SERVICE MANUAL

MIKASA FORWARD PLATE COMPACTOR MVC-40H, MVC-F60H, MVC-F80H, MVC-T90H, MVC-T100D

Version 1.0 (May 2022)

Mikasa

MVC

PLATE COMPACTOR

SERVICE MANUAL

www.mikasas.com

410-01801

Table of contents

1. INTRODUCTION

- For correct operation, maintenance and service of Plate Compactor, please read the separate operation manual before your work for your safe work.
- For the handling of engine, please read the separate engine operation manual and maintenance/service manual.
- This service manual explains the maintenance standard and how to disassemble and assemble for Plate Compactor. Please read this service manual for a better understanding of the maintenance standard, the structure and function of each part.
- To improve the performance and quality of this machine, the change might be made in this machine without notice. If you have any questions, please contact with our distributor. For parts list, Mikasa WEB parts list is available at our homepage (http://www.mikasas.com/).

2. WARNING SIGNS

The triangle shaped ⚠ marks used in this manual and on the decals stuck on the main body indicate common hazards. Be sure to read and observe the cautions described.

⚠ **Warning labels indicating hazards to humans and to equipment.**	
⚠**DANGER**	Denotes an extreme hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, is likely to result in serious injury or death.
⚠**WARNING**	Denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in serious injury or death.
⚠**CAUTION**	Denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury to people and may damage or destroy the product.
CAUTION (without at ⚠)	Failure to follow the instructions may result in damage to property.

3. CAUTIONS FOR MAINTENANCE TO SECURE SAFETY

3.1 Work Site

⚠DANGER

- Do not work indoor or inside a tunnel where ventilation is poor. The emission from the engine contains toxic gas such as carbon monoxide, and it is very dangerous if this toxic gas and dust are inhaled. Also, to improve ventilation, please keep a proper distance between this machine and a building when operating the machine.

⚠CAUTION

- Maintenance should be done in a place with a flat and hard surface to keep the machine stable. Also, do maintenance at sufficient work space.
- Before maintenance work, clean the floor. Oil on the floor, in particular, becomes the cause of falling accident.
- For maintenance work, have sufficient lighting in the work site. A portable lamp used to illuminate the work area has to be protected by wire. In case if the lamp is broken, fuel and oil might ignite.
- To prepare for an accident, please have emergency medical supplies and fire extinguisher ready at an easily accessible area.

3.2 Clothes And Protective

⚠ CAUTION

- To work safely, wear work clothes of appropriate size, and use suitable protective gear such as helmet and safety shoes. The work clothes that do not fit the body size might result in unpredicted injury because the clothes easily get caught by rotating part of the machine.

3.3 Cautions During Refuelinglothes And Protective

⚠ CAUTION

- When adding fuel
  - ○ Always refuel in the well ventilated area.
  - ○ Always refuel after the engine stopped and cooled sufficiently.
  - ○ Select a flat surface location away from flammable material and Do not overfill the tank. If spilled fuel, wipe it off well.
  - ○ Never put fire near the refueling area. (Never refuel while smoking.)
- If fuel is filled to the top, it might overflow, and is dangerous.
- After refueling, securely tighten the tank cap.

3.4 Prevention Of Burn And The Accident Of Getting Caught

⚠ WARNING

- Start your work after the machine temperature drops. Especially, the muffler gets very hot, and it will pose a danger of burn accident. Also, engine and engine oil as well as vibrator become hot. Be careful not to get a burn.
- If maintenance work is started with the engine running, injury might occur because you might get caught by the rotating part such as pulley and V-belt. Always stop the engine before maintenance.

3.5 Tools And Equipment

⚠ WARNING

- When lifting the machine body and the engine, always use a crane. When lifting the machine and the engine, follow the cautions listed below. If the machine or the engine is dropped, a serious accident might occur.
- To operate a crane, a crane handling qualification is required. Have someone qualified to handle and operate a crane do this work.
- Before lifting, check the parts (especially, hook and anti-vibration rubber) of this machine for damage and loosening/lack of bolts to secure safety.
- Before lifting, stop the engine and shut the fuel cock.
- Use sufficiently strong wire rope.
- For lifting, use only the lifting hook. Do not use other part for lifting.
- Never allow anyone or any animal come under the lifted machine.
- For safety, do not lift to the height more than necessary.
- Use an appropriate tool. If the tool that is not suitable for the part is used, not only the damage on the part, but also unpredicted accident might occur.

