

**TRUCK, FIRE FIGHTING, BARRACKS (TFFB), MEDIUM - SCANIA P93MA
NSN 4210-66-139-4066**

DATA SUMMARY

This instruction is authorised for use by command of the Chief of Army. It provides direction, mandatory controls and procedures for the operation, maintenance and support of equipment. Personnel are to carry out any action required by this instruction in accordance with EMEI General A 001.



Figure 1 Truck, Fire Fighting, Barracks (TFFB), Medium - Scania P93MA

General

1. This EMEI lists basic data for the Truck, Fire Fighting, Barracks (TFFB), Medium, MC4, as shown in Figure 1.
2. **Role.** The role of the TFFB is to provide fire fighting capabilities in the barracks environment. In a limited capacity, the TFFB is also deployed for emergency fire fighting in the field.
3. **Description.** The TFFB is a self contained pumping system based on a Scania P93MA four by two Crew Cab vehicle, fitted with an Allison automatic transmission, model MD3060.
4. The fire fighting equipment is supplied by the Australian Fire Company (AFC), with a Type 1 Urban Fire Pumper assembly.
5. **Depot Stock.** To maintain equipment and ensure availability of fire fighting equipment to Army Fire Stations (AFS), TFFB vehicles held as depot stock are to be located and maintained at fire station compounds.
6. Scheduled preventative maintenance tasks are to be monitored by AFS personnel.

Detail

7. Dimensions:

- a. Height (Laden) 3070 mm
- b. Length 7965 mm
- c. Width..... 2450 mm

- d. Wheelbase 4200 mm
- 8. **Cabin:**
 - a. Seating Capacity six
- 9. **Mass:**
 - a. Gross Vehicle Mass 16 500 kg
 - b. Tare 9480 kg
 - c. Nett 12 890 kg
- 10. **Warning Devices:**
 - a. Horn air
 - b. Siren electronic
 - c. Lights red and blue rotating flashing
- 11. **Performance:**
 - a. Turning Circle (Outer Front Wheels) 7.3 m
 - b. Ground Clearance 245 mm
 - c. Angle of Approach (Laden) 15°
 - d. Angle of Departure (Laden) 14°
 - e. Turnover Angle (Laden) 38°
- 12. **Engine:**
 - a. Manufacturer SAAB-Scania
 - b. Model DSC 9 07 (252)
 - c. Type four-stroke
 - d. No of Cylinders six
 - e. Displacement 8.48 L
 - f. Compression Ratio 16:1
 - g. Maximum Power (Nett) 185 kW at 2200 rpm
 - h. Maximum Torque (Nett) 955 N.m at 1300 rpm
 - i. Low Idling rpm 550 to 600 rpm
 - j. High Idling rpm 2500 to 2600 rpm
 - k. Injection Order 1-5-3-6-2-4
 - l. Valve Clearance (Cold):
 - (1) Inlet 0.45 mm
 - (2) Exhaust 0.80 mm
 - m. Oil Filter removable cartridge
 - n. Oil Pressure (Hot Engine):
 - (1) 800 rpm 1.5 bar
 - (2) 2200 rpm 3.5 to 5.5 bar
 - o. Fuel System in-line injection pump

13. Electrical System. The vehicle has a 24-volt primary system, with outlet capabilities to supply 12 volts, as required. A 240-volt charging system is fitted to allow connection to mains supply, to maintain the vehicle ready for hot starting, with all systems charged. The electrical system has the additional following characteristics:

- a. Type 24 V
- b. No of Batteries two
- c. Alternator 75 A
- d. Terminal Earthed.....negative

14. Air Compressor:

- a. Typewater-cooled piston pump
- b. Cylinders two
- c. Capacity275 L/min

15. Air Conditioning. The air conditioning unit is integrated with the heating and ventilation system and operates through the same ducting.

