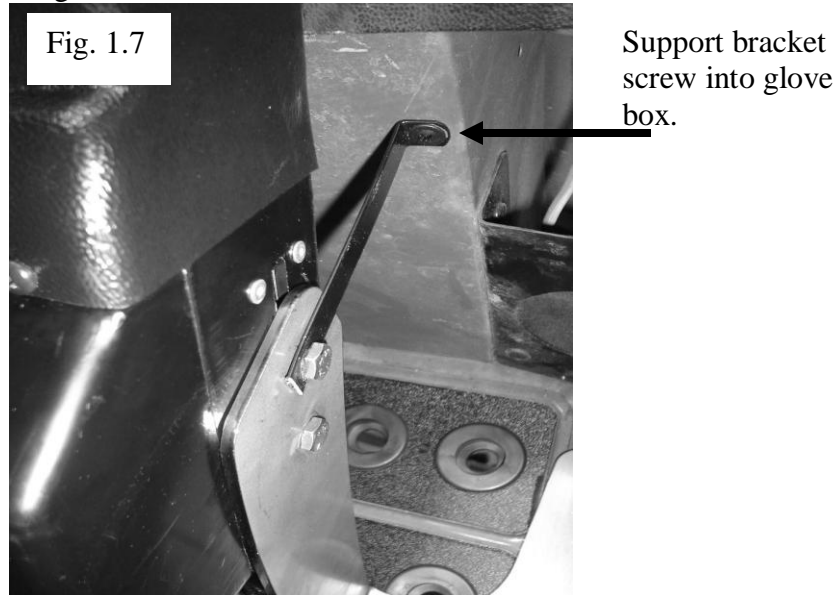
Fig. 1.6
Passenger side
mounting holes

8mm nut
included with
kit.
Original bolt.

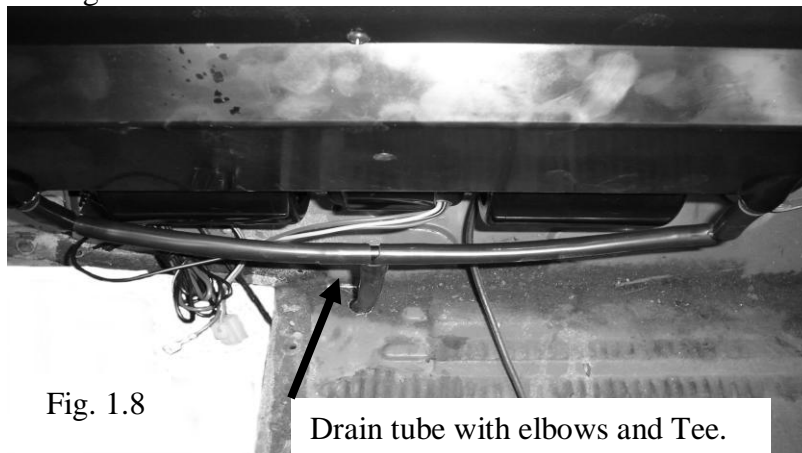


Passenger side bracket with support
bracket

- 7) After the a/c lines and heater hoses are attached the evaporator is ready to tighten into place. Attach the support bracket with the supplied screw to the bottom of the dashboard. See figure 1.7



- 8) Defrost option: Run the two duct hoses to the original outlets for the defrosters. If the hose is too small use black duct tape to attach the lines. Use the original defrost cable or the supplied cable for defrost operation.
- 9) Heater control valve hookup can be used with the supplied cable or the original cable. Be sure valve is off when water is going into the evaporator.
- 10) After the hoses are attached wrap the fittings on the evaporator hoses with the black cork tape
- 11) The drain tube should be inserted through the floorboard, use a $\frac{3}{4}$ " hole for the tube. See figure 1.8



Wiring:

- 1) There are three wires for the entire system. (Unless you have vacuum or electric valves)
- 2) Wire with a fuse inline. This wire should be connected to an ignition source; power with the key on
- 3) Ground wire. On the back of the evaporator there is a black wire with a loop attached. Ground this to a piece of metal with a self-tapping screw.
- 4) Compressor wire. Run the compressor wire through the hole in the firewall block off plate, the wire will hook into the binary pressure switch (installed in the drier) then to the compressor. The binary cannot be hooked up incorrectly it is an inline switch.
- 5) **DO NOT HOOK UP THE COMPRESSOR WIRE UNTIL THE SYSTEM IS READY TO BE CHARGED, DOING SO COULD CAUSE MAJOR DAMAGE TO THE COMPRESSOR.**

STEP TWO

Installing the condenser:

- 1) The condenser will have to be mounted so the small fitting, #6, is on the bottom the large fitting at the top. When mounting the condenser in front of the radiator, again make sure the small fitting is on the bottom, and the large fitting is on the top. Use the flat brackets to install the condenser, with the included screws attach the brackets to the radiator core support and to the condenser.
- 2) **DO NOT INSTALL THE CONDENSER ON THE INSIDE OF THE RADIATOR**, between the motor and the radiator.
- 3) Please be sure not to puncture the condenser when installing it, there are holes designated for the mounting brackets.
- 4) The condenser should be .25" to 1" away from the radiator, if more space is needed be sure to fill the sides of the condenser in with a foam fill. The object is to get a tunnel effect of air through the condenser and radiator; you do not want air to escape between the two.

