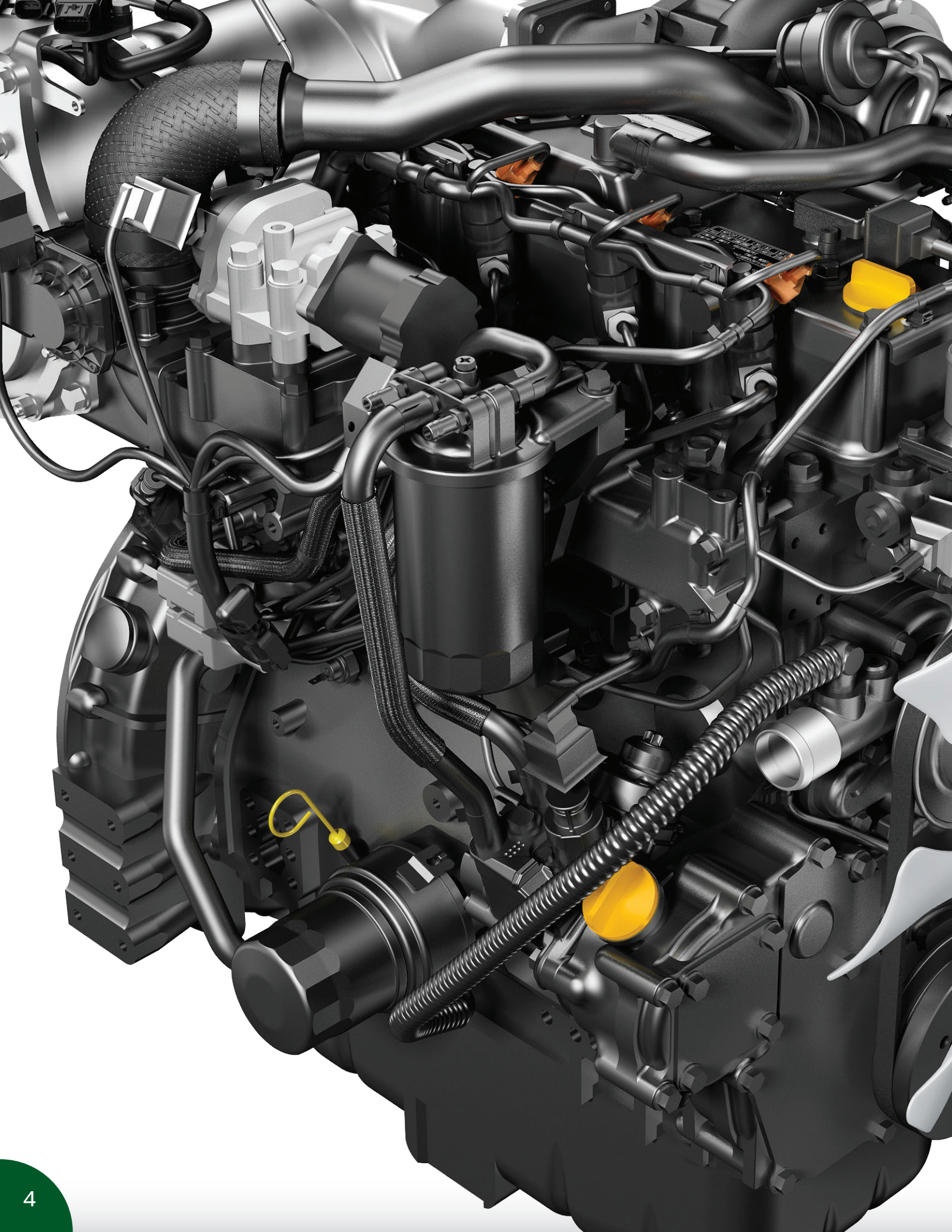
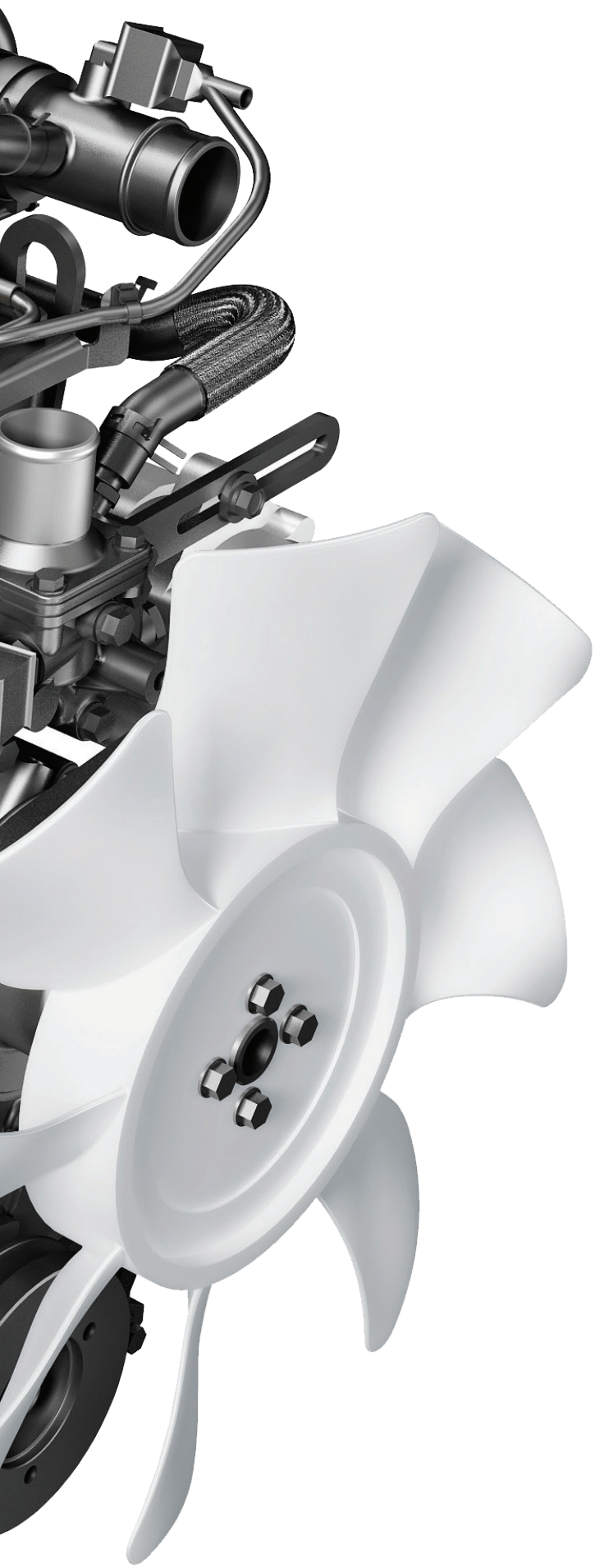
MASTRY ENGINE CENTER'S GUIDE TO YANMAR REPOWER

A sample of O.E.M.'s that use Yanmar Power


CLARK
DAEWOO
JOHN DEERE
DOOSAN
GEHL
kramerALLRAD
ISUZU
DIESEL
VOLVO
Ingersoll Rand
VALPADANA
KOHLER
KOBELCO
KOMATSU
TEREX
TORO
WACKER NEUSON





Are you happy with your present equipment?

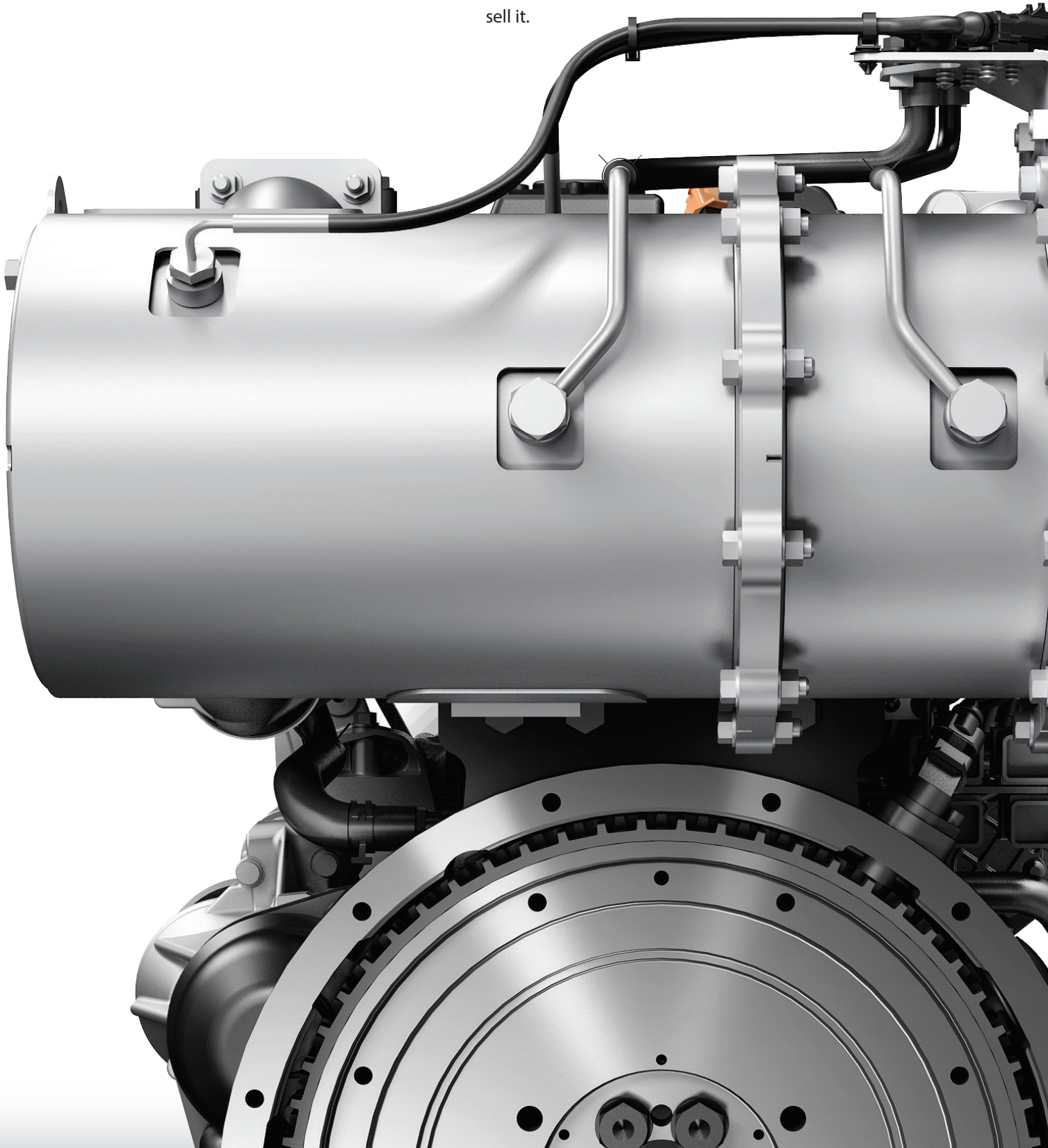
Do you like its strong construction and good handling qualities? Chances are you like everything about it... with one exception. Anyone who has ever owned a piece of equipment for more than a few years will readily admit that there comes a point when the possibility of replacing an engine becomes a very real likelihood. To some, the mere thought of replacing their tired, fuel-guzzling diesel engine with a new, fuel-efficient diesel sounds great. To others, the task may appear somewhat daunting. After all, repowering any equipment is a little more involved than simply dropping an engine into your chassis.