3.6 Use Of Genuine Parts And Appropriate Oil And V-belt

⚠ CAUTION

- Always use genuine parts.
  If inappropriate parts are used, not only it will shorten the machine life, but it might lead to unpredicted accident.

3.7 Tightening Torque Of Bolts And Nuts

⚠ WARNING

- Tighten bolts and nuts with the tightening torque specified in this maintenance manual. Over tightening torque and lack of tightening torque not only affect the machine life, but also might occur unexpected accident.

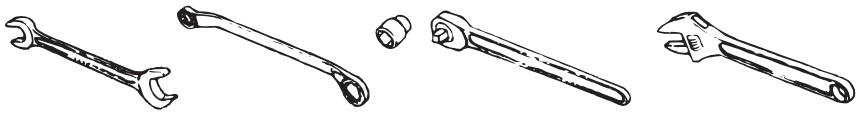
3.8 Disposal Of Waste Material

⚠ CAUTION

- Unnecessary engine oil and fuel should be kept in a container. Never dump it on the ground or pour into the sewage system such as side ditch.
- For disposal of unnecessary engine oil and fuel, follow the law and other regulations.

4. TOOLS

1. Wrench
   Offset wrench/Socket wrench/Adjustable wrench



2. Hexagonal wrench

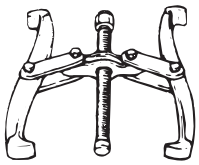
3. Plier

4. External snap ring plier/Internal snap ring plier(bent type can be also used)

5. Screwdriver, flat and cross

6. Metal and plastic hammers

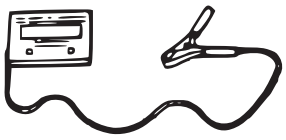
7. Pulley puller



8. Screw lock agent
   (Locktite 243, 272)

9. Liquid gasket

10. Hour/Tacho Meter



(PULSE ENGINE TACHOMETER PET-2000DX)
Parts No. 9800-10130

11. Torch burner

5. INSPECTION BEFORE OPERATION

⚠ DANGER

Conduct inspection while the engine is stopped.If you get caught in the rotating parts, you may suffer serious damage. Conduct inspection after making this machine level and checking that the body does not move.

1. Clean each part of the machine well to maintain dirt and dust-free condition. Pay special attention to the soil adhered to the bottom of the vibrating plate, engine cooling air inlet, and the carburetor and air cleaner area to keep those parts clean.

2. Check each part for any looseness of bolts. Vibration causes bolts & nuts to loosen, which might result in unexpected accident or malfunction.

3. Inspect the guard hook, belt cover and anti-vibration rubber, as well as to check the function of speed adjustment wire and speed adjusting lever.

4. Check V-belt tension. The belt should have about 10 – 15mm of flexibility when pushed strongly with a finger at the mid-point between the axes. If V-belt is loosened, power is not transmitted well, which reduces compacting force and shortens the life of V-belt. In addition, the generated compaction force will lead to irregular vibrations when the engine revolutions are increased, and may result in a machine failure.

5. Set the engine on a level surface to check the oil level. If the oil level is low, add oil. Use the following engine oil.

Quality: Gasoline engine oil, Grade SE or above

Viscosity: SAE No. 30 at 20°C and above (summer)
SAE10W-30

Temperature	Use oil
More than 25℃	SAE#30
10 ~25 ℃	SAE#30, #20
10 ~ 0 ℃	SAE#20
Less than 0 ℃	SAE#10

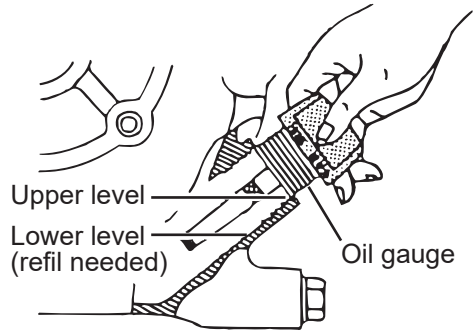
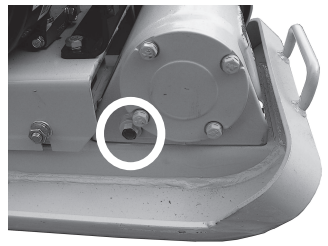


Fig. 1

6. Set the machine on a level surface, then remove the oil gauge of the vibrator. Check the oil gauge to see if the oil is at the specified level. Use engine oil SAE10W-30 as lubrication oil.

