



KLINGE

Operation, Service and Parts Manual



MODEL NMG-118-T4

18kVA Diesel Powered Nose Mounted Generator Set,
Meets EPA T4 Regulations

REVISION RECORD

Rev	Description	Date	Approved
A	Updated fuel consumption pg 5	6-28-2024	BES
B	Updated cover image and service parts	8-20-2024	BES
C	Added EPA statement, Sect 1.1; corrected Power Supply value, Sect 1.9	4-30-2025	BES
D	Added Power View Parameters and Trouble Codes Sect 5.2, added optional Accessories Box Sect 6	10-21-2025	BES
E	Added Spare Parts List, updated service parts section	7/29/2026	BES

Service Request

Requests for Service should be directed to the Klinge Service Team. The below link should be used to place all requests for service and will afford the quickest response time.

<https://www.thermoking.com/na/en/klinge-refrigerated-containers/klinge-container-service.html>

This form will help us determine model and age of the equipment, location, basic details about the issue, who to contact and how to best handle the issues with the equipment. A service ticket number will be provided in a response email once the form is received and processed. If the equipment is out of warranty, charges may apply for extensive technical support.

Additionally, our Service Department can be reached via email at technical@klingecorp.com.

Spare Parts Request

Requests for Spare Parts should be directed to our Parts Department via email at spares@klingecorp.com. Please have available at the time of the request the Serial Number of the equipment to ensure that the proper part is provided.

Use of this Manual

The use of this manual is intended for the safe operation of the equipment described. It is therefore reasoned that persons who have the occasion to use this manual have a knowledge of mechanical and electrical systems and components addressed by its' contents. However, efforts have been made to enable persons less familiar with these systems to use this manual.

The equipment may be installed in a number of configurations. Each may have optional items and differing external details provided by third parties. The specific electrical circuit and pipe diagram are posted on the unit as decals.

Most external and internal pipework parts are standard commercially available pipe fittings and not covered here. For external pipe fitting, replace like for like, taking care to replace stainless steel with stainless steel.

Suggestions as to improvement in content and format are welcome and should be addressed to engineering@klingecorp.com. Corrections and improvements will be included on dated revisions - the latest of which will be available upon request.

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General Safety



Refer to Operation and Service Manual before operating and servicing equipment.



Use proper lockout/tagout procedures before servicing equipment.



Wear ear protection when working around the equipment for extended periods of time.



Safety glasses should be worn at all times when operating or servicing the refrigeration unit.



Do not use this Equipment for any purpose not described in this Manual.



Do not operate this equipment without all guards and covers in place.



Do not operate this equipment from any power source that does not match the voltage rating stamped on the equipment. Refer to the Manufacturer's Identification Label for operational requirements.



Beware of high voltage (400-480 volt) in various parts of the unit, especially when CB1 is in the ON position. It is recommended that a thorough study of the wiring diagram be made to determine where high voltage may be encountered when electric power is fed to the unit.



Note: The electrical system will automatically restart the unit in case of power failures.



Refrigerant is heavier than air. Therefore, it settles in the lowest places and will expel air (oxygen) from a small confined space, resulting in dizziness or suffocation to an occupant.



Arc flash potential when equipment is operating.



Fans present possible hand injury when equipment is operating.

When installing, operating or servicing the equipment, follow all local regulatory standards.

All service and maintenance procedures should be performed in accordance with Section 608 of the Clean Air Act (CAA), prohibiting the venting of refrigerants into the atmosphere and providing for the use of refrigerant recycling and recovering equipment to be used whenever a system is opened.



Always wear approved goggles or eye shields when working with refrigerant to prevent eye injury if refrigerant is accidentally discharged into the face of the service engineer.

- When any work is to be done on the components of the refrigeration system, be sure that the unit cannot be started automatically or accidentally. If valves are closed and/or circuits interrupted during service procedures, the control switches should be suitably tagged with such notations.
- Do not exert excessive pressure when tightening flare nuts, as it may result in a rupture of the flare or stripped threads.
- Never, under any circumstances, apply heat to a refrigerant cylinder by using a naked flame. Should it be considered necessary to apply heat to a cylinder to create a refrigerant flow when recharging a system, place the cylinder in a container of hot or warm water to a point about 3/4 of the height of the cylinder.
- Even this method requires that a pressure gauge is in use in the charging line to indicate the pressure in the cylinder at all times.
 - Never close the shut-off valve in the cylinder while the cylinder is being heated.
 - The use of a manifold gauge set will permit compliance with CAA regulations by having a gauge in the line and a shut-off valve on the manifold to stop the flow of refrigerant into the system and allow the gauge to read cylinder pressure.
 - Always replace refrigerant cylinder valve and connection caps after using the cylinder, and do not permit a cylinder to be dropped or hit severely by another object.

Equipment Cleaning

If it should become necessary to clean the exterior of the electrical panel of this equipment, do not use liquid cleaners, aerosols, abrasive pads, scouring powders or solvents, such as benzine or alcohol. Use a soft cloth lightly moistened with a mild detergent solution.

Dismantling and Disposal



Hydraulics/Lubricants – Must be recycled as required by local environmental law – do not dispose of by pouring down the drain.



Electronics – Must be recycled as required by local environmental law – do not dispose of by adding to the Municipal waste stream.



Metal/Other Parts of the System – Must be recycled as required by local environmental law.



Refrigerant – Must be reclaimed and recycled as required by local environmental law. Do not release refrigerant into atmosphere.

SECTION ONE - Specifications

1.1 General

The NMG-118-T4 (Nose Mount Generator Set) was specifically designed to meet the rigorous demands of ocean, over-the-road, and rail transport of 20' and 40' refrigerated containers. The NMG-118 can be mounted quickly in the nose of a container, using only four bolts.

The genset meets the EPA T4 regulations as confirmed via extensive testing by the engine manufacturer, Isuzu.

1.2 Construction

Welded aluminum frame

Aluminum doors and closures

Stainless steel hardware

1.3 Engine

ISUZU 4LE2 Tier 4/Stage 3B

Liquid cooled diesel, four cylinder; 2.2L; 4 stroke; OHV; direct injected; turbocharged; glow plug assisted Start.

30 kW (40.2 BHP) @ 1800 RPM rated output

1.4 Alternator

28.4 kW / 35.5 kVA RFL, specifically designed for starting 3 phase AC electrical motors.

Single bearing, 10 lead, 1800 RPM, Y 480 volts, 0.8 power factor lagging.

NOTE: The output voltage is not adjustable but is directly related to the engine's speed.

Normal readings at 1800 RPM (60 Hz) are between 460 and 500 V.

1.5 Temperature Operating Range

From -30°C to +50°C (-20°F to +125°F)

1.6 Weight

- 500 kg (1100 lbs.) without fuel
- 685 kg (1510 lbs.) with full fuel tank

1.7 Mounting

Mounting clip in back, 4 bolts in front.

1.8 Fuel Supply

The generator set has an incorporated fuel tank with a capacity of 170 L (45 US gallons) that can provide approximately 22 hours of operation under full load.

1.9 Power Supply

STANDARD: 28 kVA - 460 V AC / 3 phase / 60 Hz

40 A power circuit breaker

CEE 17 - 32 A power receptacle

1.10 CONTROLS

- Two toggle switches
 - Start switch: OFF-ON-START
 - Engine speed switch: 1000 RPM-1800 RPM
- Isuzu Power View monitors:
 - ENG RPM
 - OIL PRESS
 - COOL TEMP
 - BAT VOLT
 - ENG TORQ
 - MACH HRS
 - FUEL TEMP
 - FUEL RATE
 - INT MFLD T
 - BOOST PRESS
 - SYS VOLT
 - BOST PRES2

1.11 Electrical Starting System

- Battery: 12V, Group 31 – 950 CCA @ 0°F
- Battery Charging Alternator: 20 or 35 A, 14 VDC
- Starter Motor: 2.0 kW, 12V Gear Reduction type
- Glow plug assisted start with control resistor

1.12 Fuel System

- Pre-Fuel Filter w/Water Sedimenter, paper element type w/drain, remote mount
- Pre-Pump, electrical 12 V fuel supply pump, remote mount
- Main Fuel Filter w/Water Sedimenter paper element type with priming pump, w/drain, remote mount
- Engine integrated fuel pump
- Direct injection cylinders

1.13 Lubrication System

- Full pressure system with trochoid type Oil Pump, driven from the crankshaft.
- Oil pan made out pressed stamped steel, full sump, with a capacity of 8.4 liter (8.9 U.S. quarts).
- Full flow, spin-on Oil Filter, replaceable paper element type.

1.14 Cooling System

- Pressurized liquid (50/50 water / glycol mixture) forced circulation by Centrifugal Pump.
- Thermostat, wax pellet type, opening at 76.5°C (170°F).
- Cooling fan suction type, plastic 6 blades, 400mm (15.75") diameter
- Heavy duty 4 row, 3 pass copper / brass Radiator.
- High coolant temperature switch, normal open, single pole, closing at 105°C (221°F).

1.15 Combustion Air Cleaning System

- One high performance single stage Cyclopac® air filter with extended life dry cartridge and automatic dust and water expelling Vacuator® Valve.
- Air cleaner restriction indicator for maximum filter life.

SECTION 2 - Safety Precautions

Safety Glasses should be worn at all times when operating or servicing the Generator Set.

2.1 Rotating Hazards

1. Keep your hands, clothing, and tools clear of the alternator belt when the generator set is running.
2. If it is necessary to run the generator with a removed cover, be very careful with tools or meters being used in that area to avoid contacting the rotor.

2.2 Battery Hazards

Few people realize just how dangerous a battery can be.