A practical approach

Engine selection is indeed important. However, this guide was written to provide you with a solid understanding of those things to be considered beyond engine size, horsepower and brand. It was published as a "how-to" guide covering everything from evaluating cost vs. the value derived, to selecting an experienced and reputable installer. In spite of its perceived complexity, repowering doesn't have to be a hassle.

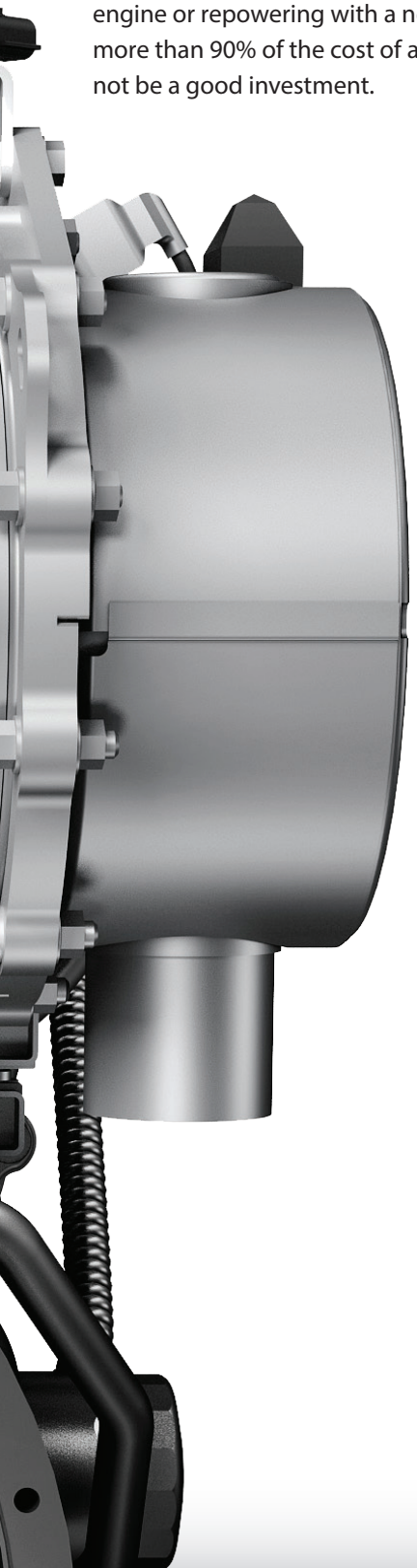
Cost vs. value

It may be tempting to think that the value of a machine repowered with a new engine will increase enough to fully offset the cost of the new engine and its installation. Although the machine will be worth more with a new engine, the increase in value in the used machine market may not equal your investment if you sell the machine. The machine's value will increase as will its fuel savings, but probably not enough to fully pay for the conversion. That said, you are considering the rebuild or repower because you want to use your machine, not sell it.



The rebuild / repower trade-off

Although rebuilding an existing engine normally poses few challenges, the installation of a new engine usually provides significant performance and economic advantages. Many parts and accessories of a rebuilt engine—alternator, starter, water pump, injection pump and turbo, for example—are usually retained, and have an uncertain further life expectancy. All parts of a new powerplant will be unused and the entire engine will carry a very valuable manufacturer's warranty. There are no hard and fast rules for deciding between rebuilding an existing engine or repowering with a new engine. However, spending more than 90% of the cost of a new engine on a rebuild may not be a good investment.



Repowering—Getting the job done right

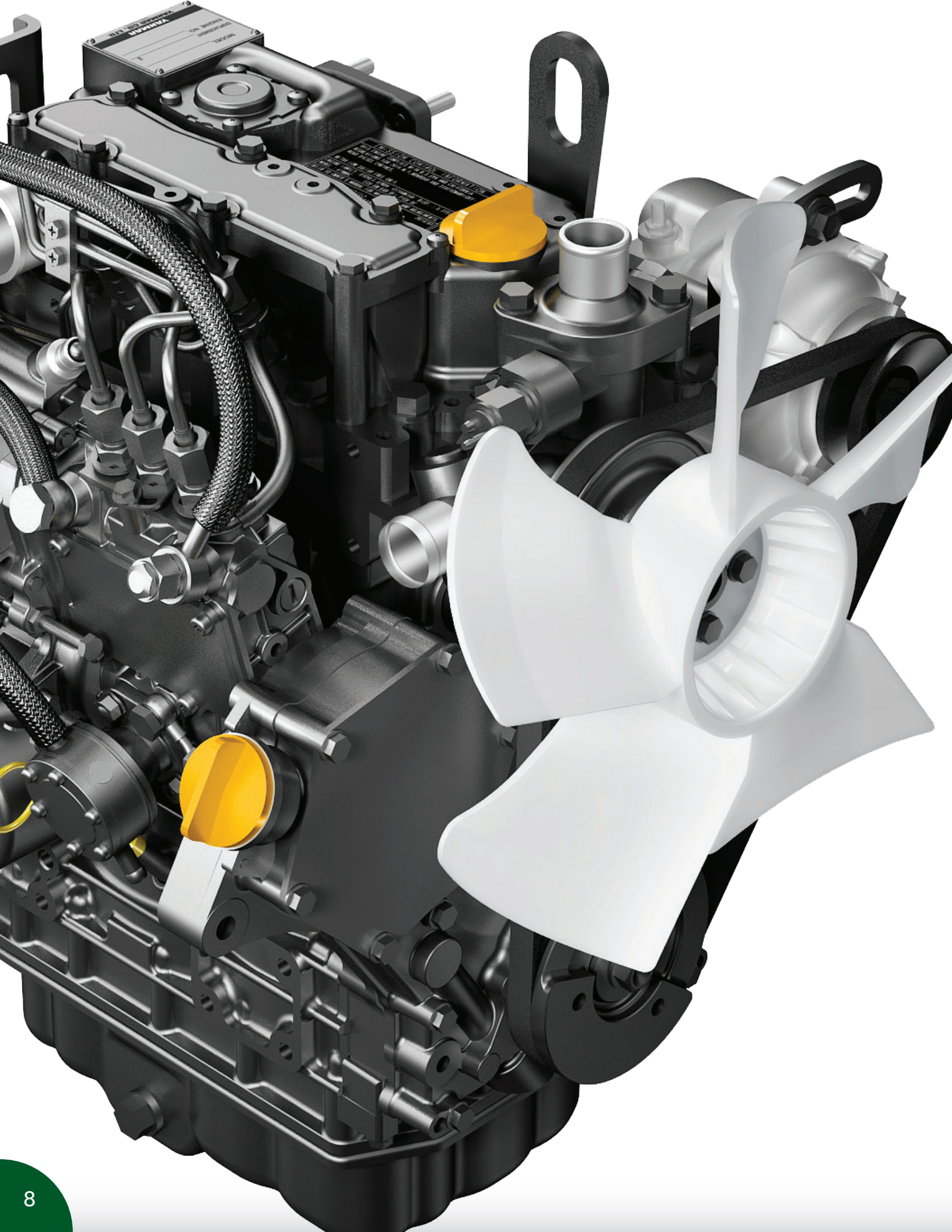
A successful repowering project involves two equally critical decisions; selection of a qualified installer and choosing the right engine for the machine. Of the two, the selection of the installer can be more challenging. While engines can be defined by their specifications, the installation of new engines requires reliance upon the engineering judgment and the skill of those doing the work. The project must be planned carefully in accordance with applicable standards. The work must be done right; "good enough" won't do. The following suggestions may help you achieve your goals in repowering your machine.

Accept bids only from prospective installers who have visited and carefully examined your machine. The prospective installer should have questioned you about the way in which you operate your machine.

The overall reputation of the rental or OEM dealership, and in particular, their experience in installing the type of engine you have chosen, are important factors in your decision process. Ask for references, especially from owners of machines similar to yours, and if possible, for installations using the same engine family you are considering.

Be sure that every item described in the technical areas identified on the following pages is enumerated on any proposal you consider. A few items, such as the practicality of converting a non-electronic engine to an electronic engine may have to remain undefined until the work begins. But at the very minimum will require an electronic throttle.

To the degree possible, leave nothing to chance or to "we will see about that later."



What size engine?

While the search for an installer proceeds, you should determine the horsepower available within EPA limits for a new engine. Simply installing an engine of the same EPA rating as the existing one may not be in your best interest. Your power needs will, in part, depend on the type of machine being repowered. Unless it was seriously underpowered, installing a more powerful engine will be unwise and may even be illegal.