   Remove the drain plug in Vibrator Assembly and check the oil level. Make sure the oil quantity is set at level of plug hole for checking. Every month or every 200 hours of operation, replace the oil.



※ *The illustration is shown for model, "MVC-F60"*

Fig. 2

7. A regular grade gasoline should be used in the engine. When filling the fuel tank, make sure the fuel filter is used.

⚠ DANGER

- Never refuel this machine while leaving the engine running. There is danger of fire.
- Never smoke, or put other flames close to this machine while refueling. Serious hazards such as burns and fire may result.
- Choose a place free from flammable substances for refueling. Be careful not to spill fuel. In case fuel should be spilled, wipe off the spilled fuel completely.

8. Pour water into the water tank for sprinkling work.

Note:
Pour water only. If you should put liquids other than water, the resin, tank cap seal, etc. may deteriorate or swell, leading to leakage or damage.

The water tank can be removed by pulling it upward. When mounting the water tank again, insert the hook into the groove of the water tank securely. The amount of sprinkling water can be adjusted by the cock.

6. CAUTIONS BEFORE MAINTENANCE WORK

1. Disassembly and assembly of this machine, with inspection and change of vibrator oil included, should be done on a horizontal surface area. Before disassembly and assembly, understand well the normal assembly condition so that you will not make assembly error.

2. If oil seal, gasket, packing, O-ring or lock washer is disassembled, replace it with a new one each time.

3. The contact surface between vibrating case and vibrator cover should be sealed with Packing or O-ring. (Clean the contact surface and be careful about O-ring position when assembling.)
   Apply Liquid Gasket (Three bond 1215 or equivalent) on the each side of packing of Case Cover.

4. When tightening bolts and nuts, tighten them according to the specified standard torque and applying the screw lock agent (Loctite, etc.). For bolts and nuts with no specification, refer to the "Tightening torque list". (When applying screw lock agent, degrease and clean the screw part with the brake cleaner, etc.)
   Note) The bolts used on this machine are all of the right hand thread.

Tightening torque list (unit: kgf-cm, 1kgf-cm=9.80665N-cm)

		Thread diameter							
		6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
Material	4T(SS41)	70	150	300	500	750	1,100	1,400	2,000
	6-8T(S45C)	100	250	500	800	1,300	2,000	2,700	3,800
	11T(SCM3)	150	400	800	1,200	2,000	2,900	4,200	5,600
	When the mating material is aluminum.	100	300~350	650~700	(Bolts used on the machine are all right-hand thread.)				

To change the unit to kgf·cm, convert with 1 N·m = 10.197 kgf·cm.

Tightening torque at specific points (kg-cm)

Specific points	Item	Tightening torque
Drain bolt for Vibrator	Plug	400
Outside of Shock Absorber	M10 Bolts	750
	M10 Nuts (F60H/F70H/F80H)	400
Inside of Shock Absorber	M10 Nuts	400

Screw lock agent application point

Application point	Type of Screw lock agent
To assemble vibrator on vibrating plate	Locktite272
To assemble case cover	Locktite243
To assemble pulley to vibrator	
To assemble Clutch AY to Engine	
To assemble shock absorber between engine base and vibrating plate	

