Basic Operation

Boom - Telescopic Operation

3 Stage Boom

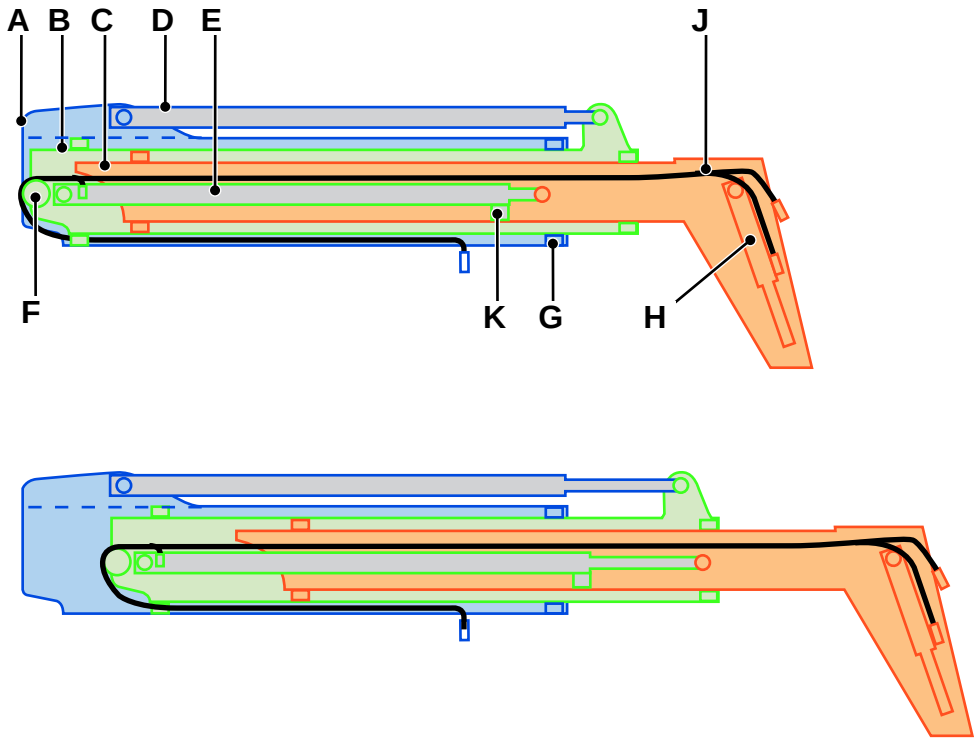

Fig 1.

The telescopic boom consists of three sections, an inner **1C**, intermediate **1B** and outer **1A** section.

When the boom is extended or retracted the inner and outer sections move simultaneously. This is achieved by hydraulically interconnecting the inner and outer extension rams (**1E** and **1D**). See ***Section E*** for an explanation of the hydraulic operation.

From the diagrams we can see that the hydraulic hoses **1J** connected to the tilt ram, auxiliary service and inner extension ram (telescopic services) are arranged to follow the movement of the inner and intermediate boom sections. As the boom extends the hose runs at the bottom of the inner boom are drawn around the guide roller **1F** and along the top of the inner extension ram **1E**.

If the inner and intermediate booms move out of phase the telescopic service hoses will be damaged. Should a hose of the incorrect length be fitted damage can also occur.

Important: *To ensure the reliable operation of the telescopic function it is critical that the hoses are routed and fitted correctly.*

To ensure the correct clearances and smooth movement between the boom sections special wear pads **1G** together with shims are fitted. Wear pads are fitted at the top, bottom and sides at both ends of the boom sections. The inner extension ram is also fitted with a wear pad **1K** since the inner boom moves in relation to the ram cylinder.

Key ⇨ *Fig 1. (🗋 B-2)*	
A	Outer boom section (coloured blue)
B	Intermediate boom section (coloured green)
C	Inner boom section (coloured orange)
D	Outer extension ram
E	Inner extension ram
F	Hose guide roller
G	Wear pad
H	Tilt ram
J	Example hose routing - auxiliary service
K	Wear pad - inner extension ram

Air Conditioning

R134a Refrigerant

TB-006

Refrigerants are the basic ingredient of all air conditioning systems and are used to transfer the heat energy around the system. Refrigerant type R134a is used in the air conditioning system. It's full chemical name is:

1, 1, 1, 2-Tetraflouroethane (CH2FCF2)

R134a is a HFC (HydrFlouroCarbon) and is non-toxic, non-flammable and non-explosive at normal atmospheric temperature and pressure. It can be flammable under certain pressure and air mixtures.

Due to environmental concerns, the use of ozone depleting chlorofluorocarbons (CFCs) in the air conditioning systems is being gradually phased out. The R-12 refrigerant used in some systems contains CFCs. Air conditioning systems using R-134a refrigerant are not compatible with systems using R-12 refrigerant. No attempt should be made to charge R-134a systems with R-12 refrigerant.

Important: *Refer to the safety procedures within this section before handling refrigerants.*

Good installation practice is required to avoid the release of refrigerant into the atmosphere. Refrigerant R134a contains no chlorine and has an Ozone Depleting Potential (ODP) of zero, and a Global Warming Potential (GWP) of 0.1.