Keep an eye on the details

A few basic considerations will help define your repowering project.

The engine must fit in the space available.

There must be sufficient clearance around the new engine for inspection and maintenance access.

Clean, cool air in. Hot air and exhaust out.

The exhaust system can be one of the more critical areas in a new repower installation. The diameter, and most importantly, the back-pressure of the existing exhaust system must be checked to assure that they meet or exceed the requirements specified for the new engine. These precautions are especially important when a turbocharged engine is being installed. Insist on a careful check of the integrity of any existing exhaust system components that will be reused. It is far less costly to make repairs during the installation of the new engine than afterward.

Instruments and controls

The new engine will not be supplied with an instrument panel or set of individual instruments. You may need to reuse the engine sensors that operate existing gauges and indicators. Pay particular attention to the tachometer installation. Some engines derive engine speed information from the AC current generated in the alternator, while others take the more precise approach of the camshaft. Regardless of how it's measured, accurate RPM information will be critical in machine monitoring.

The battery charging system of a new engine will likely cooperate quite well with the existing electrical system. However, it is advisable to check the rated output of the alternator supplied with the engine to determine if it will cope with the machine's requirements for DC power. Often, the installation of a new engine is accompanied by the desire to install additional engine-powered equipment, i.e. additional lighting.

Mastry Engine Center will advise you of which charging systems best meet your needs. If desired, large capacity alternators or dynamos are available. The existing mechanical engine controls will have to be modified from manual to electric or vice versa. Electronically controlled engines require a precise match with controls and gauges. Generally there are many CAN Bus options available.

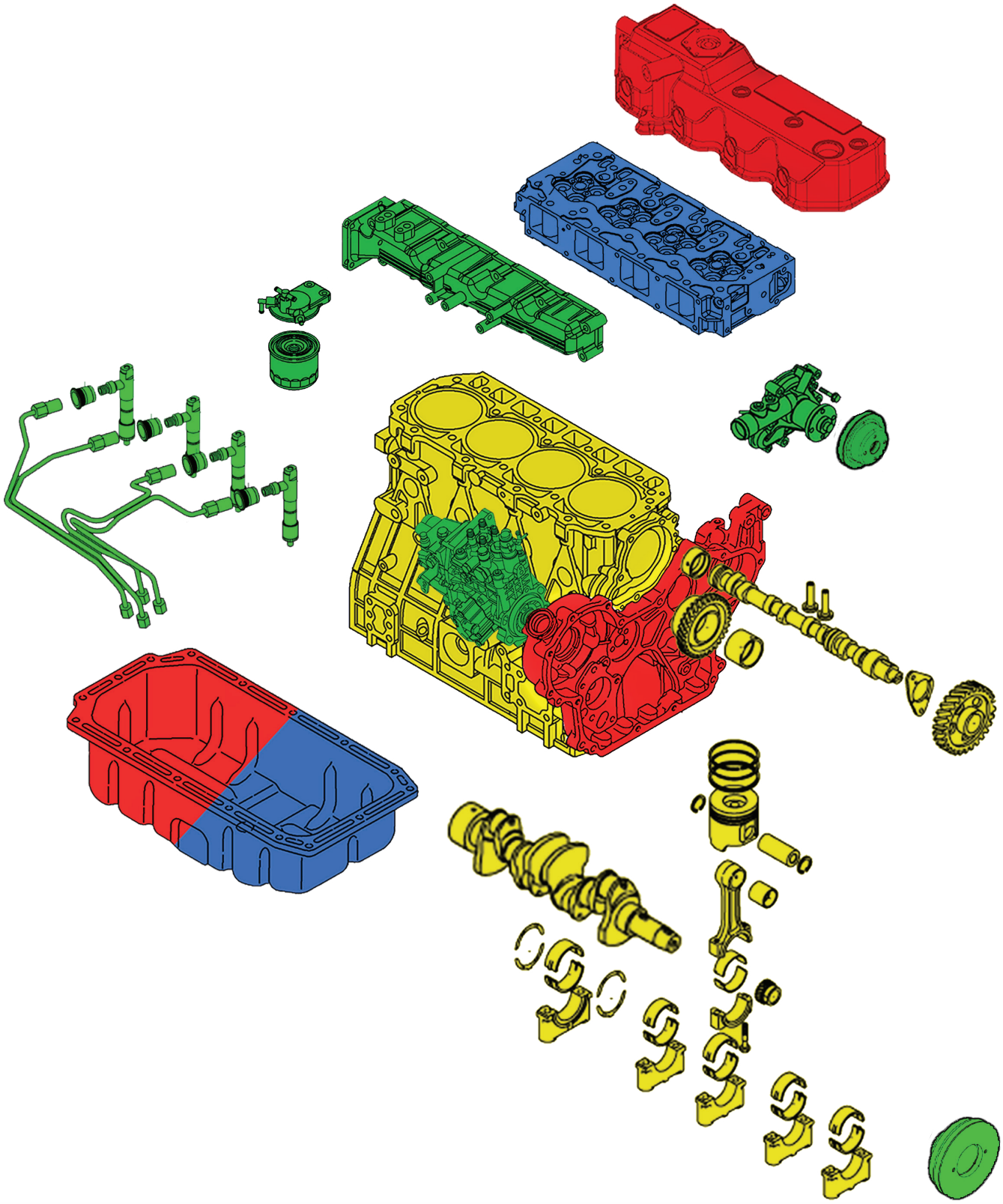
The big day: The first start up

A new engine installation is not complete until its performance has been checked under load and the operator has become familiar with the proper management of the new powerplant. The trial must include operation at all power levels, a careful check of cooling system operation, exhaust system performance and back-pressure, adequacy of combustion air supply and maintenance of acceptable engine compartment temperature, ability to draw from all fuel tanks, ease of starting, shifting and RPM at wide open throttle and shut down. The manufacturer's initial operating procedures must be well understood. Be sure to check with the engine manufacturer regarding operation during the initial 100 hours. Many new engines are damaged by being operated at insufficient power levels during their initial use period, when moderately high power operation is critical to proper seating of the piston rings.

Checklist

- ☑ Engine size, weight, shape. Will it fit easily in the available space?
- ☑ Compare exhaust system requirements with existing installation. Consider displacement and maximum RPM limits for both existing and new engines.
- ☑ Engine compartment design, adequacy of fresh air supply, exhaust of heated air, noise trapping of air intakes and exhausts, improvements likely to be required/desired.
- ☑ Position of engine components relative to existing engine and constraints of engine compartment — will extensive rerouting of hoses, cables and controls be required? Will it be possible to gain access to the engine's components for inspection and service?
- ☑ Engine controls and indicators. Can the controls and indicators for the new engine be readily integrated into the existing panels?
- ☑ Adequacy of existing fuel system. Is the system in good condition? If the power of the new engine is significantly greater than that of the existing engine, will the present cooling system supply enough coolant?
- ☑ Fuel tanks should be professionally cleaned and prefilters changed.

Engine completeness concepts



Short-Block (SB) Engine

Includes complete rotating assembly (crank, rods, pistons, etc)

Head-Block-Crank (HBC) Engine

Includes SB with installed Head-Assembly (valve-train, no rockers)
Oil sump at customer's request

Long-Block Engine

Includes HBC, bonnet, oil sump, and gear case

3/4 (75% complete) Engine

Complete engine minus: fan, flywheel, flywheel housing, non-turbo exhaust manifold, starter, alternator, and ancillary parts

Identifying your engine

The importance of correct and complete information

2016 Yanmar REMAN Request Form

YANMAR REMAN by YANMAR

Date:	
Account Number:	
Company Name:	
Contact Name	
Phone Number:	
Email:	
Notes:	

SHIP TO: (MUST be completed)

Name:	
Address:	
Address:	
City:	
State:	
Zip:	
Phone:	
Attention:	

REQUIRED — **Is there a machine down?** YES ◯ NO ◯

How many steps to end-user (YA direct = 1, dist's dlr's cust = 3, etc)

As soon as a customer requests an engine, whether it's a:

1) Short-Block (SB) Engine which includes block, crank, rods, and pistons
2) Head-Block-Crank (HBC) Engine which adds a head assembly to a SB
3) Long-Block (LB) Engine which adds bonnet, sump, and gear case to HBC
4) 3/4 which is complete minus fan, fw, fwh, non-turbo exhaust manifold, ROTEL, etc and sump exchange
5) Complete

FOR MASTRY
YOU WILL BE NOTIFIED

Please let them know that the best way to receive the fastest response is to e-mail REMAN@YANMAR.com with the below information (distributors should be able to answer 8 and 9).
Please note that for protected OEMs we MAY be able to offer a SUITABLE replacement based on fit, form, function and emissions requirements.

Important information includes:

REQUIRED — **1)** Urgency Level (1-10) ("shopping" is a 1, mid-project machine down is 10)

REQUIRED — **2)** Damage level (1-10) (new=0, running=1~3, hole in block=8+, block&head TKO=10)

REQUIRED — **3)** What is the YANMAR engine model?

REQUIRED — **4)** What is the YANMAR ENGINE serial # (not the machine serial #)?

DETERMINED BY URGENCY — **5)** What is the required delivery date (at what point will customer scrap)?

REQUIRED — **6)** What is the preferred completeness level (SB, HBC, LB, 3/4, Comp)?

REQUIRED — **7)** What is the **required** completeness level (SB, HBC, LB, 3/4, Comp)?