5 When disassembling and assembling, work in the maintenance shop without dirt and dust.
.

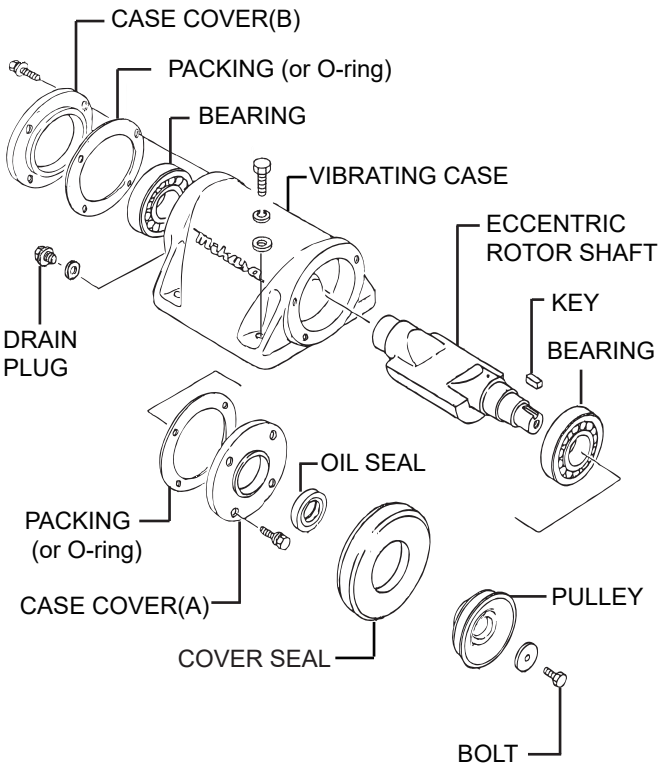
6. When the bolts applied the screw lock agent (Loctite, etc.) are difficult to loosen, they loosen easily by heating them with a torch burner. Then, replace the heated bolt with a new one. It should be a specified high tension bolt (genuine parts).

7. Use correct tools correctly.

7. DISASSEMBLY AND ASSEMBLY OF VIBRATOR

7.1 Disassemble

1. Take off belt cover and V-belt.
2. Take off Vibrator AY from Vibrating plate. If the bolts is difficult to loosen, heat the bolts with Torch burner.
3. Put off Drain Plug and drain the oil from vibrator.
4. Put off the bolt, pulley and key from Potor shaft.
5. Put off the bolt and case cover of Recoil starter side. And take off oil seal from case cover.
6. Take off the Rotor shaft from vibrating case. And remove bearing from Rotor shaft.
7. Put off the bolts and Case cover of pulley side from vibrating case.



※ *The illustration is shown for model, "MVC-F60"*

Fig. 3

7.2 Assemble

1. Assemble in reverse order of disassembly.
2. Replace Oil seal, Packing and O-ring to the new one.
3. Each parts especially thread parts should be clean up.
4. After cleaning the bearing, maintain the bearing. In case, replace the bearing, please use C3 or C4 type.
5. Please take care the oil seal orientation, damage and deformation.
6. Apply grease on Oil seal lip and Bearing insertion part.
7. Apply Liquid Gasket (Three bond 1215 or equivalent) on the each side of packing of Case Cover.
8. Use Screw Lock Agent for the following point.
   a. Bolts to fix Vibrator AY on Vibrating plate Locktite272.
   b. Bolts to fix Vibrator case cover Locktite243.
   c. Bolt to fix the pulley of vibrator side Locktite243.
9. After fixing the case cover of recoil starter side, apply glue on the inside of Cover Seal. And fix it on the case cover.
10. After assembly pour Engine oil SAE10W-30 to Vibrator.

Model	Vibrator oil quantity
MVC-40H / 50H	300cc
MVC-F60H / F70H / F80H	140cc
MVC-T90H	200cc

8. REGULAR CHECK AND ADJUSTMENT

8.1 Inspection And Maintenance Schedule Table

Check frequency	Check parts	Check items	Oils
Daily (before starting)	Appearance	Flaw, deformation	
	Fuel tank	Leakage	
	Fuel system	Leakage	
	Engine oil	Leakage, oil level, dirt	Engine oil
	Shock absorber	Crack, damage, wear	
	Vibrator oil	Leakage	Engine oil
	Air cleaner element	Dust, deformation	
	Guard frame	Breakage, flaw, loosened or missing bolts and nuts	
	Bolts and nuts	Looseness, missing	
Every 20 hours	Engine oil	Replace only after] the first 20 hours	Engine oil
Every 100 hours	Engine oil	Change	Engine oil
	Engine oil filter	Washing	
	Vibrator oil	Leakage, oil level, dirt	Engine oil
Every 200 hours	V-belt for vibrator	Flaw, deformation	
	Clutch	Dirt, flaw, wear	
	Engine bolt	Wear, deformation, degradation	
Every 300 hours	Vibrator oil	Change	Engine oil
	Fuel filter	Change	
Every 2 years	Fuel pipes	Change	
As necessary in time	Air cleaner element	Change	

For details about the check and maintenance of the engine, please refer to the attached engine operation manual.
Caution: The above table shows the check frequency for standard condition.
The check frequency may vary depending on the condition in which the machine is used.
For check of bolt and nut looseness and tightening, please see the following tightening torque list.