16. Transmission:

- a. Manufacturer Allison Automatic Transmission
- b. TypeMD3060
- c. Ratios:
 - (1) Gear Ratio – First..... 3.49:1
 - (2) Gear Ratio – Second 1.86:1
 - (3) Gear Ratio – Third 1.41:1
 - (4) Gear Ratio – Fourth 1.00:1
 - (5) Gear Ratio – Fifth 0.75:1
 - (6) Gear Ratio – Sixth..... 0.65:1
 - (7) Gear Ratio – Reverse 6.04:1

17. Propeller Shafts. The propeller shafts fitted are P50 Scania design.

18. Axles:

- a. Front:
 - (1) Manufacturer.....Scania
 - (2) TypeAM 56
 - (3) Load Rating..... 6500 kg
- b. Rear:
 - (1) Manufacturer.....Scania
 - (2) TypeADA 90
 - (3) Load Rating..... 13 000 kg
 - (4) Ratio..... 4.86:1

19. Steering. The vehicle has independent hydraulic power steering, with the steering wheel adjustable for reach and rake, for driver posture and wrist action. Additional steering details are as follows:

- a. Manufacturer.....Scania
- b. TypeSH40 RO3

20. Suspension. The vehicle is fitted with air suspension, located at the cabin and the rear axle. Ride quality for drivers and crew is achieved by variation in vehicle height for the load carried and terrain traversed. Suspension details are as follows:

- a. Front leaf spring with double-acting shock absorbers and stabiliser bars
- b. Rearairbag with double-acting shock absorbers

21. Tyres:

- a. Size295/80
- b. Ply Rating 16
- c. Manufacturer/Type Michelin low profile
- d. Pressures (On and off road):
 - (1) Front 825 kPa (120 psi)
 - (2) Rear 825 kPa (120 psi)
- e. Wheel Nut Tension 600 N.m

22. Brakes:

- a. Exhaustcontrolled by the brake pedal and activated before the wheel brakes
- b. Foot:
 - (1) Typefull air-operated brakes, anti-lock brake system (ABS)
 - (2) Operating Pressure 8 to 9 bar
- c. Park air/spring, operating through the rear wheel station brakes
- d. Transmission Retarder – two-stage hydraulic retarder, mounted at the rear of the transmission, connected through the accelerator pedal and the ABS.

23. Fuels and Lubricants:

- a. Fuel:
 - (1) Typediesel
 - (2) Capacity200 L
- b. Cooling System:
 - (1) Coolantethylene glycol
 - (2) Capacity40.0 L
- c. Engine Oil (With Filter):
 - (1) Type SAE
 - (2) Capacity27.0 L
- d. Transmission Oil:
 - (1) Type SAE
 - (2) Capacity18.0 L
- e. Torque Converter Oil
 - (1) Type SAE
 - (2) Capacity6.0 L
- f. Rear Axle Oil:
 - (1) Type Dextron ATF
 - (2) Capacity12.5 L

- g.** Power Steering Oil:
 - (1) TypeDextron ATF
 - (2) Capacity3.8 L
- h.** Cab Tilt Oil:
 - (1) TypeDextron ATF
 - (2) Capacity3.0 L

24. Fire Pump Unit. The fire pump unit consists of the tanks, pumps, delivery control components (gauges, valves, plumbing and switches), hoses and hose reels, AFC components (ladders) and ancillary equipment. The main pump is fitted with a direct injection foam proportioner and automatic pressure relief valves. The main and third stage can be operated together. The fire pump unit details are as follows:

- a.** Mass (Tanks Full) 3410 kg
- b.** Pump:
 - (1) Manufacturer..... Darley
 - (2) Model.....SHE 1000
 - (3) Type centrifugal
 - (4) Mounting Location..... rear transmission, driven through split shaft
 - (5) Pressure Relief Valve..... set at 4200 kPa (609 psi)
 - (6) Foam Delivery:
 - (a) Method..... 6% direct injection to kerbside deliveries only
 - (b) Capacity capable of 450 L/min per delivery point
 - (7) Operating Modes..... pressure and volume
- c.** Pump Output (Main):
 - (1) Output Capacity3800 L/min at 1050 kPa (152 psi)
 - (2) Output Capacity2660 L/min at 1380 kPa (200 psi)
 - (3) Output Capacity1900 L/min at 1700 kPa (247 psi)
- d.** Pump Output (Third stage):
 - (1) Output Capacity380 L/min at 5400 kPa (783 psi)
 - (2) Output Capacity760 L/min at 4200 kPa (609 psi)
- e.** Tanks:
 - (1) Water Tank Capacity 1600 L
 - (2) Foam Tank Capacity 140 L
- f.** Hose Reels:
 - (1) Type electric rewind, with manual override capability
 - (2) Hose Length..... 3 x 30 m (90 m)
 - (3) Hose ID..... 25 mm
 - (4) Working Pressure..... 5510 kPa (799 psi)
 - (5) Output (Maximum)300 L/min
 - (6) Couplings..... Barway Series 1832
- g.** Hoses Assemblies (Handlines):
 - (1) Coupling.....BIC