STEP THREE

Installing the drier and binary switch:

- 1) The drier can be installed in any location you choose, be sure to mount the drier so the fittings are on the top.
- 2) The drier has “IN” on the top, the “IN” should be facing the front of the car, the hoses will run from the condenser “IN” the drier and out to the expansion valve.
- 3) **DO NOT USE THE SIGHT GLASS**, if R-134a is being used.
- 4) The binary switch is to be mounted in the drier. There are two plugs (hex head bolts) on both sides of the drier some driers only have one. Unscrew one plug and install the binary into the switch port. Be sure the o-ring is on the binary switch, remove the green thread cover prior to installing.
- 5) The binary switch should on be tightened one quarter of a turn past snug.



STEP FOUR

Installing the mount kit and compressor:

- 1) The mount kit will include directions for installation, please use the directions. Please note that mount kits are designed for particular engines, but many engines are built with components that do not match applications to the original setup. If the bracket does not fit exact please understand some minor fabrication may be required.
- 2) When installing the bracket, leave the bolts loose until the compressor is mounted. It is very easy to crack a compressor if the bracket is not installed properly. Please tighten the entire bracket in a random order; while tightening do not strain any one point.
- 3) If a belt is not included, use a string to measure the length of the belt, or refer to the mount kit directions for the belt size.
- 4) Pulleys are not included with kits, unless it is specified. Chevy engines require double groove water pump pulleys, triple groove crank pulleys if running power steering, and a double groove power steering pulley.
- 5) When mounting the compressor be sure to make sure the hoses and charging ports clear the hood and the inner fender.
- 6) The compressor can be mounted with the fittings pointing in any direction. If the fittings are pointed at any angle lower than 45 degrees be sure to attach the crimped a/c hoses first. It is not recommended to mount the compressor on any angle over 45 degrees, only do so if the bracket is designed to fit the compressor on an odd angle. If the hoses are not attached first the oil can drain out, which can cause a system failure
- 7) **THE COMPRESSOR IS FULL OF OIL NO ADDITIONAL OIL IS REQUIRED.** Attach the hoses, and leave the oil alone, don't add any oil to any part of the system. If oil is added the system could have many problems. A few are a sour milk smell from the vents, improper cooling, expansion valve failure, and a noisy compressor.

STEP FIVE

A/C hose routing and installation:

- 1) The a/c hoses are to be crimped with an a/c hose-crimping tool. Most a/c stores, and some auto parts stores have crimping tools. The hoses can be hooked up in any order. The hose kit is a universal hose kit there will be left over fittings and hose when the job is done.
- 2) Starting with the large hose #10 or 1/2". This hose goes from the large fitting on the compressor to the evaporator unit. The compressor will get the fitting with the charging port, low side. This hose will run through the firewall so be sure to use a grommet, 1-1/4" hole required.
- 3) The next size hose is #8 or 13/32". This hose runs from the compressor to the condenser. The compressor will get the fitting with the high side charging port on it. The condenser fitting connects to the fitting at the top of the condenser. When running the hose through or around the core support make sure it is protected with loom. A hole can be rubbed into the hoses if they are against metal edges.
- 4) The third and fourth hose to install is the # 6 or 5/16" hose. Start with the # 6 hose that runs from the bottom fitting on the condenser to the "IN" fitting on the drier. From the drier the hose will go through the firewall and grommet, 1-1/4" hole, to the expansion valve on the evaporator. After this hose is attached, place the black insulation tape over the fittings. Keep the #10 and #6 hoses close together when routing through the firewall, it makes the evaporator installation process easier.
- 5) The fittings included with the hose kit can be used in any manner necessary to run the hoses without kinking the lines. Make sure the hoses do not rub edges without protection, and be sure to include O-rings on all the connections. Oil is not necessary on the o-rings, it can be added to the threads on the fittings to stop them from seizing. DO NOT USE TEFLON TAPE. Tie the hoses down from flopping around, and keep the hoses off of the exhaust.

Heater hose installation:

- 1) The heater hoses on the evaporator will attach into the existing heater hose connections on the engine. The hoses can be hooked up to either side of the heater core in the car. If the heater hoses are kinking due to the directions of the heater outlets and the dashboard, 180-degree pre-made hoses are available at most parts stores. This will eliminate the kinking of the heater hose under the dashboard. The heater hoses are 5/8 on the heater core, if your vehicle has 3/4" outlets, step down adapters are available at most parts stores.
- 2) After the heater hoses are installed, the heater control valve needs to be placed in the heater valve. This valve **MUST** turn the water off prior to the water entering the heater core. If the water flows through the core, the gauges will read correct, and the temperature of the unit will only get to 65 degrees out of the vents. If you are unsure of the water flow, turn the engine over with the heater hoses disconnected from the engine to determine the direction of flow.
- 3) A cable is provided to operate the heater valve. This cable needs to be attached to the valve so the valve opens when the cable is pulled. The valve should go under the hood in the engine compartment. If you wish to use the original heater controls, use the existing cable to hook up to the control valve. The pull cable can be mounted in or under the dash.

STEP SIX

Charging the system:

- 1) **DO NOT ADD OIL TO ANY PART OF THE SYSTEM. DO NOT USE DYE, LEAK SEALANTS, OR ALTERNATIVE REFRIGERANTS IN THE SYSTEM.** We are not able to diagnose problems if the directions are not followed.
- 2) The system should be evacuated in order to achieve maximum cooling from the system.
- 3) After the system is evacuated and ready to charge, plug the compressor wire in.
- 4) When charging the system start with 1.5 LBS of R-134a refrigerant. The ideal pressures of the system are 15-28 on the low side and 180-220 on the high side. If the system is not within this range with 1.5lbs of R-134a add more freon in .25LB increments. If the high side gets high, and the low side stays low you have a condenser-cooling problem. Please see the first page.

If more assistance is needed please email or call us.

Thanks again for the purchase.