Please check YDS for the following:

FOR MASTRY — **8)** Is there a short block (SB) available? YES ◯ NO ◯

9) Is there a Head Assy available? YES ◯ NO ◯

101 International Parkway, Adairsville GA 30103 Telephone
770-877-6209 FAX 800-966-2401 REMAN@yanmar.com

YANMAR AMERICA CORPORATION

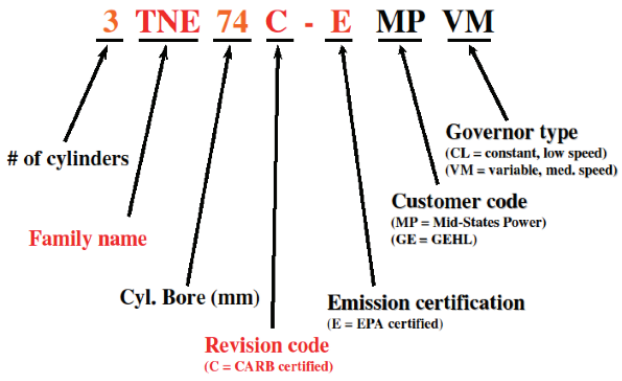
1.05.16

This is the Yanmar form that is filled out by Mastry Engine Center to request a quote. Most of these questions are valid to determine the selling recommendation.

One item not on this form but needed is: "What is this engine powering?" The Make, Type and Model of the Equipment.

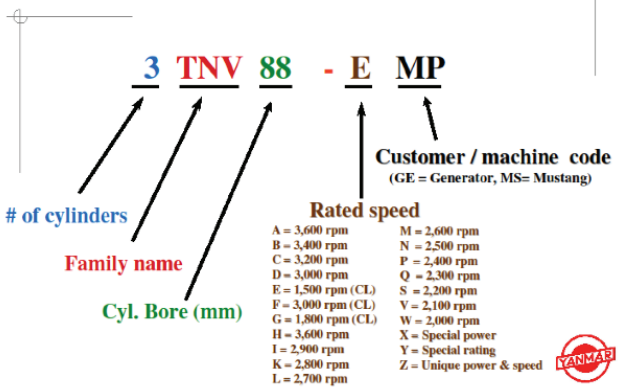
TNE Series Nomenclature

FOR TIER 1

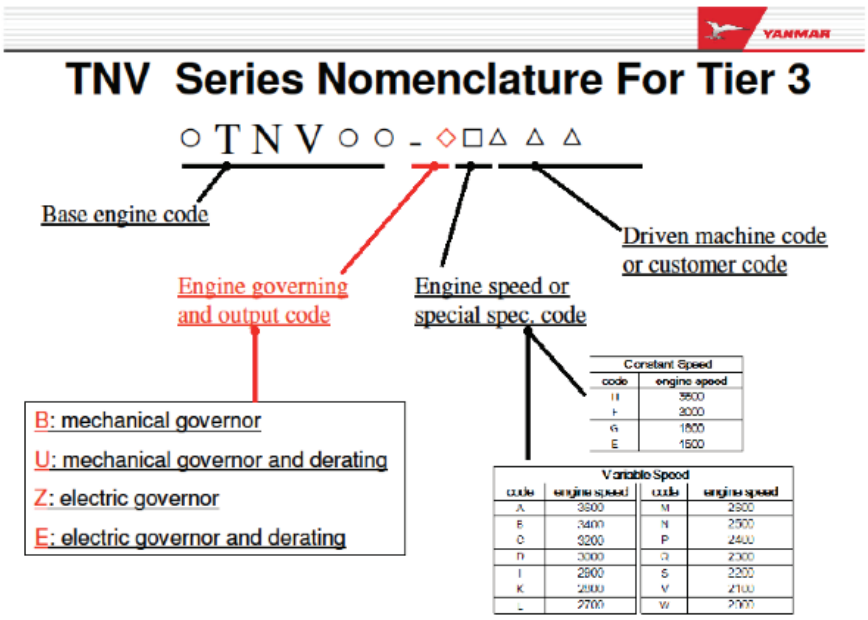


TNV Series Nomenclature

FOR TIER II



TNV Series Nomenclature For Tier 3

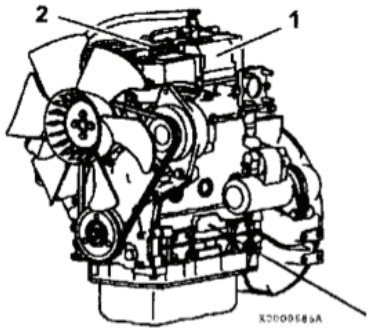


Identifying your engine

The location of the engine nameplate & EPA label

LOCATION OF LABELS

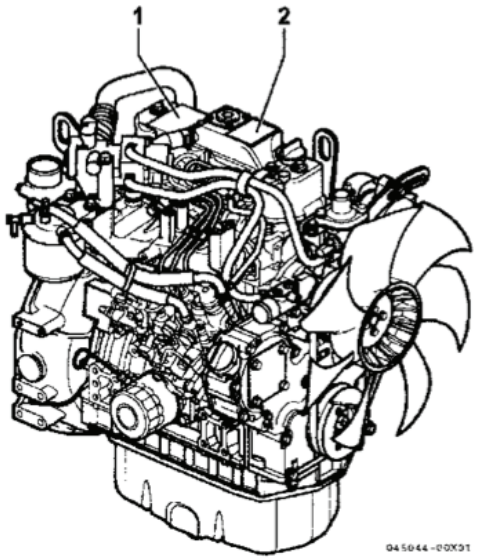
IDI ENGINE **Figure** shows the location of regulatory and safety labels on YANMAR TNM and TNV series indirect injection model engines.



The typical location of the emission control information label is shown **(Figure (1)**

Typical location of the engine nameplate is shown **(Figure (2)**

DI ENGINE **Figure** shows the location of regulatory and safety labels on YANMAR TNV series direct injection model engine.



LOCATION OF LABELS

Figure 4- shows the location of regulatory and safety labels on Yanmar LV Series engines.

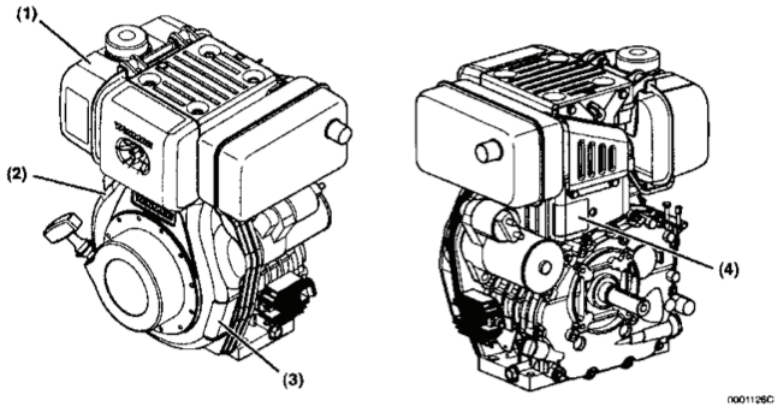


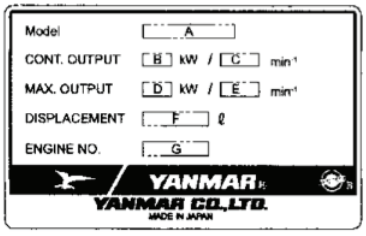
Figure 4-

The typical location of the emission control information label for LV Series engines is on the top of the fuel tank **(Figure 4- (1))**.

- On L48V engines not equipped with a Yanmar fuel tank, the label is located on the flywheel cover **(Figure 4- (2))**.
- On L70V and L100V engines not equipped with a Yanmar fuel tank, the label is on the flywheel cover **(Figure 4- (3))**.

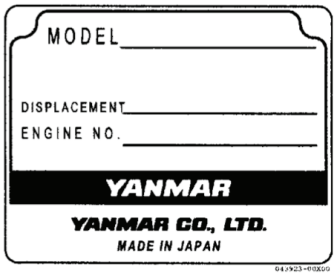
Typical location of the engine nameplate is on the engine side cover as shown in **Figure 4- (4)**.

Engine Nameplate (Typical)



Engine Nameplate (Typical)

■ **Engine nameplate (typical)**



EPA/ARB EMISSION CONTROL REGULATIONS - USA ONLY

YANMAR TNM and TNV engines meet Environmental Protection Agency (EPA) (U. S. Federal) emission control standards as well as the California Air Resources Board (ARB, California) regulations. Only engines that conform to ARB regulations can be sold in the State of California.

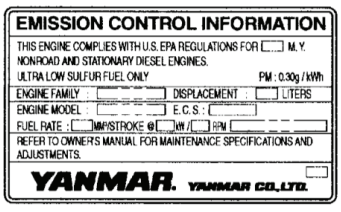
Refer to EPA/ARB Installation Requirements USA Only on pagepage 65 and Required EPA/ARB Maintenance USA Only on pagepage 65 in the Periodic Maintenance section of this manual. Also refer to the YANMAR Co., Ltd. Limited Emission Control System Warranty - USA Only on page iv.

EMISSION CONTROL LABELS

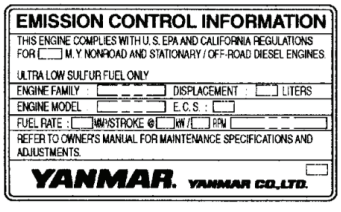
Since emission control regulations are being issued on a global basis, it is necessary to identify which regulations a particular engine complies with. We have listed several different types of labels you might find on your engine.