The electrolyte in a lead acid battery is dilute sulfuric acid (H₂SO₄). During charge or discharge functions of a battery, a chemical change takes place within the individual cells that cause the bubbling we see through the filler hole. This gas bubbling is hydrogen and oxygen, and it is **EXPLOSIVE**. If during this gassing action, a means of ignition is present, an explosion could occur. A defective battery may suddenly explode even while standing idle. Added to this danger, consider a fall-out of highly corrosive sulfuric acid caused by the explosion.

PRECAUTIONS

1. Always wear eye protection when servicing batteries. If electrolyte is splashed on the skin or in the eyes, flush immediately under running water. Obtain medical help as soon as possible.
2. When charging batteries, do not remove the vent caps.
3. When disconnecting or reconnecting the generator set battery make sure the ON/OFF switch is in the **OFF** position to prevent an arc, which could cause the battery to explode. Disconnect the ground cable first, preferably at a point away from the battery. Reconnect the ground cable last, again away from the battery if possible.
4. DO NOT check a battery by "**sparking**" across the posts. Eye injury from the arc or explosion may occur.

2.3 Noise Hazard

When servicing or operating the Generator Set in a running condition, personal protective hearing equipment should be worn when exposure is longer than 8 hours.

2.4 Electrical Hazards

HIGH VOLTAGE

When servicing or repairing a generator set, the possibility of serious or even fatal injury from electrical shock exists. Extreme care must be used when working with an operating generator. Lethal voltage potentials can exist on connections that are in the exciter control box.

Special attention should be given to the Main Power Plug and Receptacle when disconnecting from each other. When disconnecting these two items ensure that the power circuit breaker has been turned to the off position. Do not pull at the cable but rather with a firm grip on the housing, grab the plug and receptacle and pull apart. If the cable is used rather than the housing the risk exists that the wires within the housing could become dislodged and lead to a future electrical hazard.

PRECAUTIONS

1. When working on high voltage circuits on the generator sets, **DO NOT** make any rapid moves. If a tool drops, **DO NOT** grab for it. People do not contact high voltage wires on purpose. It occurs from an unplanned movement.
2. Make sure of your footing. If you slip, you will instinctively grab for support. This can be lethal around a generator set. Work on rubber mats or dry wood if possible.
3. Use tools with insulated handles that are in good condition. Never hold metal tools in your hand if exposed energized conductors are within reach.
4. Treat all wires and connections as high voltage until a meter and wiring diagram show otherwise.

SECTION 2 - Safety Precautions

IMMEDIATE ACTION must be initiated after a person has received an electrical shock.

Obtain expert medical assistance if available.

Immediately remove the source of shock by either shutting it down or removing the victim from the source. If it is not possible to shut off the generator set, the wire should be cut with an insulated tool (e.g. a wooden handled axe or cable cutters with heavy insulated handles), or a rescuer wearing insulated gloves. Whichever method is used, **DO NOT** look at the wire while it is being cut. The ensuing flash can cause blindness. Remember that insulated gloves **MUST BE** insulated and not just rubber gloves manufactured for protection from liquids. If the victim has to be removed from live circuitry, pull him off with a non-conductible material. Use his coat, a rope, a piece of dry wood or loop your belt around his leg or arm and pull him off. **DO NOT TOUCH THE PERSON**, you could receive a shock from current flowing through his body. After separating the victim from the power source, check immediately for respiration and presence of pulse. If a pulse is present, respiration might be restored by mouth-to-mouth resuscitation.

LOW VOLTAGE

Control circuits utilized by the generator set are low voltage (12 VDC). This voltage potential is not considered dangerous, but the large amount of current available (over 300 amps) can cause severe burns if shorted to ground.

1. Disconnect the negative terminal of the battery if possible when working on the generator set. Disconnect the cable end that is away from the battery.
2. **DO NOT** wear jewelry, watches, or rings. These items can short out and cause severe burns to the wearer.

2.5 General Safety Precautions

1. To prevent against a possible personnel burn injury the following precautions should be followed:
 - a. Do not touch the muffler, exhaust pipe or exhaust manifold while the unit is in operation or immediately after stopping the unit. The unit should be allowed to cool to an acceptable level prior to performing service in these areas.
 - b. Do not touch the radiator cap or attempt to add coolant to the engine while the unit is in operation or immediately after stopping the unit. The unit should be allowed to cool to an acceptable level prior to opening the radiator cap.
2. Use extreme caution if holes are drilled into the generator set. Holes drilled into an electrical wire can cause fire, explosion, or shock hazard.
3. Ensure all mounting screws are tight and are the correct length.
4. Keep tools and equipment clean and in good working condition. Accidents occur when you attempt procedures without the proper tools.

2.6 Safety Do's And Don'ts

DON'T -

DON'T allow inexperienced personnel to work on the generator or electrical equipment.

DON'T remove guards or protective devices.

DON'T wear loose clothing or jewelry in the vicinity of moving parts. These can get in machinery, with disastrous results.

DON'T wear jewelry while working on electrical equipment. If your hair is long, wear a head covering. Hair caught in a drill press, fan belt or other moving part can cause serious injury.

DON'T stand on a wet floor while working on electrical equipment. Use rubber insulated mats placed on dry wood platforms.

DON'T lunge after a dropped tool. To do so may place you in a position of extreme danger.

DON'T commence any operation until you have taken all the necessary steps to ensure that you are in complete safety.

DO -

DO perform your tasks carefully, without undue haste.

DO provide fire extinguishers (rated ABC).

DO provide a First Aid Kit (for burns and abrasions). Obtain medical attention, if necessary.

DO use the correct tools for the job you are doing.

DO make sure that all fasteners are secure.

- DO** use extreme care while making adjustments on the generator set while it is running.
- DO** keep your hands away from moving parts.
- DO** remember - Horseplay is for horses! It has no place around machinery.
- DO** disconnect batteries before starting work on the generator set.
- DO** use screwdrivers, pliers, diagonal pliers, etc. with insulated handles.
- DO** remember to keep one hand in your pocket if it is necessary to work on "live" circuits. To do so will prevent passage of electricity into one hand and out the other, which passes current across the heart.
- DO PRACTICE SAFETY. THE LIFE YOU SAVE MIGHT BE YOUR OWN**

SECTION 3 - Generator Set Operation

3.1 Pre-Start Inspection

1. Check fuel level - Use Diesel fuel SAE No. 2-D, No. 1-D in cold weather, or any other equivalent low sulphur content diesel fuel as DIN EN 590; BS 2869 Class A-1; JIS No.2; NATO Code F-54 / F-34 / F-44 and XF-63.
2. Check engine oil level – should be at full mark.
3. Use SAE multi-grade oil 10W-40 API rating CC/CD or higher for normal operation and SAE 5W-20 when operating at temperatures below -4°F (-20°C).
4. Check coolant level – should be between the two marks on the overflow bottle.
5. Check fan belt for tension and integrity.
6. Make sure that the generator's main circuit breaker located in the window of the genset left-hand door is in "OFF" position (right).
7. Ensure the refrigeration unit plug is connected to the generator set power receptacle.

3.2 Starting The Unit

1. Ensure the Engine Speed Switch is set to 1000 RPM.
2. Move the OFF-ON START switch to ON, when the PREHEAT LED goes out (will not illuminate in warmer ambient conditions) toggle the switch to START. Release the switch when the engine has started.
3. Allow the engine to run for a minimum of 10 seconds to become stable at 1000 RPM.
4. Change engine speed switch to 1800 RPM.

3.3 After Start Check-Up

Look for the following in the Power View window:

- ENG RPM = 1800 ±5
- BAT VOLT = 12.8 VDC or greater
- OIL PRESS = 2 BAR or higher

When the above conditions are met it is safe to switch the main circuit breaker to ON.

There are several safety devices employed to prevent damage to the engine, or the electrical system, should a potentially dangerous situation occur.

The 25 A circuit breaker protects DC components and wiring from a short circuit situation. The circuit breaker will reset periodically until the short circuit is removed.

WHEN A DC CIRCUIT BREAKER IS REPLACED IT MUST BE INSTALLED PROPERLY WITH THE "BAT" TERMINAL CONNECTED TO THE LINE OR BATTERY SIDE OF THE CIRCUIT AND THE "AUX" TERMINAL CONNECTED TO THE LOAD SIDE OF THE CIRCUIT AS INDICATED ON THE CIRCUIT BREAKER.

Two safety shutdown devices are used to protect the engine. One is the high temperature switch that actuates at 221°F (105°C). The other is an oil pressure switch that actuates at 14 psi (1kg/cm²).

3.4 Shutting Off The Engine

Switch the engine speed to 1000 RPM and allow to run for 3 minutes before switching the start switch to OFF. This will give time for the turbo to cool, extending the life of the turbo/engine.

3.5 Led Indicators

The electrical control system is provided with a high intensity red LED located on the upper front of the control box.