PAG Type Refrigerant Oil

TB-007

The system requires a PAG type refrigerant oil to lubricate the compressor. The oil mixes with the refrigerant and is carried around the system.

It is important that the recommended grade of refrigerant oil is used. Mineral oil is not suitable for R134a refrigerant systems. Do not mix oil types.

The compressor is supplied with an oil charge, but additional oil will be required when the receiver drier is replaced. The oil is added to the compressor through the oil filling plug before the evacuation procedure is started.

Only use fresh, unused oil. Oil that has been exposed to the air will have absorbed water.

System Operation

To maintain optimum operator comfort in warm climates or during seasons of high ambient temperature, the air conditioning system delivers cool, dehumidified air into the cab. Cooling is provided by passing the warm ambient air, together with recirculated air, over an evaporator matrix in the air conditioning unit.

The air conditioning system is a closed circuit through which the refrigerant is circulated, its state changing from gas to liquid and back to gas again, as it is forced through the system.

The major components of the system are:

- **A** Compressor
- **B** Condenser matrix
- **C** Receiver drier
- **D** Sight glass/moisture indicator.(1)
- **E** Binary switch
- **F** Thermostatic Expansion Valve (TEV)
- **G** Evaporator matrix

(1) Series II machines do not have a sight glass.

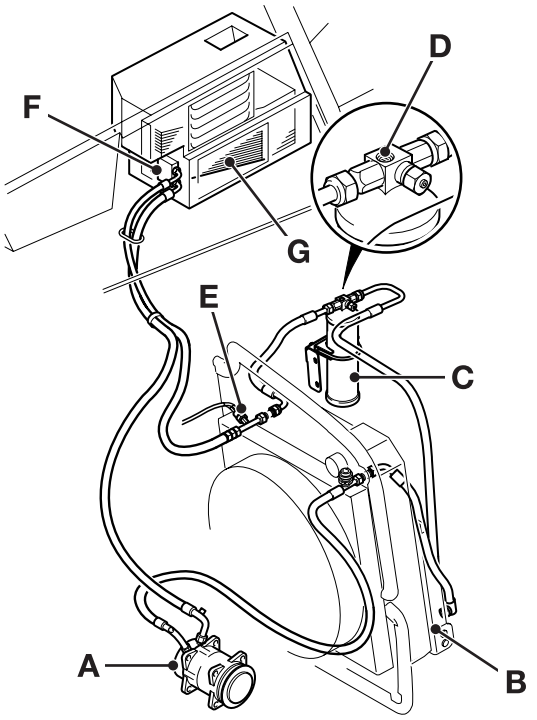

Fig 3. Series I Machines from 784535

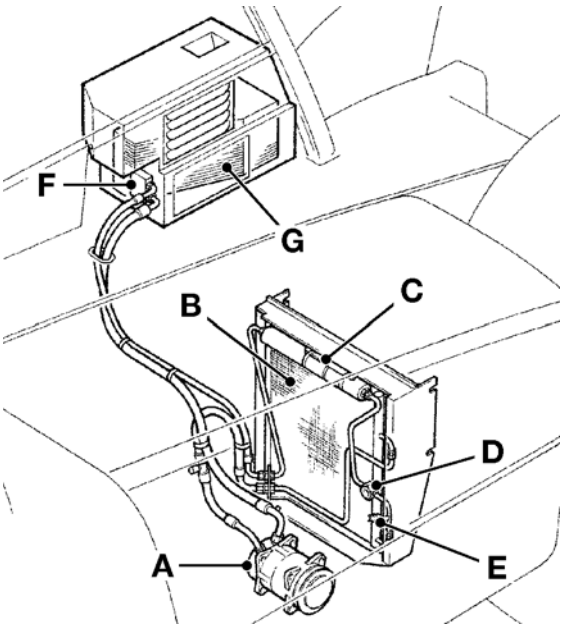

Fig 2. Series I Machines up to 784534

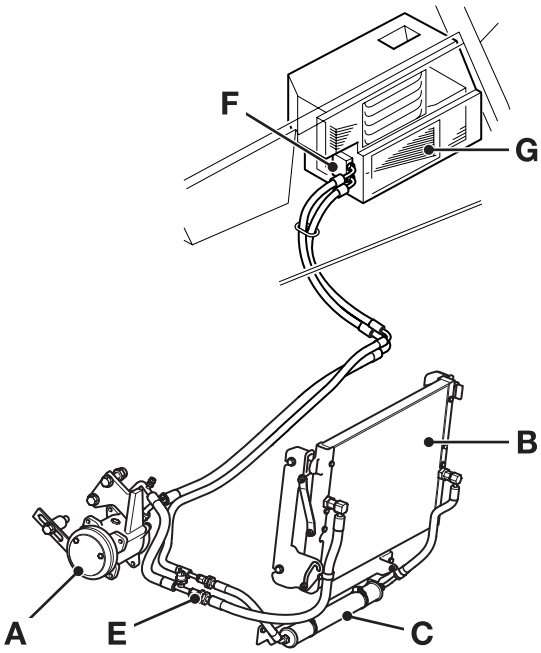

Fig 4. Series II Machines