Tightening torque list (unit: kgf-cm, 1kgf-cm=9.80665N-cm)

		Thread diameter							
		6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
Material	4T(SS41)	70	150	300	500	750	1,100	1,400	2,000
	6-8T(S45C)	100	250	500	800	1,300	2,000	2,700	3,800
	11T(SCM3)	150	400	800	1,200	2,000	2,900	4,200	5,600
	When the mating material is aluminum.	100	300～350	650～700					

(Bolts used on the machine are all right-hand thread.)

8.2 Opening Engine Oil

Perform the first engine oil change after 20 hours of operation, then change at every 100 hours.

8.3 Changing Air Cleaner

When the air cleaner element becomes dirty, the engine does not start smoothly, and sufficient output cannot be obtained. Machine operation will be affected and the engine life will be shortened greatly. Do not forget to clean the element. (For details, please see the separate engine operation manual.) If the element cannot be cleaned, replace it with a new one.

8.4 Checking/Changing V-belt and Clutch

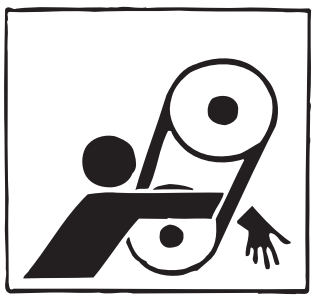
⚠ CAUTION

- When the vibration weakens during operation, or this machine does not vibrate at all though the engine rotates normally, conduct the inspection or change of the V-belt and clutch without regard to the regular inspection of every 200 hours.
- Always stop the engine before inspection and adjustment. If you are caught in a rotating part, serious injury might occur.

1. Checking V-belt
   Remove the belt cover and check that V-belt is properly stretched every 200 hours. Press on the portion midway between the two shafts with your fingers strongly. The belt is properly stretched if that portion bows by about 10-15 mm.

2. Checking the clutch
   Inspect Clutch concurrently with the inspection of V-belt. Check visually for burning of each clutch-shoe. Check for wear the lining shoe or the like, in the operation check. If the shoe wears, power transmission is not performed properly and Clutch slips. Check wear or any damage to V-groove also. If V-groove is stained, clean it thoroughly.

3. Checking Bolt, Engine
   The part of Bolt, Engine is made of rubber material, of which the inferiority like fatigue or worn leads V-belt tension low. Whenever checking V-belt, inspect this part for the reason as well as Shock Absorbing Rubber. (Fig.4)

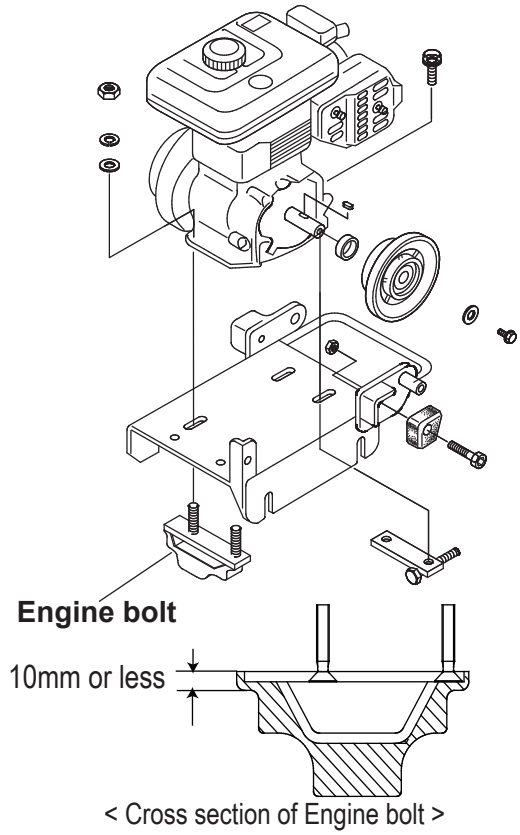


8.5 Inspection and Change of Vibrator Oil

Make this machine level, and remove the oil level plug off the vibrator. Check that vibrator oil is provided up to the mouth level. The oil level plug is on the right side of the vibrator case (opposite to the belt side). (Refer to Fig.1 on page 5.)
Use the engine oil #10W-30 for vibrator oil. Refer to page 8 for the amount. Drain the vibrator oil completely by removing the plug and tilting the body once a month or every 200 hours' operation. Replace with new oil.