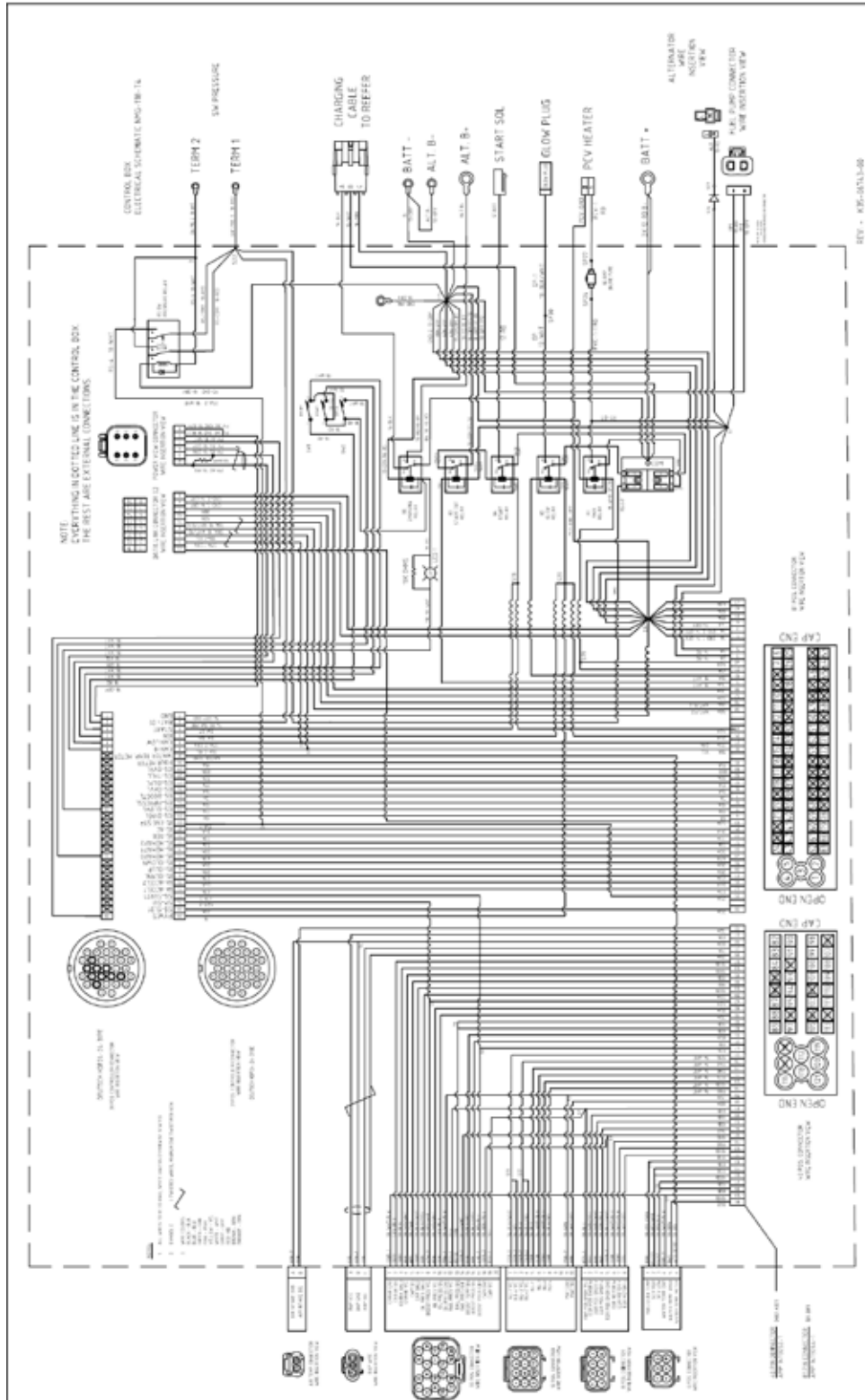
This red LED indicates when it is safe to start the engine, based on the temperature following the system's use of glow plugs in low ambient temperature conditions.

3.6 Engine Speed (RPM)

The engine must be set to run at 1000 RPM at start-up.

After allowing the engine to run for 10 seconds to warm up the turbo, the engine speed switch is to be set to 1800 RPM before a load is put on genset.

Wiring Diagram



SECTION 4 - Maintenance And Component Information

4.1 Fuel System

The fuel injection pumps and fuel injection nozzles are precisely manufactured and therefore using fuel which contains water or dust particles will result in equipment seizure, costly damages and decreased engine output.

Replace fuel filter element after every 500 hrs of operation.

Use KLINGE K26-25310-08 pre-filter element and K26-25310-09 main filter element.

Before starting the unit check for leaks and for water in the filter bowl. Drain if necessary.

Use SAE No.2-D Diesel fuel, 1-D in cold weather.

The following standards are also approved: DIN EN 590; BS 2869 Class A-1; JIS No.2; NATO Code F-54 / F-34 / F-44 and XF-63.

DO NOT USE:

- Diesel fuel that has been contaminated with engine oil, this can cause engine damage and can also affect emission control.
- Fuel additives, except "Biocide" type, if required.

4.2 Combustion Air Intake System

Engine performance and life depends on the intake air condition.

Replace air filter cartridge after every 500 hours of operation.

Use KLINGE K26 25091 08 filter cartridge.

After 100 hours of operation, or more often if the generator set is operated in a dusty environment, remove the filter cartridge and blow air at a pressure of 3 – 6 BAR (45 –70 PSI) only from the inside, to remove the dust.

Take care to not damage the filter element during the cleaning and to not cause air leakage (sucking) when the air cleaner is reassembled.

4.3 Lubrication

A correct oil and filter service will ensure good performance and a long engine life.

Change oil and filter after initial 50 hours of operation.

Afterwards change the oil every 250 hours and filter every 500 hours of operation or at least once in a year.

Use SAE multi-grade oil SAE 10W-40 API rating Cj-4 or higher and SAE 5W-20 when operating at temperatures below -20°C (-4°F).

Use KLINGE XB-998209 filter element.

Check the oil level before every start, add oil if required, up to the FULL mark.

CAUTION

Never mix up different brand or different type of oils.

4.4 Cooling System

Use 50/50 Ethylene Glycol / Water solution. Never exceed 60 / 40 antifreeze water mix.

NOTE: Concentrations over 65% Ethylene Glycol adversely affect freeze protection, heat transfer rates and silicate stability that may cause water pump leakage.

Replace coolant every two years.

Check the hoses and pump for leaks and the coolant level, before every trip of the unit. With a cool engine the liquid level should be between the two marks on the expansion tank.

4.5 Fan Belt

Check the fan belt for tension and integrity before every start.

Replace if necessary, using KLINGE K26 25310-20 belt.

4.6 Battery

Keep the battery fully charged all the time, it is important especially in cold seasons.

Keep the battery posts clean and the battery cables tightened securely.

Always disconnect the battery negative cable when work on the unit is performed.

If distilled water is needed to be added, do it before the unit will be operated, otherwise the water will not mix with the acid and can freeze in cold weather.

4.7 Starter And Battery Charging Alternator

The starter and the battery charging alternator servicing consists of:

- Check the carbon brushes and the brush contact.
- Clean the alternator slip ring.

Avoid spraying water or steam on the alternator and on the starter, it may cause damage.

4.8 SERVICING SCHEDULE

	Daily or Weekly	Initial 50 Hours	Every 250 Hours	Every 500 Hours	Every 1000 Hours	Every 2000 Hours
GENERATOR SET (NMG-118)						
Check Fuel Level / add if needed	X					
Check sediment bowl on fuel filter (Drain water and clean if needed)		X	X			
Replace Fuel Filter				X		
Replace Air Filter Insert (More frequent may be required based on operating area)				X		
Check Oil Level / add if needed	X					
Replace Oil Filter		X		X (Min Yearly)		
Replace Oil		X	X (Min Yearly)			
Check for fluid leaks	X	X				
Check radiator coolant level/ add if needed	X					
Inspect and if needed clean radiator fins			X			
Flush radiator and replace coolant and hoses						X
Inspect and adjust cooling fan V-belt		X	X			
Replace V-belt						X
Inspect and clean Vacuumator valve (Air Filter)			X			
Check engine for unusual noises or exhaust smoke	X		X			
Ensure battery terminals are tight			X			
Check main circuit breaker plastic boot			X			
Inspect unit and generator set for damaged, loose, or broken parts, missing bolts			X			
Check condition of mounting bolts		X	X			
Check condition of engine and alternator mounts (replace if necessary)		X			X	

- In addition to the above checklist the normal Pre-Trip Inspection Form should also be completed every 2 months.

SECTION 4 - Maintenance And Component Information

4.9 PTI Form

It is important that a Pre-Trip Inspection (PTI) be completed prior to each shipment.

The NMG-118-T4 PTI form can be found on Klinge's website at: <http://www.klingecorp.com/pti/>

4.10 Recommended Spare Parts

ITEM	PART #	DESCRIPTION	U / M	QTY
1	K26-25310-21	Oil Filter	EA	2
2	K26-25310-19	Fuel Filter Main Element	EA	1
3	K26-25310-18	Fuel Filter Pre Element	EA	1
4	K26-25091-08	Air Filter	EA	1
5	K26-25145-112	V-Belt Cooling Fan / Alternator	EA	1
6	K28-10785-01	Boot Main Circuit Breaker	EA	1
7	K24-22559-00	Relay 12 V 10A SPDT	EA	1
8	K24-22121-00	Relay 12 VDC 30A SPDT	EA	1
9	K24-22556-00	Switch OFF / ON / START	EA	1
10	K24-22416-00	Switch ON / OFF (RPM Switch)	EA	1
11	K26-25310-03	Fuel Pump	EA	1
12	060-18893-00	Hose Radiator - Inlet	EA	1
13	060-18894-00	Hose Radiator - Outlet	EA	1
14	K24-17239-00	Boot Toggle Switch	EA	1

SECTION 5 - Troubleshooting

5.1 Trouble Shooting

The following trouble shooting chart is by no means complete, but covers the more general type problems, which would most likely occur if a breakdown is experienced.