EPA/CARB Labels (Typical)

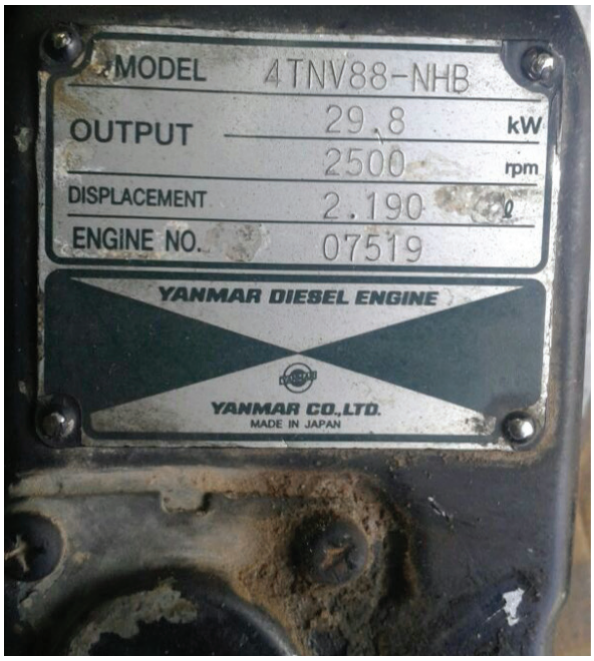
■ **EPA**



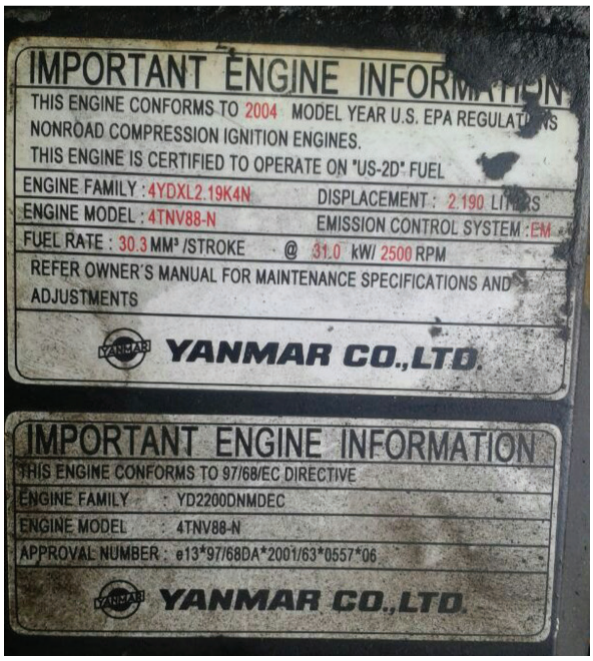
■ **EPA & CARB**



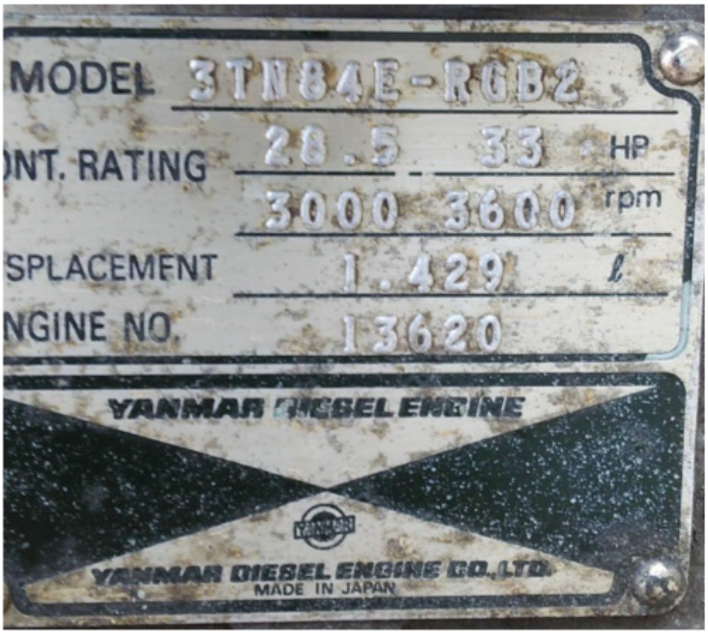
Examples of engine nameplates & EPA labels



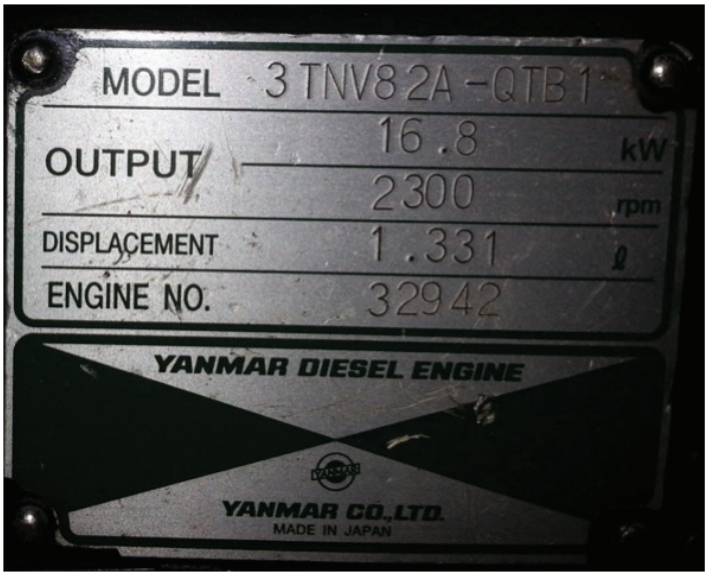
Engine plate



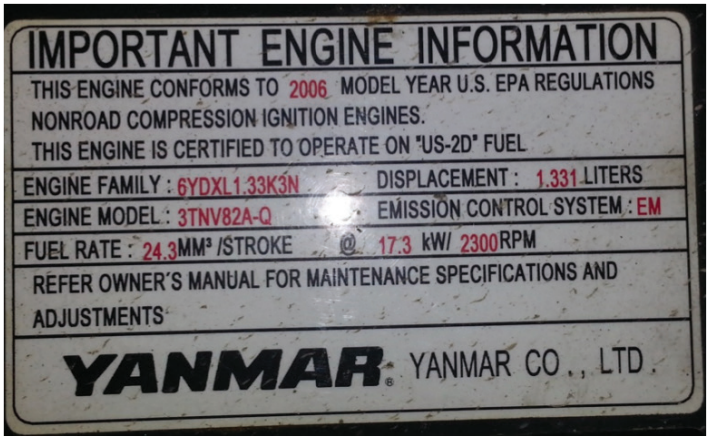
EPA label



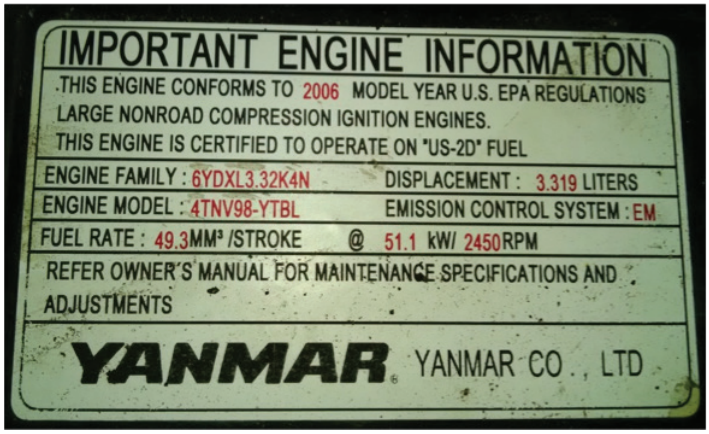
Engine plate



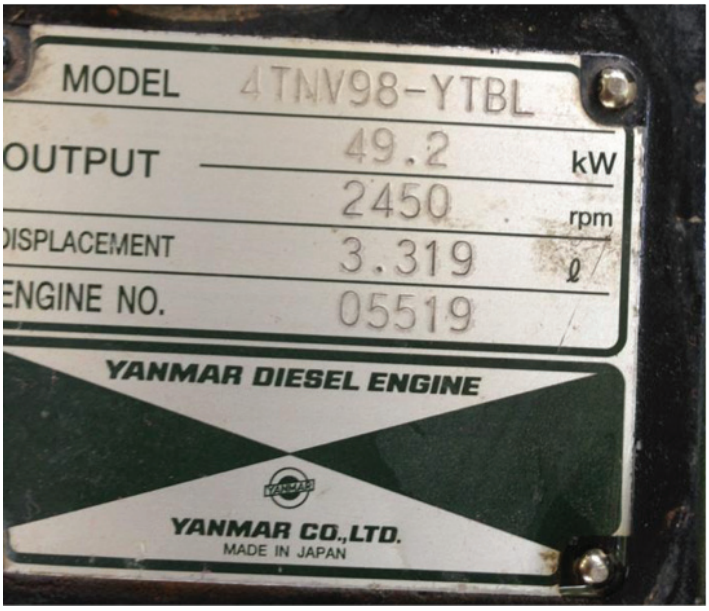
Engine plate



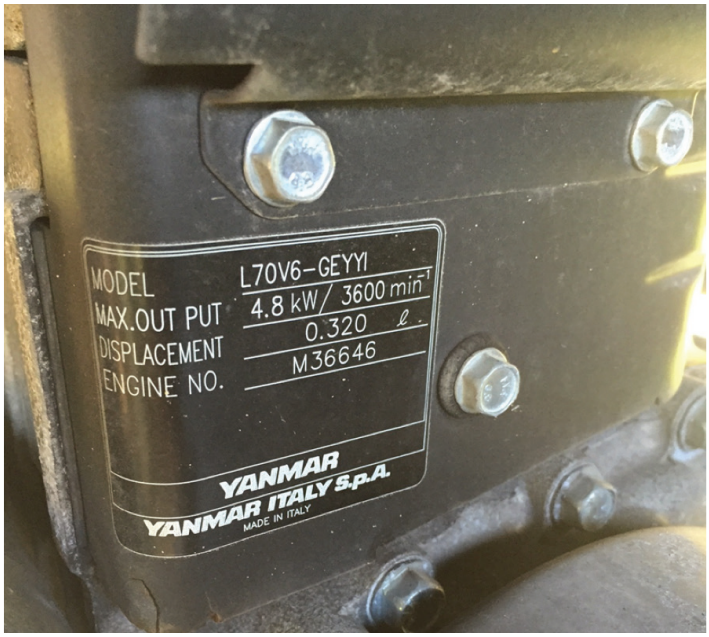
EPA label



EPA label



Engine plate



L-Series engine plate

Worksheets

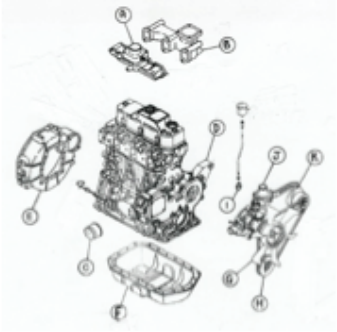
Typical completed engine specification worksheet