8.6 Inspection and Change of Engine Bolt

Replace immediately when it was found the wear, deformation or degradation of elastic rubber material, which may cause V-belt come off or the engine to vibration damage directly and excessively. (Fig.4)



< Cross section of Engine bolt >

※ *The illustration is shown for model, "MVC-F60"*

Indication of replacement:
Replace Engine bolt immediately when the thickness is less than 10 mm combined with metal plate and rubber

Fig. 4

9. TROUBLESHOOTING

9.1 Engine

(1) Starting problems

- Fuel is supplied, but Spark Plug does not ignite
  - Electricity reaches to High Voltage Cable
    - Bridging Spark Plug
    - Carbon accumulated on Spark Plug
    - Short circuit due to insulation problems of Spark Plug
    - Inappropriate gap of Spark Plug
  - Electricity does not reach to High Voltage Cable
    - Short circuit of Stop Switch
    - Ignition coil problems
    - Oil Sensor problem
- Fuel supplied, and Spark Plug ignites
  - Compression is good
    - The wrong fuel is used
    - Mixing of water or dust contamination
    - Air Cleaner not working
  - Compression is not good
    - Intake/Exhaust Valve is stuck or pushed up
    - Piston Ring, Cylinder wear enough
    - Cylinder head, Spark Plug tightening problem
    - Head gasket or Spark Plug Gasket breaks
- Fuel does not reach to Carburetor
  - No fuel in tank
  - Fuel Cock does not open properly
  - Clogging of Fuel Filter
  - Clogging of Tank Cap Air Hole
  - Air trapped in fuel pipe

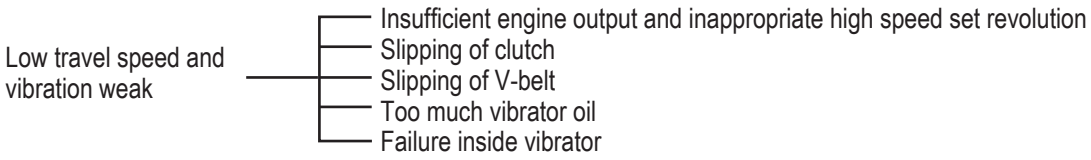
(2) Operation problems

- Lowered power
  - Compression is good and no firing problem
    - Dirt of Air Cleaner
    - Carbon accumulated in Cylinder.
    - Fuel Level in Carburetor inproper
  - Insufficient compression (see the item “compression is not good.”)
  - Compression is good, but no firing
    - Water mixed in fuel
    - Dirt of Spark Plug
    - Ignition Coil problem
- Engine overheating
  - Carbon accumulated inside combustion chamber and exhaust hole.
  - Thermal value of Spark Plug is poor
  - Dirt and breakage of Cooling Fin
- Revolution fluctuation
  - Governor adjustment inappropriate
  - Governor Spring problem
  - Fuel flows in proper
  - Air taken from Intake Pipe line
  - Clogging of Pilot Jet (Idle speed fluctuates improper)

(3) Recoil starter problems

- Recoil starter operation not good
  - Clogging of dust from rotating part
  - Weakening of Spiral Spring

9.2 Main Body


Low travel speed and vibration weak
Insufficient engine output and inappropriate high speed set revolution
Slipping of clutch
Slipping of V-belt
Too much vibrator oil
Failure inside vibrator

Mikasa

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This manual summarises our best knowledge of the product based on the information available at the time of publication. You should read this manual carefully and consider the information in the context of how the product will be used. Our responsibility for products sold is subject to our standard terms and conditions of sale.

DISCLAIMER:

Any advice, recommendation, information, assistance or service provided by us in this manual is given in good faith and is believed by us to be appropriate and reliable. However, any advice, recommendation, information, assistance or service provided by us is provided without liability or responsibility PROVIDED THAT the foregoing shall not exclude, limit, restrict or modify the right entitlements and remedies conferred upon any person or the liabilities imposed upon us by any condition or warranty implied by Commonwealth, State or Territory Act or ordinance void or prohibiting such exclusion limitation or modification. The product can be expected to perform as indicated in this manual so long as operation and operational procedures of the individual products are followed as recommended in this manual.

Design and technical specifications may be subject to changes.