POSSIBLE CAUSE	CORRECTIVE ACTION SUGGESTED
Problem: Engine starter will not energize	
Loose or corroded Battery Terminals	Clean terminals and tighten
Battery Voltage too low	Recharge or replace battery
Faulty START / PREHEAT Switch	Replace
Faulty ON / OFF Switch	Replace
Faulty Starter Solenoid	Replace
Faulty Starter Motor	Replace
Circuit Breaker Open	Replace if it does not reset
Problem: Starter turns but engine does not ignite	
Faulty control Relay R1	Replace
Faulty emergency stop Timer	Replace
Faulty Engine Fuel Solenoid	Replace
Control rack is stuck in stop position	Remedy
Engine too hot and protection system will not allow to operate	Allow engine to cool will not allow starter
Faulty coolant Temperature Switch	Replace switch
Faulty electrical Fuel Pump	Replace
No Fuel	Add fuel to tank
Clogged fuel filter element	Replace
Problem: Engine starts but stalls immediately	
Air in the fuel system	Remedy and bleed the system
Defective oil pressure Switch	Replace switch
Low oil pressure LED stays ON	
Oil level to low	Add oil
Problem: Engine stops with high engine temperature indication	
Coolant temperature too high	Check cooler for air flow restriction and clean or remove restriction
Coolant level too low	Add coolant
Defective high temperature switch	Replace switch
Thermostat malfunction	Replace
Fan belt slippage or broken	Remedy or replace
Problem: Black exhaust	
Clogged air filter	Clean the filter cartridge or replace
Improper fuel - low cetane grade	Replace fuel
Nozzle damage	Repair or replace nozzle

SECTION 5 - Troubleshooting

POSSIBLE CAUSE	CORRECTIVE ACTION SUGGESTED
Problem: White smoke	
Water or oil mixed in fuel	Replace fuel and clean fuel filter
Low compression pressure	Check compression
Low coolant temperature	Check thermostat and replace if needed
Problem: Unstable engine running (Hunting)	
Defective governor spring	Replace
Incorrect valve adjustment	Adjust valve clearance
Problem: No Voltage at power receptacle but AC voltmeter needle is in the green band	
Main Circuit Breaker is on OFF position	Turn main circuit breaker ON
Defective main Circuit Breaker	Replace
Problem: No AC Voltage	
No residual magnetism in the alternator exciter field	Restore magnetism by flashing field
Open in main stator windings	Check for continuity in windings
*Open or short in rotating diodes	Check rotating diodes and replace if needed
*Open in alternator field	Check for continuity. If field coils are open, replace the rotor or repair it.
*Shorted exciter armature	Check for short and replace if faulty. Use a Kelvin type bridge to measure this resistance
NOTE: * Designated rotating parts. The rear alternator cover (bearing carrier) must be removed in order to perform the test. For instructions how to perform the tests see "ALTERNATOR MANUAL" at the end of this Manual.	
Problem: Low Voltage	
Low speed	Check engine speed or system for overload.
Excess load	Reduce load. The load on each leg should be as evenly balanced as possible and should not exceed the rated current on any leg.
High resistance connections - Connections will be warm or hot	Make better connections, electrically and mechanically.
Shorted field	Test field coils for possible short. Use an Ohmmeter or resistance bridge. Repair or replace rotor if alternator field coils are shorted.
Problem: Fluctuating Voltage	
Irregular engine speed	Check engine for malfunction.
Loose terminal or load connections	Make better connections.
Defective bearing causing uneven gap	Replace alternator bearing.
Problem: Overheating	
Generator overloaded	Reduce load. Check with ammeter and compare with alternator nameplate rating.
Unbalanced load	The load on each leg should be as evenly balanced as possible and should not exceed the rated current on each leg.
Dry bearing	Replace bearing
Clogged vent ducts	Clean air passages

5.2 Power View Display

SUPPORTED PARAMETER NUMBERS (SPN)

The following Parameters are supported and would be displayed if a fault occurs.

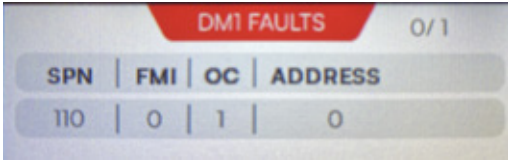
DATA TROUBLE CODE (DTC)

SPN	Description
22	Extended Crankcase Blow-by Pressure
51	Throttle Valve 1 Position
52	Intercooler Temperature
92	Engine % Load at Current RPM
94	Fuel Delivery Pressure
96	Fuel Level 1
98	Engine Oil Level
100	Engine Oil Pressure
101	Crankcase Pressure
102	Intake Manifold 1 Pressure
105	Intake Manifold 1 Temperature
106	Air Inlet Pressure
107	Air Filter 1 Differential Pressure
108	Barometric Pressure
109	Engine Coolant Pressure 1
110	Engine Coolant Temperature
111	Engine Coolant Level 1
157	Fuel Injector Metering Rail 1 Pressure
167	Charging System Voltage
168	Battery Potential Voltage
172	Air Inlet Temperature
173	Exhaust Temperature
174	Fuel 1 Temperature
175	Engine Oil Temperature
177	Transmission Oil Temperature
182	Trip Fuel
183	Fuel Rate
184	Instantaneous Fuel Economy
185	Average Fuel Economy
190	Engine Speed (RPM)
247	Engine Hours
441	Aux Temperature 1
513	Actual Engine % Torque
515	Engine Desired Operating Speed (RPM)
701	Aux I/O 1

SPN	Description
975	Engine Fan 1 Estimated Speed
1387	Aux Press 1
1436	Engine Ignition Timing
1761	SCR Catalyst Tank Level 1 (DEF)
3031	DEF Tank Temperature
3242	DPF Intake Temperature
3246	DPF Outlet Temperature
3517	SCR Catalyst Tank Level 2 (DEF)
3697	Diesel Particular Filter (DPF) Lamp Status
3698	Exhaust System High Temp Lamp
3700	DPF Active Regeneration Status
3702	DPF Active Regeneration Inhibited
3719	DPF Soot Load %
3720	DPF Ash Load %
5078	Amber Warning Lamp Status
5079	Red Stop Lamp Status
5080	Malfunction Lamp Status
5082	Oil Pressure Low Lamp
5083	Coolant Temperature High Lamp
5245	Diesel Exhaust Fluid Low Level
5246	SCR Operator Inducement
6709	Speed High Lamp

SECTION 5 - Troubleshooting

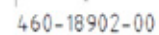
- Fault codes will be displayed on a dedicated faults page sorted by SPN and FMI code (see image below) **The viewer does not shut the engine down** on fault condition, all shutdowns will be generated by the engine ECM.



- SPN = Suspect Parameter Number - Indicates what part of the system is reporting an error. See Supported Parameters section for a partial list of SPN definitions. Contact equipment manufacturer for a full list.
- FMI = Failure Mode Indicator - Indicates the reported failure. See table below.
- OC = Occurrence Count - how often the failure occurred.
- Address - The source address (SA) of the device reporting the failure. For the NMG-118 T4, SA 0 is the only applicable address, originated by the engine ECU.

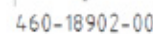
FMI	Description
0	Above Normal - Most Severe Level
1	Below Normal - Most Severe Level
2	Data Erratic or Incorrect
3	Voltage Above Normal or Shorted High
4	Voltage Below Normal or Shorted Low
5	Current Below Normal or Open Circuit
6	Current Above Normal or Shorted
7	Mechanical System not Responding or Out of Calibration
8	Abnormal Frequency or PWM Rate
9	Abnormal Update Rate
10	Abnormal Rate of Change
11	Problem Unknown
12	Bad ECM, Controller, or Smart Sensor
13	Out of Calibration
14	Special Instructions
15	Above Normal - Least Severe Level
16	Above Normal - Moderately Severe Level
17	Below Normal - Least Severe Level
18	Below Normal - Moderately Severe Level
19	CAN Data Error
20	Data Drifted High
21	Data Drifted Low
22 - 30	Reserved for Future Use
31	Condition Exists