MASTRY Industrial Division
2801 Anvil Street North, St Petersburg, FL 33710 Phone: 800-545-4574 x 237 Fax: 727-381-3235 www.mastry.com

YANMAR

ENGINE SPECIFICATION WORKSHEET 3TNV82A

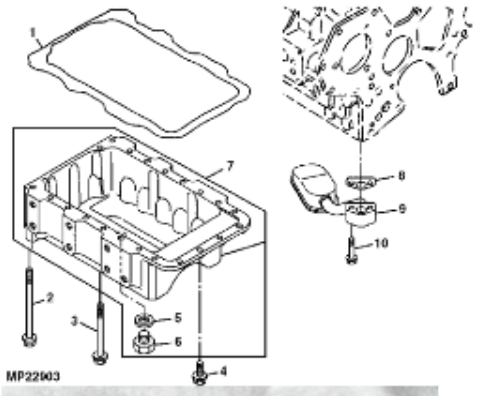
lach. Make: John Deere Model: 4200 Type: C. Utility Tractor Year: ?? Engine Model: 3TNE78A-JT42

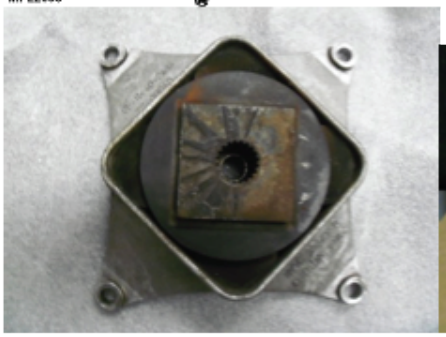


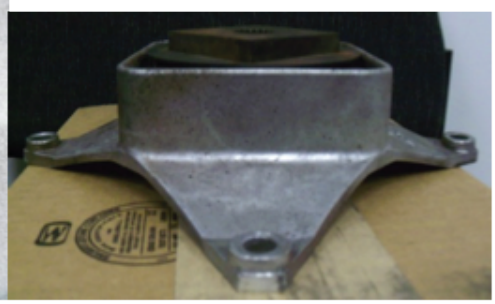
ENGINE MODELS 3TNV82A Variable Speed							
Illustration	BDSA	BDSA3	BNBK	BDWL	BMU1	BDMW	OEM-3TNE78A-JT42
(A) Intake Manifold	Rear In 119802-12130	Rear In 119802-12130	Rear In 119802-12130	Top Center In Toward Rear 119802-12140	Top Center In Box Type 119802-12120	Top Center In Toward Rear 119802-12140	Top Center In Box Type 119813-12120 M808640
(B) Exhaust Manifold	Front Top Out w/Muffler Spprt 119802-13109	Front Top Out w/Muffler Spprt 119802-13109	Rear Out 119802-13129	Front Top Out 119888-13101	Front Top Out 119888-13101	Front Side Ou 119810-13100	Front Top Out Box Type 119813-13100 M808643
(C) Oil Cooler	YES 129508-33010	YES 129508-33010	NO	YES 129508-33010	NO	YES 129508-33010	NO
(D) Gear Housing	Aux Drive Rear L.H. 729005-01500	Aux Drive Rear L.H. 729005-01500	NO AUX. DRIVE 719802-01500	NO AUX. DRIVE 719802-01500	Aux Drives 4blt L.H. Frt. 2bolt Rear 729004-01500 729235-01500Hsg. 129004-01520Flg.	NO AUX. DRIVE 719802-01500	Aux Drives 4blt L.H. Frt. & Rear 119923-01590 Housing 129100-01520 Flange AM879915 Housing M808636 Flange
(E.1.) Flywheel Housing	Full Depth SAE 5 4.88" 119888-01601	Backplate 2.83" F to Blk. 129129-01600	Semi SAE 5 3.15" 129612-01600	Semi SAE 5 3.15" 129612-01600	Backplate Old 119852-01600 N119924-01600	Backplate 119820-01600	Backplate Special John Deere 119923-01600 M808634
(E.2.) Flywheel	SAE 7.5" w/BR 8.75"BC 3.03"T 129488-21590	SAE 7.5"no/BR 8.75"BC 1.89"T 171420-21580	SAE 1.73" Thick 129489-21590	SAE 1.73" Thick 129489-21590	6M8PCD251 O119852-21592 N119934-21580	SAE 7.5"no/Bl 8.75"BC 1.89" 171420-21580	Special John Deere 4 bolt damper plate 330mm Dia. Mark WF44C AM879897 >]005494 AM881317 [>005495
(F) Oil Pan	Full Depth R.H. Drain 119810-01770	Full Depth R.H. Drain 119810-01770	Deep Depth Bottom Drain 119823-01770	Full Depth R.H. Drain 119810-01770	Shallow Depth R.H. Drain 119843-01780	Shallow Depth R.H. Drain 119843-01780	Tractor Rigid Type Bottom Drain AM879894 Substitute P/N AM880869
(G.1.) Fan	Puller (5) 335mm 129335-44740	Puller (5) 335mm 129335-44740	Puller (5) 335mm 129335-44740	Pusher (NF) 335mm 171340-44740	Puller (T) 360mm 121267-44741	Puller (JT) 360mm 129120-44741	Puller (U) 380mm Dia. 7 Blade 129556-44740 ET14236
(G.2.) Fan Spacer	18mm Thick 121267-44760	18mm Thick 121267-44760	25mm Thick 171353-44760	18mm Thick 121267-44760	40mm Thick 119256-44760	25mm Thick 171353-44760	18mm with 7.5CC P.S. Pump 121267-44760 M802628 30mm with 8.2CC P.S. Pump 129457-44760 M809549
(G.3.) Fan Pulley	110mm Dia. 129403-42380	110mm Dia. 129403-42380	110mm Dia. 129403-42380	110mm Dia. 129403-42380	120mm Dia. 129550-42350	110mm Dia. 129403-42380	120mm Dia. 129550-42350 T110728

(H) Crank Pulley	Single Groove 110mm Dia 119802-21650	Single Groove 110mm Dia 119802-21650	Single Groove 110mm Dia 119802-21650	Single Groove 110mm Dia 119802-21650	Single Groove 4 bolt 120mm Dia 119852-21650	Single Groove 110mm Dia 119802-21650	Single Groove 4 bolt 120mm Dia. 119867-21650 M808646
(I) Tach. Drive	Cover Plate 121023-01551	Cover Plate 121023-01551	Cover Plate 121023-01551	Cover Plate 121023-01551	Cover Plate 121023-01551	Cover Plate 121023-01551	Cover Plate 121023-01551 M87874
(J.1.) Thermo. Housing	Top In 129350-49530	Top In 129350-49530	Top In 129350-49530	Top In 129350-49530	Top In 129350-49530	Top In 129350-49530	Top In 129350-49530 CH15535
(J.2.) Water Pump	Low Position 119802-42001	Low Position 119802-42001	Low Position 119802-42001	Low Position 119802-42001	Low Position 119802-42001	Low Position 119802-42001	Low Position 119810-42002
(K.1.) Alternator	L.H. High Mnt. 129423-77200	L.H. High Mnt. 129423-77200	L.H. High Mnt. 129423-77200	L.H. High Mnt. 129423-77200	L.H. High Mnt. 129423-77200	L.H. High Mnt. 119620-77201	L.H. High Mnt. 119836-77200 40 amp LVA12357 Sub for AM879908 Note it can have an optional 55 amp LVA12467 Sub for M809216
(K.2.) Alt. Adj. Br	119808-77330	119808-77330	119802-77330	119802-77330	119853-77330	119802-77330	119853-77330 40 amp. M808677 Adj. 40 amp. 129423-77330 M808684 Adj. 55 amp. 124732-77340 M808678 Spacer Both
Starter	L.H. High Mnt. 129242-77010	L.H. High Mnt. 129242-77010	L.H. High Mnt. 129242-77010	L.H. High Mnt. 129242-77010	O129052-77010 N129129-77010	L.H. High Mnt. 129242-77010	L.H. High Mnt. AM878415

NOTES: The intake manifold is functionally the same. The air heater is not used as the new engine has glow plugs.
The exhaust manifold is functionally the same. The gear housing is NOT functionally the same. CHECK if Aux. Drive is being used.
Reuse the backplate it has a special John Deere bolt pattern. The flywheel will have to be reused and modified by a machine shop as it also is a Special build for J.D. Flywheel flange pocket needs to be enlarged from 76mm to 85mm & the bolt hole circle also needs to be enlarged. See pictures below.
Reuse the pan and oil pickup tube as the oil pan is a rigid tractor style oil pan supply oil pickup tube gasket P/N 129150-35042. Caution: Reuse the original dipstick because of the oil pan change.
Reuse the fan blade it is larger in diameter. Reuse the fan spacer it is shorter in length. The fan drive pulley is the same. The water pump is functionally the same. The crank pulley is functionally the same.
The alternator is functionally the same if it is not the "Optional Alternator" which is 55 amp. If it is the optional alternator you can reuse it with its adjusting bracket.
The starter may have to be reused because of the flywheel diameter.