- (2) Hose Length 30 m
- (3) Hose ID 51 mm (extruded type hose)
- (4) Working Pressure 2100 kPa (305 psi)

h. Soft Suction Hose:

- (1) Coupling Storz
- (2) Hose Length 30 m
- (3) Hose ID 90 mm (extruded type hose)
- (4) Working Pressure 1750 kPa (254 psi)

i. Monitor:

- (1) Coupling 100 mm Storz
- (2) Output (Maximum) 4700 L/min

25. Ancillary Equipment:

a. Communication Equipment:

- (1) Vehicle Kyoda, VHF/UHF, IG 108 series, on channels 50 and 51
- (2) Hand Held Kyoda, VHF/UHF, FM, portable transceiver, KG 209 series
- (3) PA System:
 - (a) Type code 3, model 3866
 - (b) Tones:
 - i. Primary wail, yelp, hyper-yelp, air horn
 - ii. Secondary hyper-yelp, hyper-lo

b. Vehicle Safety Equipment with SCES Allocation:

- (1) SCBA – Breathing Apparatus, Self Contained, Compressed Air, Open Circuit, Postive Pressure Demand Type, with spare cylinder and warning whistle (air drop to 20%).
- (2) First Aid Kit – Medical Equipment Set, Emergency Response Fire Truck, General Purpose, conforms to CASA operating procedures.

c. Additional Vehicle Equipment:

- (1) Positive Pressure Ventilator – powered by a 5.5 hp four-stroke petrol engine, capable of 8000 cfm.
- (2) Flood Light Set – contains a four-stroke petrol engine driven generator, a range of spot and flood lights.
- (3) Grinder/Cutter – 300 mm, portable, petrol engine, Stihl model Cutquick TS08, with W/08S Power Head, for rescue, forcible entry and ventilation tasks.
- (4) Hazmat Spill Kits and Protection Clothing – for general chemical spills, contains decontamination kits hydrophobic and hydrophilic.
- (5) Resuce Equipment – hydraulic rescue equipment and a lifting bag kit.
- (6) Salvage Kit – consists of lightweight, heavy duty salvage sheets in various sizes, brooms, mops and squeegees.
- (7) Extinguishers – consist of a range of fire extinguishers for various applications.
- (8) Detection Kits – consist of an electric current detector , multi-gas, flammable gas and ionising radiation detectors.
- (9) Handlamps and Ropes – two Wolflite handlamps and a range of ropes are carried for rescue and general use.

26. Manufacturer's Details:

- a.** Australian Distributor:
Scania Australia
125-129 Boundary Road
LAVERTON VIC 3026
<http://www.scania.com.au>
Phone: (03) 9369 8666
Fax: (03) 9369 8633

27. Point of Contact:

ADFLM, Fire Vehicles
LV SPO, DMO
Victoria Barracks
St Kilda Rd
SOUTHBANK VIC 3006

28. Associated Information:

- a.** SIGC 4210-0001
b. NSN..... 4210-66-139-4066
c. CCES..... 19594
d. Equipment Code..... BBC
e. User Handbooks:
(1) Australian Fire Company, prepared and issued by Army Fire Services (AFS).
(2) Parts Manuals (Commercial):
(a) Scania Parts Catalogue No 18100 (Trucks 1988).
(b) Allison Transmission, Parts Catalogue, World Transmissions of 9 Oct 93.
(3) Workshop Manuals (Commercial):
(a) Allison Transmissions, Repair Manual (SA 2148B) of 30 Oct 92
(b) Scania Workshop Manual (1 580 658 GT EN), three volumes.
f. ILSI ALI MM 10-41
g. AOSI 10/95

END

Distribution List: **VEH F 05.0 – Code 1** (Maint Level)
(Sponsor: LV SPO, Fire Vehicles)
(Authority: TRAMM)