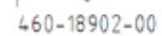




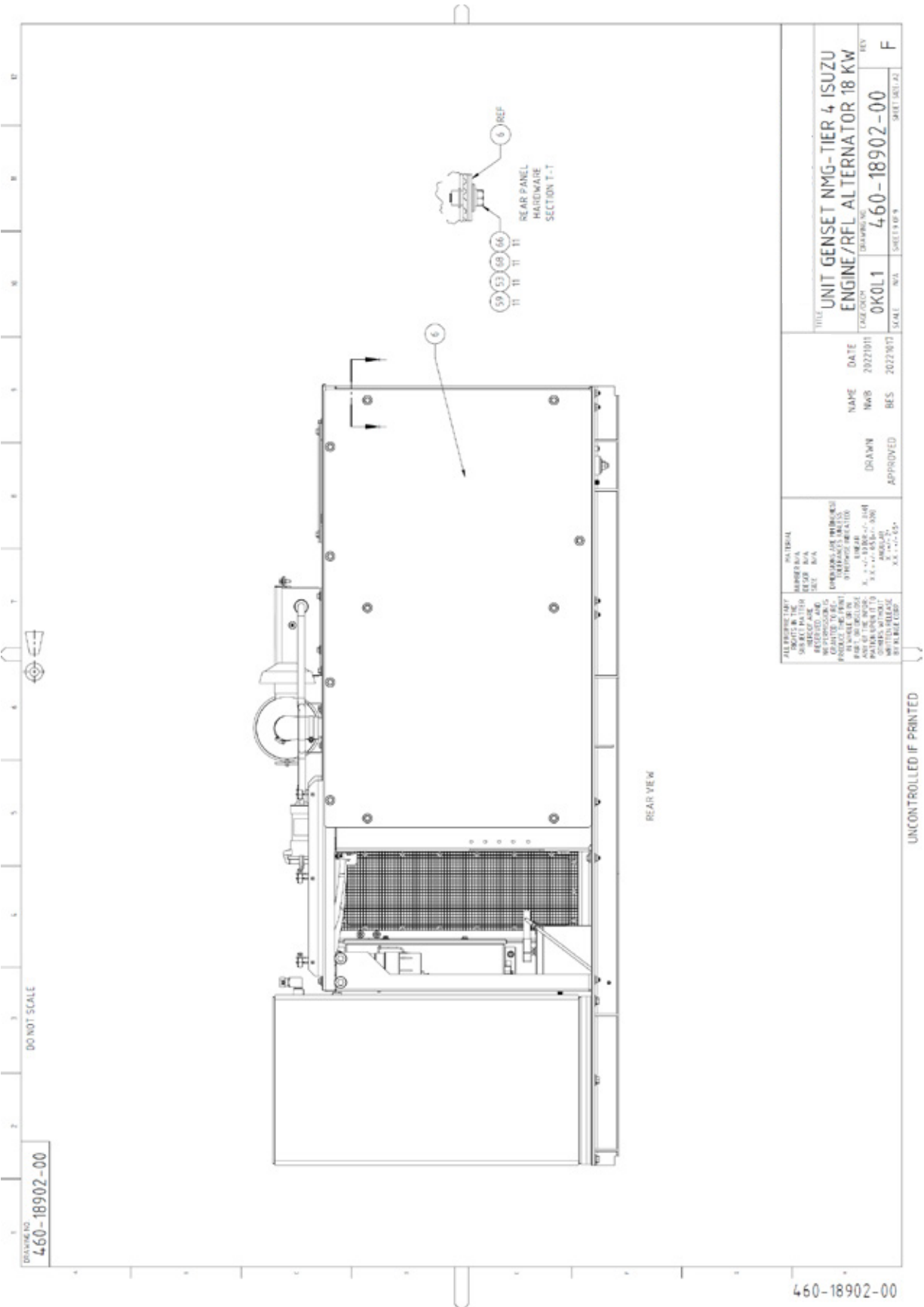




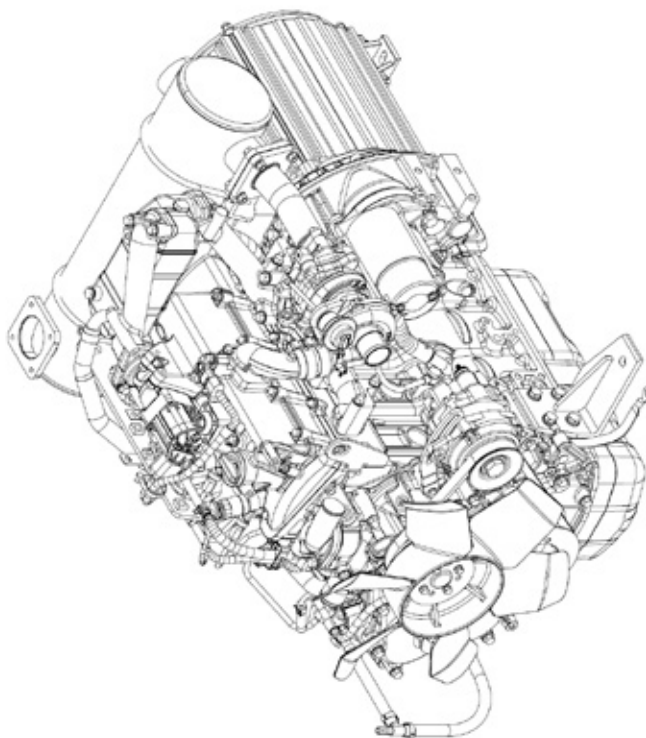


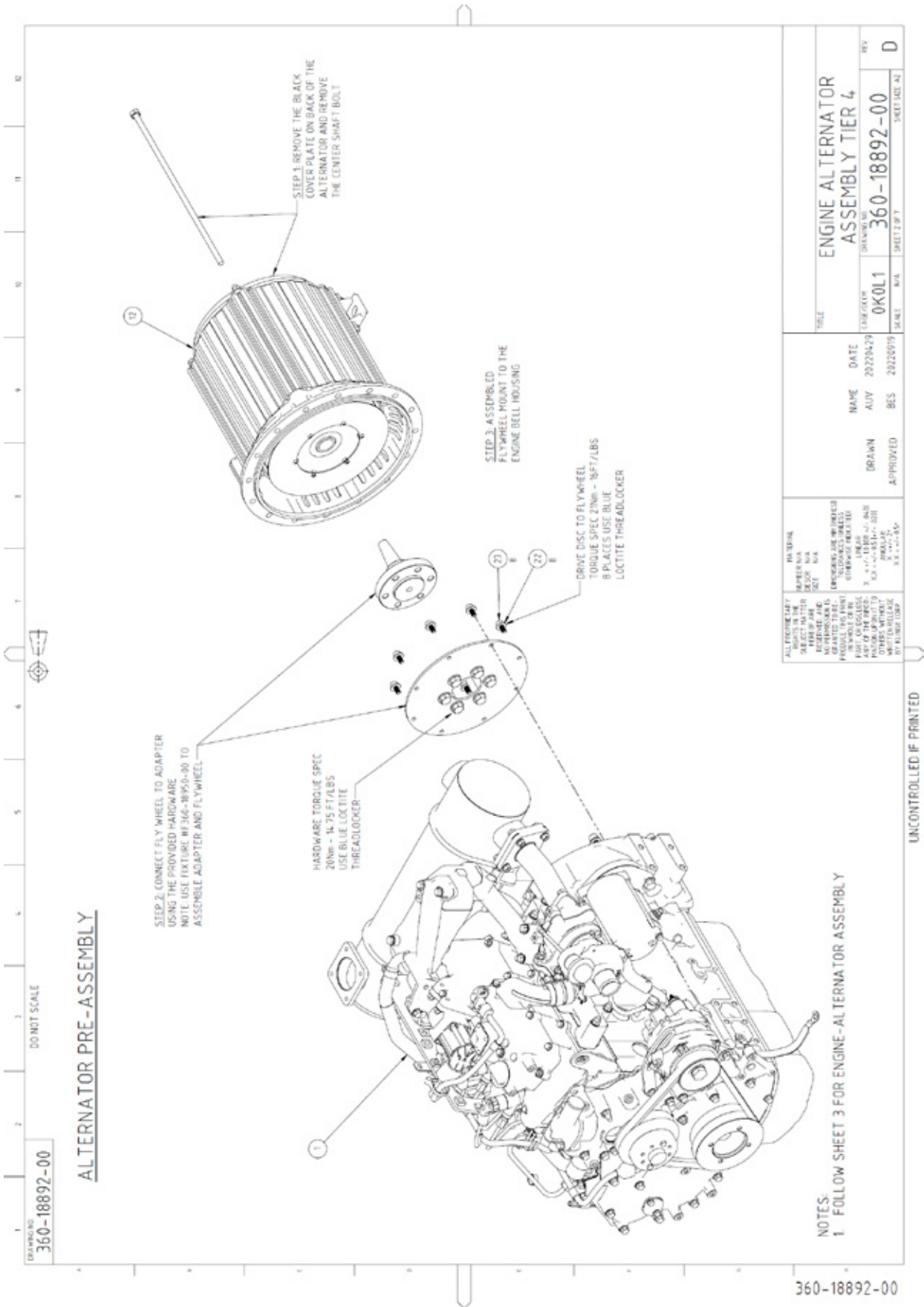


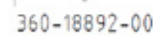