Worksheets

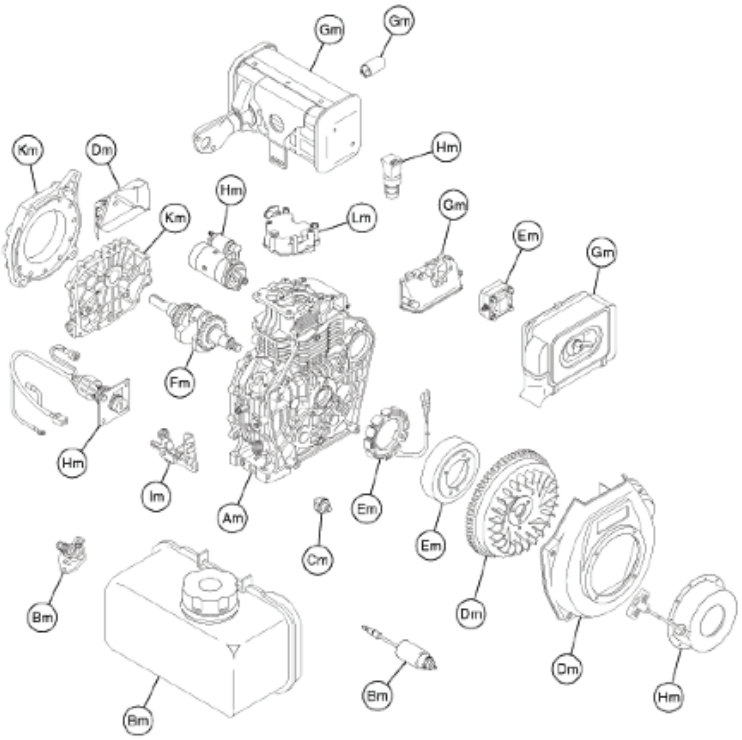
Typical completed 1 cylinder specification worksheet

MASTRY ENGINE CENTER LLC Industrial Division
2801 Anvil Street North, St Petersburg, FL 33710 Phone: 800-545-4574 x 237 Fax: 727-381-3235 www.mastry.com

YANMAR

GENERATOR ENGINE SPECIFICATION WORKSHEET L70V6E or H

Generator Set Make: MASE Model: ???? Type: ???? Year: ???? Engine Model: L70V6EN9C9EAMA



ENGINE MODELS L70V6E or H						
Illustration	L70V6EA1C1AA	L70V6EF1C1AA	L70V6EN9C9EAMA	L70V6HJ1C9GAYG	O.E.M. Column 3	NOTES: See summary below
(Am) Cyl. Block	114210-01010	114210-01010	114210-01010	114210-01010	SAME	SAME
(Bm-a) Fuel Tank	714210-55700 Black	714210-55700 Black	MASE SUPPLIED	SUPPLIED WITH GENERATOR FRAME	MASE SUPPLIED	Remove from the new engine and reuse the Mase supplied tank and fuel piping.
(Bm-b0 Fuel Shutdown Valve	NONE	NONE	NONE Loose Inlet Fitting P/N: 114299-59900 + O-Ring P/N: 114250-51190	NONE	NONE	Change inlet fitting. Supply loose inlet fitting P/N: 114299-59900 with O-ring P/N: 114250-51190.
(Bm-c) F.I. Pump	714210-51100 Old 714249-51400 New	714210-51100 Old 714249-51400 New	714210-51100	714210-51110 Old 714249-51420 New	SAME as Old	SAME
(Bm-d) Feed Pump	NONE	NONE	NONE	NONE	NONE	SAME
(Cm-a) Oil Pressure Switch	NONE	NONE	183250-39450	183250-39450Sw. 183366-39460Adpt. 171022-39470Term	183250-39450	Reuse or install new oil pressure switch P/N: 183250-39450.
(Cm-b) Oil Drain Extension or Valve	NONE	NONE	NONE	NONE	NONE	SAME
(Dm-a) Flywheel	114399-21590Assy. 114399-21600R. G.	114399-21590Assy 114399-21600R. G.	114399-21590Assy. 114399-21600R. G.	114399-21590Assy 114399-21600R. G.	SAME	SAME
(Dm-b) Cooling Fan Case	114210-45100 Old 114210-45150 New	114210-45100 Old 114210-45150 New	114210-45100	114210-45100 Old 114210-45150 New	SAME as Old	SAME

(Dm-c) Sound Covers	114210-45300, Top 114210-45270, A 114210-45260, B	114210-45300, Top 114210-45270, A 114210-45260, B	NONE, Top NONE, Side A 114210-45260, B	114210-45300, Top 114210-45270, A 114210-45260, B	NONE, Top NONE, Side A 114210-45260, B	Remove from the new engine the top and side A sound covers. Side B is the same.
(Em-a) Air Heater	NONE	NONE	NONE	NONE	NONE	SAME
(Em-b) Dynamo	114399-78260 12V 15 amp	114399-78260 12V 15 amp	MASE SUPPLIED	114399-78260 12V 15 amp	MASE SUPPLIED	Reuse the Mase supplied charging system parts.
(Fm-a) Crankshaft	714210-21720	714210-21720	714210-21720	714210-21730	SAME	SAME
(Gm-a) Air Cleaner	114210-12511	114210-12511	MASE SUPPLIED	114210-12511	MASE SUPPLIED	Remove from the new engine Use the Mase supplied parts.
(Gm-b) Intake Manifold or Bend	NONE	NONE	114210-12050	NONE	114210-12050	Reuse the intake manifold. Supply 1 ea. of gasket P/N's: 114210-12210 & 114299-1221(stud P/N: 26226-060502 & 2 ea. of nut P/N: 114299-12300.
(Gm-c) Muffler	114399-13520	114399-13520	NONE	183854-13510	NONE	Reuse the Mase supplied exhaust system. Supply gasket P/N: 114299-13200
(Gm-c) Deflector Or Spark Arrestor	114299-13800 Deflector	114299-13800 Deflector	MASE SUPPLIED	Spark Arrestor SUPPLIED WITH GEN	MASE SUPPLIED	Reuse the Mase supplied exhaust system.
(Hm-a) Recoil Starter	114399-76251Assy. 114399-76590 Hub	114399-76251Assy 114399-76590 Hub	MASE SUPPLIED	114399-76251Assy. 114399-76590 Hub	MASE SUPPLIED	Reuse the Mase supplied recoil assembly or fan.
(Hm-b) Starter Motor	L.H. High Mount 114362-77011	NONE	L.H. High Mount 114362-77011	L.H. High Mount 114362-77011	L.H. High Mount 114362-77011	SAME on the L100V6EA1C1AA engine.
(Hm-c) Key Switch	114351-77500	NONE	MASE SUPPLIED	SUPPLIED WITH GEN. FRAME PNL.	MASE SUPPLIED	Part of the Mase instrument Panel.
(Hm-d) Plunger Starting	NONE	NONE	NONE	NONE	NONE	SAME
(Im-a) Speed Control Device	114210-66510 114210-61500 Gov	114210-66510 114210-61500 Gov	114210-66510 114210-61500 Gov	114210-66510 114210-61500 Gov	SAME	SAME
(Km-a) Flange	NONE	NONE	NONE	NONE	NONE	SAME
(Km-b) Crankcase Cover	114210-01450	114210-01450	114210-01450	114210-01460	SAME	SAME

NOTES: When using a L100V6EA1C1AA to replace a L100V6EN9C9EAMA MASE spec. gen. engine.
Remove the fuel tank and mounting brackets from the new engine and reuse the Mase supplied tank and fuel pipi
Reuse the fuel injection pump inlet fitting. It is at a special angle. Supply o-ring P/N: 114250-51190.
Remove the following sound shields from the new engine: the top and side A. Side B is the same.
Remove the air cleaner assembly from the new engine. Reuse the intake manifold from the original engine. Supply 1 ea. of gasket P/N's: 114210-12210 & 114250-12211, 1 stud P/N: 26226-060502 & 2 of flange nut P/N: 114299-12300. Reuse the Mase supplied air cleaner assembly.
Remove the muffler from the new engine. Reuse the Mase supplied exhaust system. Supply gasket P/N: 114299-13200.
You may have to reuse the Mase supplied recoil assembly or fan.
Reuse the Mase supplied charging system parts.
Reuse or install new oil pressure switch P/N: 183250-39450.
The starter is the same.

NOTES: When using a L100V6EF1C1AA to replace a L100V6EN9C9EAMA MASE spec. gen. engine.
Remove the fuel tank and mounting brackets from the new engine and reuse the Mase supplied tank and fuel piping.
Reuse the fuel injection pump inlet fitting. It is at a special angle. Supply o-ring P/N: 114250-51190.
Remove the following sound shields from the new engine: the top and side A. Side B is the same.
Remove the air cleaner assembly from the new engine. Reuse the intake manifold from the original engine. Supply 1 ea. of gasket P/N's: 114210-12210 & 114250-12211, 1 stud P/N: 26226-060502 & 2 of flange nut P/N: 114299-12300. Reuse the Mase supplied air cleaner assembly.
Remove the muffler from the new engine. Reuse the Mase supplied exhaust system. Supply gasket P/N: 114299-13200.
You may have to reuse the Mase supplied recoil assembly or fan.
Reuse the Mase supplied charging system parts.
Reuse or install new oil pressure switch P/N: 183250-39450.
Reuse or supply starter P/N: 114362-77011.

Engine Protection Plan

FAIL-SAFE
The Safe Choice in Equipment Protection

Protection Contract
Engine Only Protection

DEFINITIONS: "We", "Us" and "Our" shall mean **FAIL-SAFE Product Protection, Inc.** "You" or "Your" shall mean the purchaser of the product(s) covered by this Service Contract. This document is not an insurance policy. It is a Service Contract between You and Us. By acceptance of this Service Contract, You understand there are distinct coverages, terms and conditions, and that coverage is subject to underwriting and acceptance by Us. For a repair to be covered, Repairing Facility must report the breakdown to Us and receive Our Authorization **PRIOR TO REPAIRS BEING PERFORMED**.

ENGINE ONLY PROTECTION

ENGINE / MOTOR: All mechanical parts contained within the engine block, cylinder head, crankcase or motor housing; engine block, cylinder head, crankcase or motor housing if damaged by the mechanical breakdown of an internal part. Turbo Charger. Seals and Gaskets.

COOLING: Water Pump, Fan Blade.