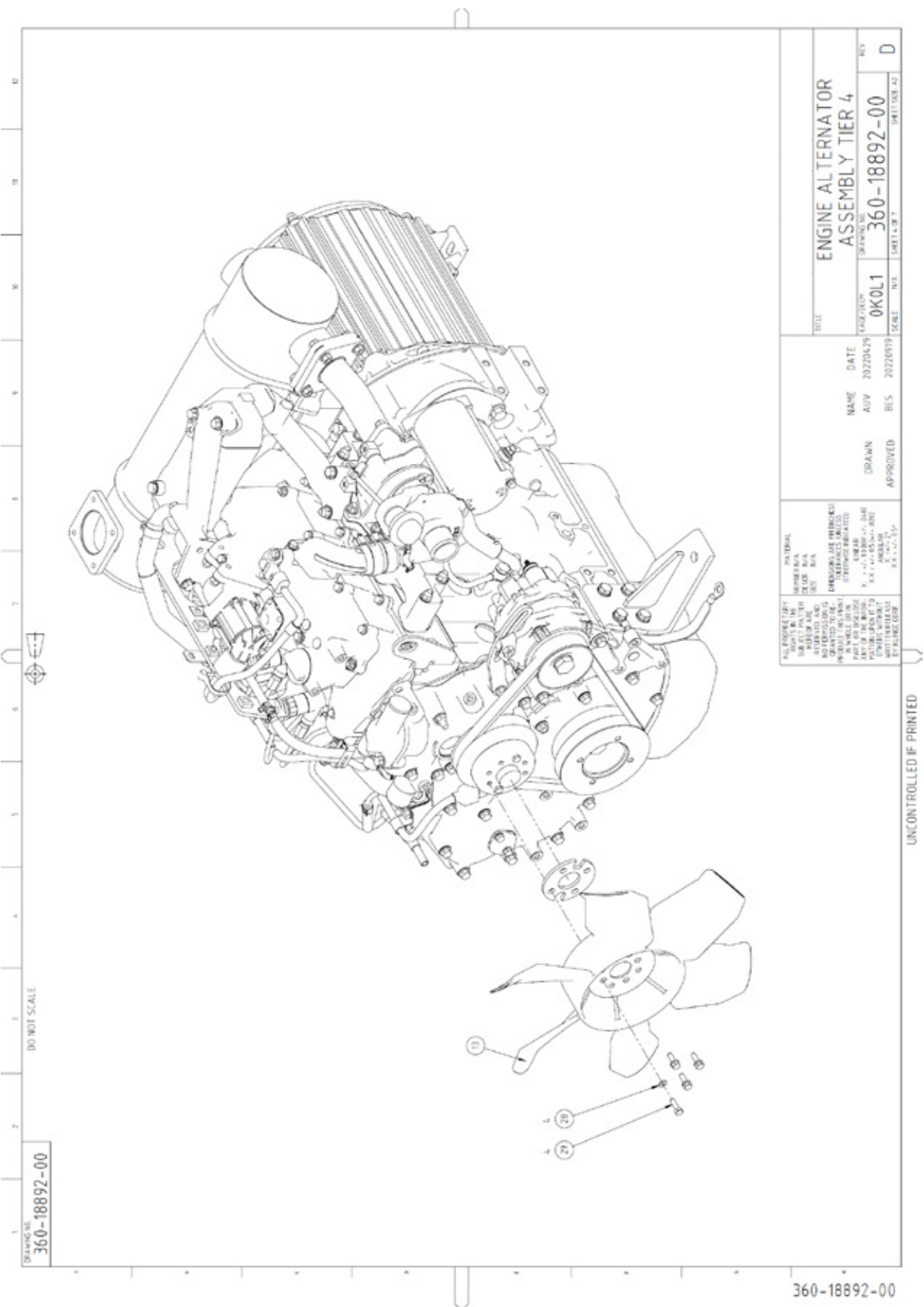


Engine / Alternator Assembly Tier 4

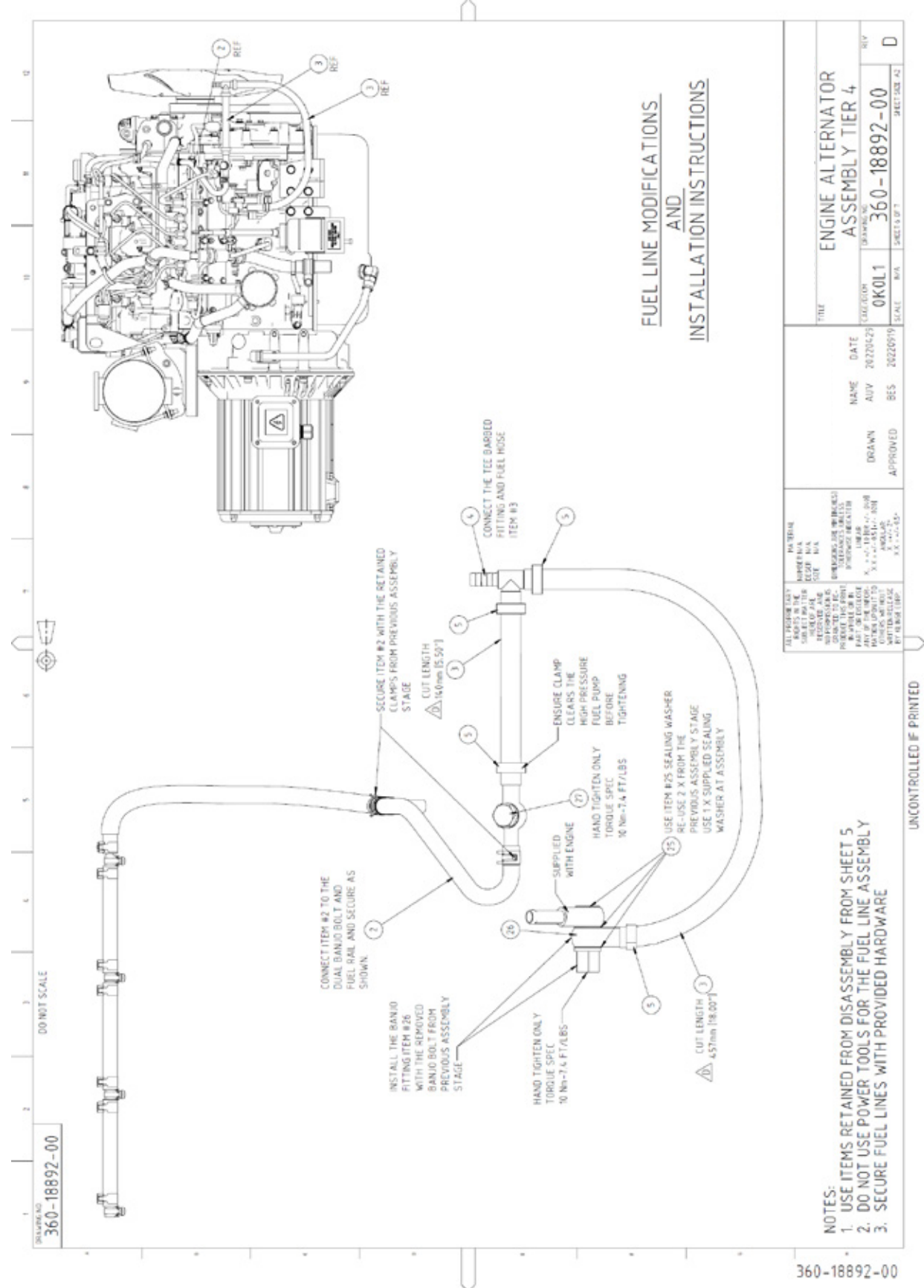
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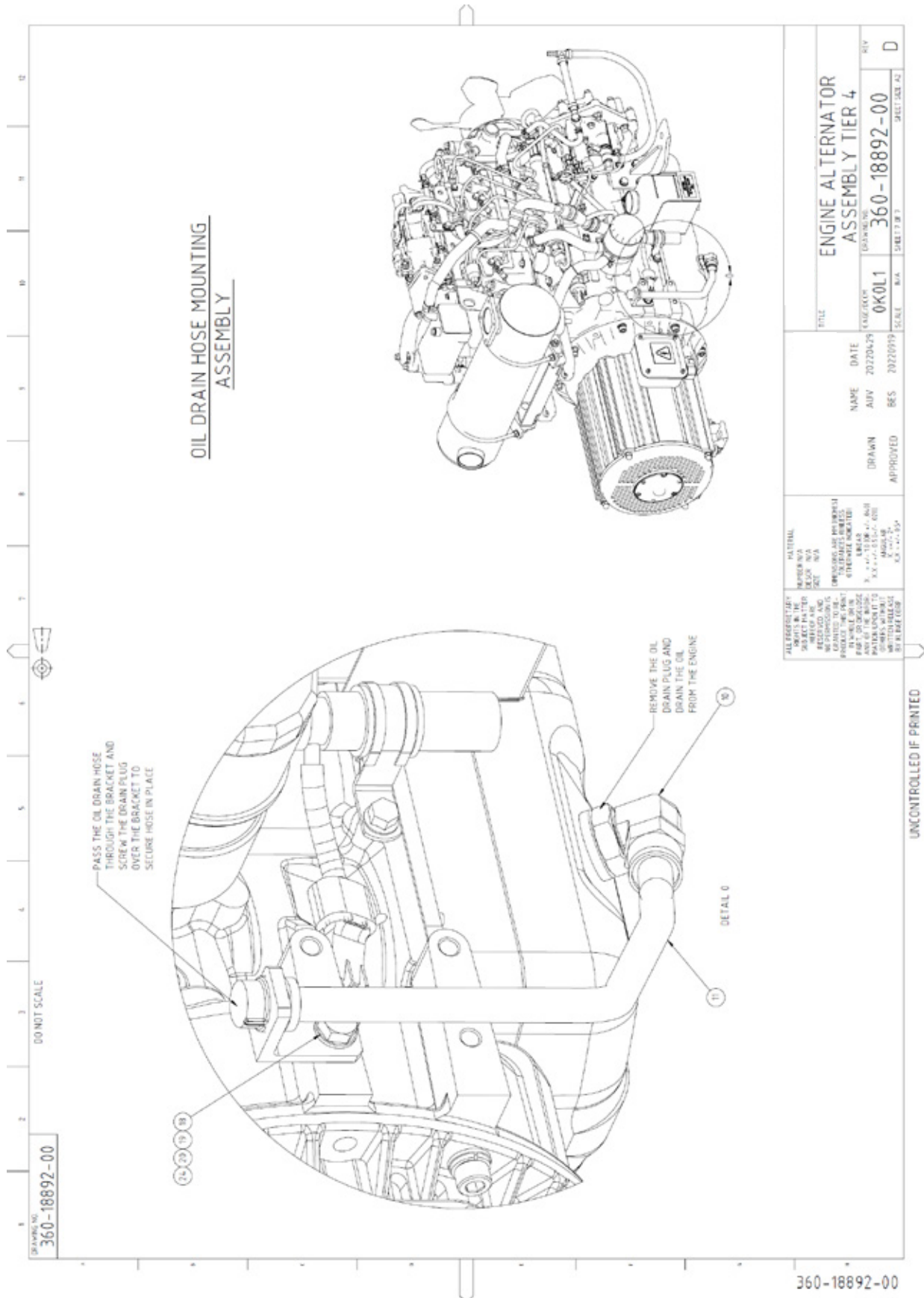




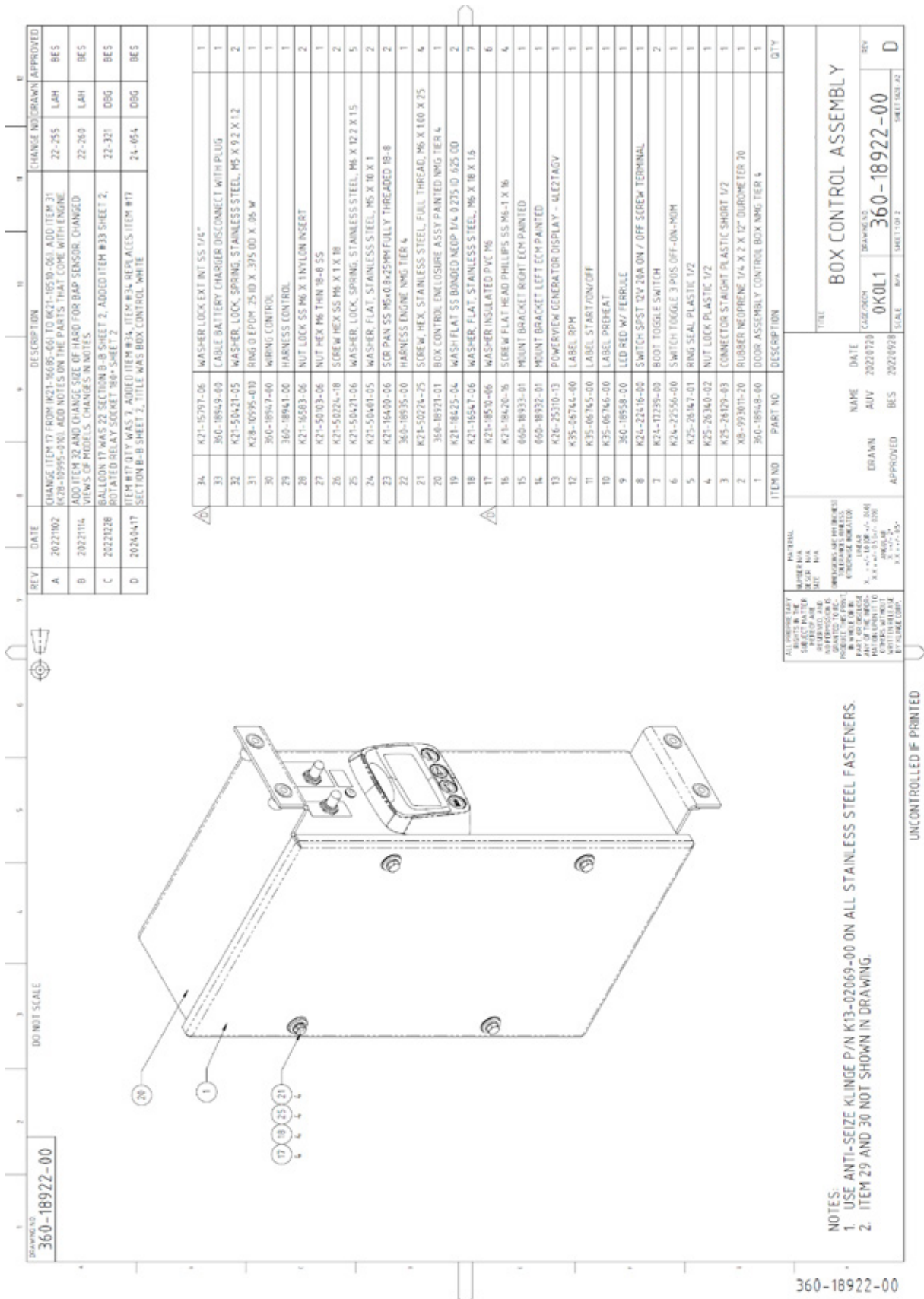


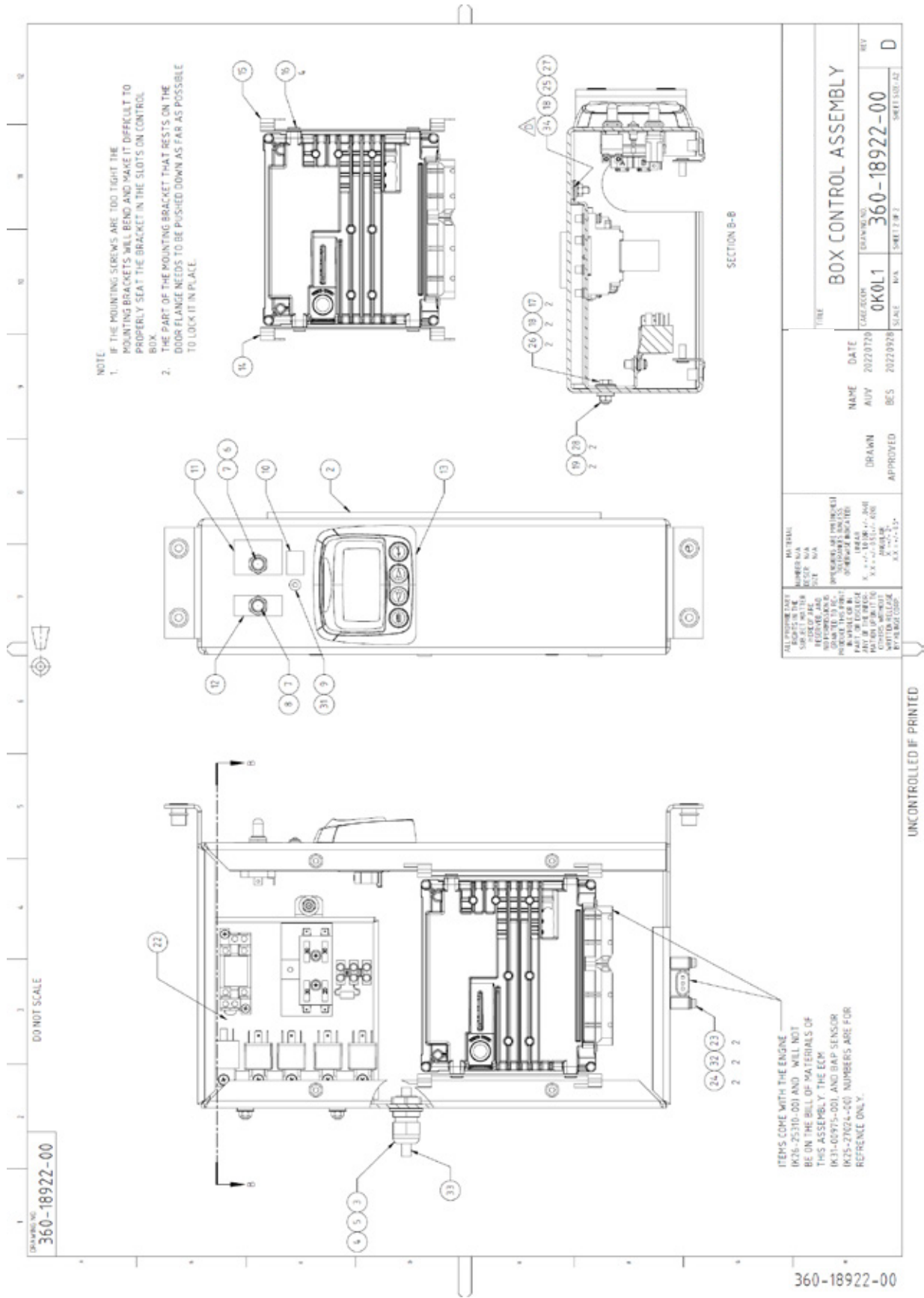


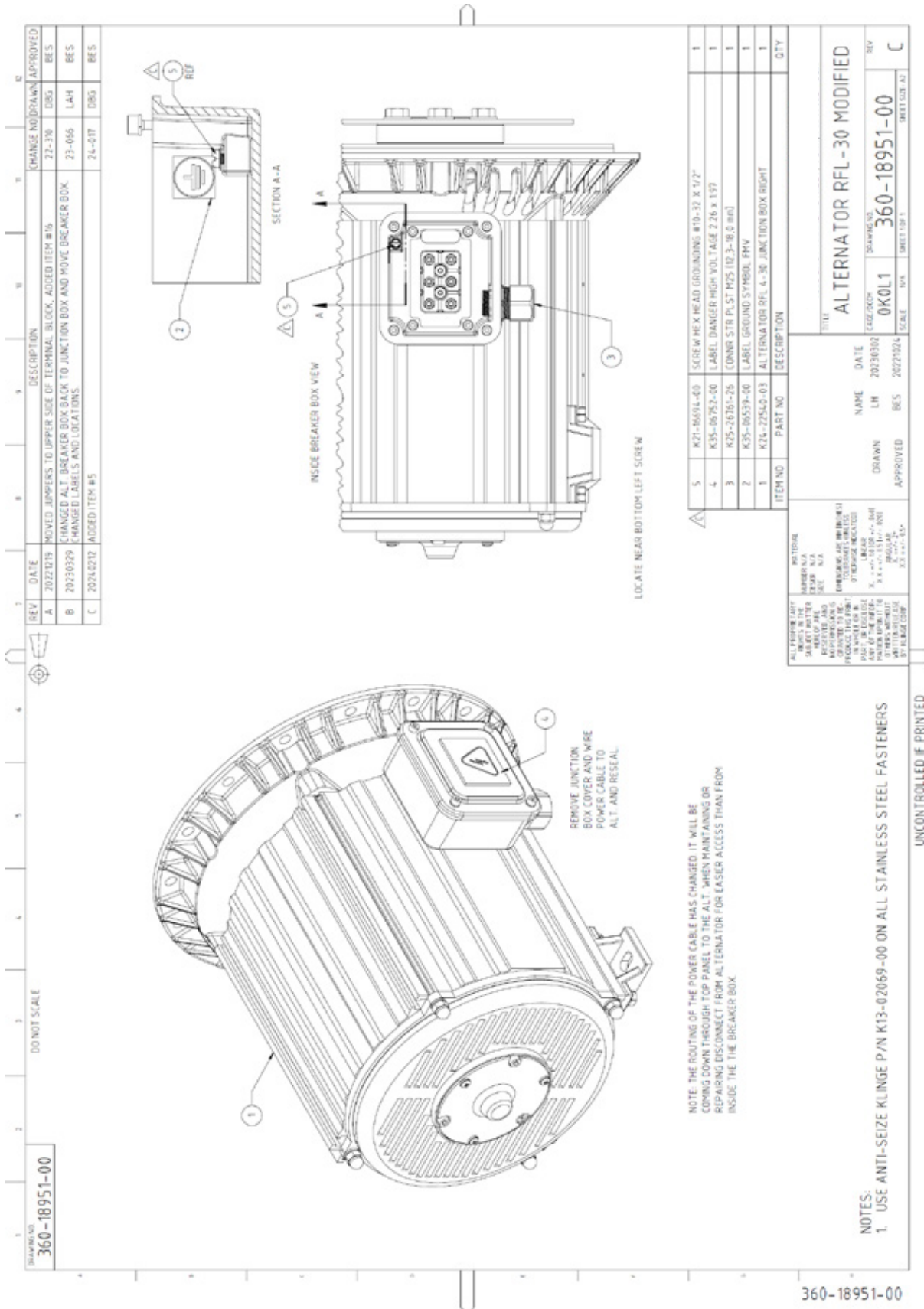




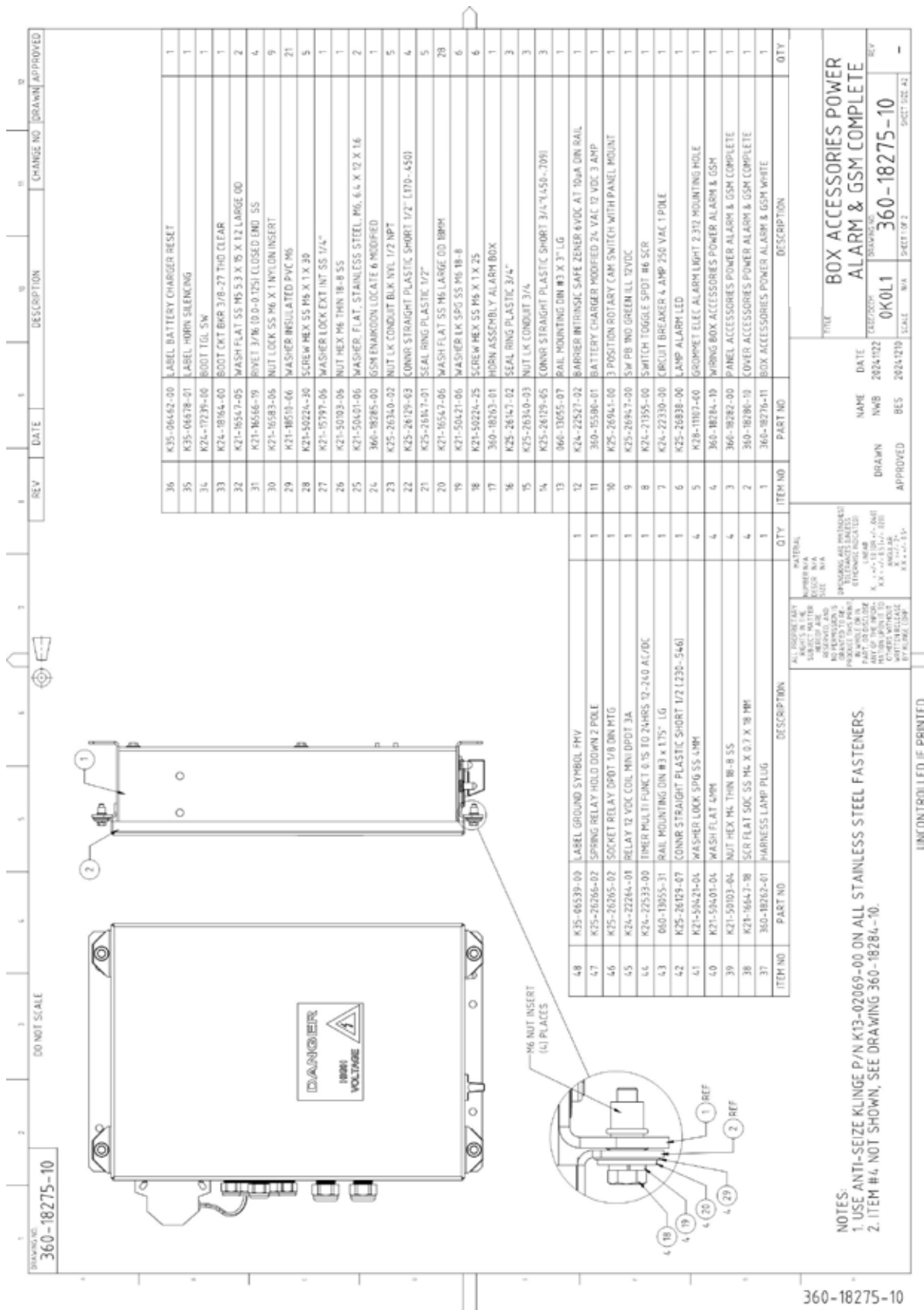
Box Control

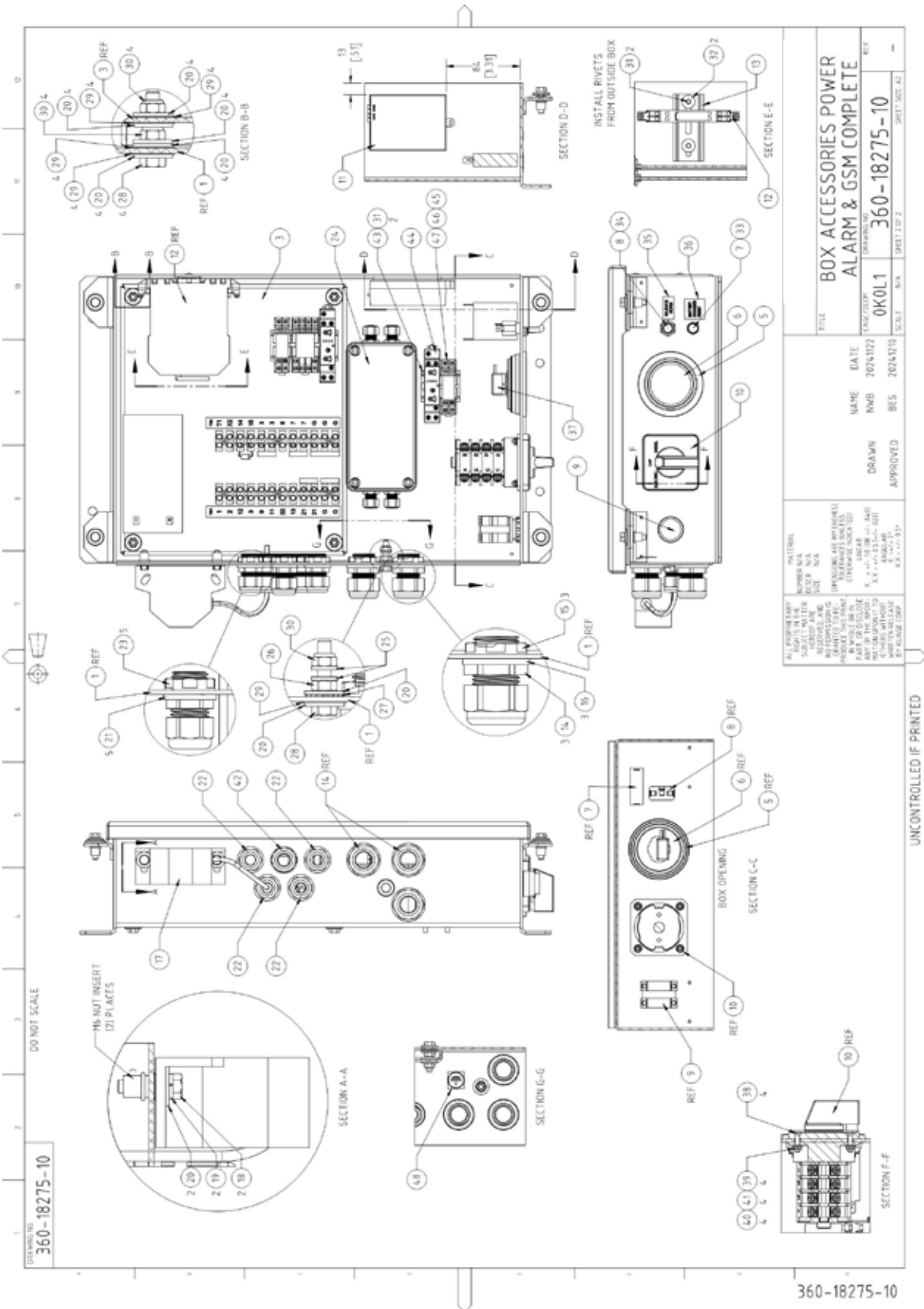






Box Accessories Power Alarm & GSM Complete (Optional)





TITLE		BOX ACCESSORIES POWER ALARM & GSM COMPLETE		DRAWING NO. 360-18275-10		SHEET 2 OF 2	
DATE	20241122	NAME	NWB	DATE	20241119	SCALE	N/A
DRAWN		APPROVED	BES	DRAWN			
REVISIONS							
1. 01/11/2024							
2. 01/11/2024							
3. 01/11/2024							
4. 01/11/2024							
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