ELECTRICAL: Starter, Alternator. Engine Wiring Harness.

FUEL: Fuel Pump, Fuel Injection Pump and Injectors.

FAIL-SAFE
The Safe Choice in Equipment Protection

FAIL-SAFE PRODUCT PROTECTION, INC.
P.O. BOX 15163 - LENEXA, KANSAS 66285

FOR CLAIMS: (800) 663-4505

WWW.FSPP.COM

CLAIMS MUST BE AUTHORIZED BY FAIL-SAFE PRIOR TO REPAIRS BEING PERFORMED

TERMS, CONDITIONS & EXCLUSIONS FOR Component Protection

MECHANICAL BREAKDOWN COVERAGE:

We agree to repair, replace or reimburse You for reasonable cost to repair or replace any covered part, component, or assembly of the covered machine if required due to a mechanical breakdown. "**MECHANICAL BREAKDOWN"** is defined as the "sudden failure of a component, part or assembly, as supplied by the manufacturer". "**Reasonable Cost"** is defined as "the charges for the repair or replacement of covered parts, using parts of like kind and quality, which may include remanufactured parts as customarily used in the industry." Protection shall begin on the "MFG WARRANTY START DATE" and zero hours. Protection shall expire upon the earliest occurrence of: (1) term months have expired, (2) term hours have expired; or, (3) total loss limit is paid.

EXCLUSIONS:

No Coverage shall be extended:

1. FOR THE REPAIR OR REPLACEMENT OF ANY PART IF A MECHANICAL BREAKDOWN HAS NOT OCCURRED; OR, FOR DAMAGE TO A COVERED PART DUE TO THE BREAKDOWN OF A NON-COVERED PART; OR, FOR ANY BREAKDOWN DUE TO THE CONTINUED OPERATION OF THE COVERED EQUIPMENT AFTER A MECHANICAL BREAKDOWN HAS OCCURRED.
2. FOR ANY BREAKDOWN CAUSED BY COLLISION, FIRE, THEFT, VANDALISM, RIOT, TERRORISM, WAR, INSURRECTION, EXPLOSION, FALLING MISSLES, LIGHTENING, EARTHQUAKE, WINDSTORM, HAIL, WATER, FLOOD, OR OTHER ACT OF GOD.
3. FOR LIABILITY OR DAMAGE TO PROPERTY, OR INJURY TO, OR DEATH OF ANY PERSON ARISING OUT OF THE OPERATION, MAINTENANCE OR USE OF THE COVERED EQUIPMENT.
4. FOR LOSS OF USE, TIME, INCONVENIENCE, OR ANY OTHER CONSEQUENTIAL OR RESULTANT LOSS OF ANY KIND.
5. FOR ANY BREAKDOWN DUE TO OVERLOADING, MISUSE, ABUSE, NEGLIGENCE, VIBRATION OR ALTERATION OF THE COVERED EQUIPMENT.
6. WHEN RESPONSIBILITY FOR THE REPAIR IS COVERED BY ANY WARRANTY OF THE MFG OR REPAIRER'S GUARANTEE, OR IF THE MFG HAS ANNOUNCED RESPONSIBILITY THROUGH RECALLS AND/OR REPAIR BULLETINS.
7. FOR ANY BREAKDOWN DUE TO LACK OF LUBRICATION.
8. FOR ANY BREAKDOWN DUE TO FREEZING OR OVERHEATING.
9. FOR ANY BREAKDOWN DUE TO CONTAMINATION.
10. FOR ANY BREAKDOWN DUE TO RUST OR CORROSION.
11. FOR NORMAL AND ROUTINE MAINTENANCE AS RECOMMENDED BY THE MFG OF THE COVERED EQUIPMENT; OR, FOR ANY BREAKDOWN DUE TO LACK OF SAID MAINTENANCE; OR, FOR MAINTENANCE ITEMS, INCLUDING, BUT NOT LIMITED TO, FILTERS, SPARK PLUGS, SPARK PLUG WIRES, GLOW PLUGS, BRAKE LININGS, EXHAUST SYSTEM PARTS, BATTERIES, BATTERY CABLES, THERMOSTATS OR FREEZE PLUGS, OR, ADJUSTMENTS, ENGINE TURNE-UPS, OR THE REPAIR OR REPLACEMENT OF PARTS FOR THE SOLE PURPOSE OF INCREASING OPERATING PERFORMANCE.
12. FOR COSMETIC ITEMS, INCLUDING, BUT NOT LIMITED TO, BRIGHT METAL, ORNAMENTATION, MOLDING, PAINT, DECALS, GLASS, LAMPS OR LENSES.
13. FOR PLASTIC OR RUBBER PARTS
14. FOR ANY PART OR COMPONENT WHICH COMES IN CONTACT WITH THE GROUND, CROP OR ANY OTHER OPERATING MEDIA, INCLUDING, BUT NOT LIMITED TO, BLADES, ROLLERS, CHAINS, SPRINGS, AUGERS, IMPELLERS, BUCKETS, TRACKS, WHEELS OR TIRES.
15. FOR SHOP SUPPLIES; INCLUDING, BUT NOT LIMITED TO, LUBRICANTS, SOLVENTS, ENVIRONMENTAL AND FREIGHT OR STORAGE CHARGES.
16. FOR THE COST OF ANY FEDERAL, STATE OR LOCAL TAX.
17. FOR ANY REPAIRS PERFORMED OUTSIDE THE U.S. OR CANADA.
18. FOR STRUCTURAL PARTS, INCLUDING, BUT NOT LIMITED TO, FRAMES, BOOMS, BUCKETS, BLADES OR SUPPORTS.
19. FOR ANY BREAKDOWN OCCURRING WHILE THE HOUR METER IS INOPERATIVE, OR IF THE HOUR METER HAS BEEN TAMPERED WITH.
20. FOR ANY CLAIM SUBMITTED FOR WHICH AUTHORIZATION HAS NOT BEEN OBTAINED FROM US PRIOR TO COMPLETION OF THE REPAIR.

YOUR RESPONSIBILITIES:

In order to keep this Contract in force during its term, the covered machine must be serviced as recommended by the manufacturer. You must retain receipts for services performed, if service is performed by a servicer or for materials purchased to perform services if service was performed by You. You agree to furnish a copy of the above receipts and records should We request it.

IN THE EVENT OF A MECHANICAL BREAKDOWN, YOU MUST:

1. Use all reasonable means to protect the equipment from further damage;
2. Return the equipment to the Selling Dealer. If Selling Dealer is not available, contact the Administrator **(800) 663-4505** for assistance;
3. Provide receipts for services performed or materials purchased for routine maintenance as required by the equipment manufacturer;
4. Allow Us to inspect the covered equipment if deemed necessary;
5. Pay Servicer for any non-covered repair charges and/or any applicable deductible.

LIMITS OF LIABILITY:

Claims are limited to 50% of the Engine Purchase Price indicated on this Protection Plan Contract for the total of all claims over the life of the Protection Plan.

CANCELLATION PROVISION:

This Contract may be cancelled upon You giving written notice to Us indicating when the cancellation is to be effective. In the event of cancellation, We will refund the unearned Contract price calculated on a Pro-Rated method reflecting the days in force, less any prior claim payments, unless otherwise prohibited by law. If no claim has been paid under the terms of the Service Contract, the full price will be refunded, provided written notice is received by Us no later than 30 days from the purchase of the equipment. A $30 cancellation-processing fee will be deducted from all refunds unless otherwise prohibited by law. If the equipment described and this Service Contract have been financed through a lender and You default in the repayment obligation to that lender, We reserve the right to either cancel this Service Contract or transfer the rights under this Service Contract to that lender. In the event of cancellation, the lender shall be entitled to all resulting refunds. If a lien is outstanding against the described equipment, any refunds will be made payable to the Lien holder.

TRANSFER PROVISION:

This Service Contract applies only to You and the equipment described. This Service Contract may be transferred to the new equipment owner in the event of sale of the equipment while this Service Contract is still in force. The Transfer of this Service Contract will be allowed only upon receipt within 30 days of change of ownership of the equipment, a completed Application for Transfer, the original Service Contract, proof of required maintenance as indicated above, a copy of the bill of sale and a $30.00 transfer fee.

INSURANCE PROTECTION:

This Service Contract is not an insurance policy. We have obtained a service contract reimbursement insurance policy to insure Our performance under this Service Contract.

If you need assistance or information concerning your Contract, please contact Us at:

FAIL-SAFE Product Protection
P.O. Box 15163
Lenexa, Kansas 66285
Toll Free: (800) 663-4505
Claims Fax: (816) 931-2548
Email: claims@fspp.com

Worksheets

Engine repower information request worksheet

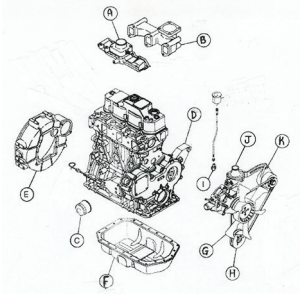
MASTRY ENGINE CENTER LLC
A YANMAR COMPANY Industrial Division

YANMAR

2801 Anvil Street North, St Petersburg, FL 33710 Phone: 800-545-4574 x 237 Fax: 727-381-3235 www.mastry.com

ENGINE REPOWER INFORMATION REQUEST WORKSHEET

Machine Make_____ Model_____ Type_____ Year_____ Engine Model_____



A) Position of air intake on manifold? Is there an elbow? (Example top center) _____

B) Position of exhaust on manifold? (Example shown top front) _____

C) Is there an oil cooler behind or guard under filter? (Not shown in example) _____

D) 1a) Is there an auxiliary drive mounted to the rear of the gear housing on the left side? _____
1b) If so how many retaining bolts & drive splines? _____
2a) Is there an auxiliary drive mounted on the front of the gear housing? _____
2b) If so how many retaining bolts & drive splines? _____
3a) Is there an extension on the oil fill on the gear housing or rocker cover? _____

E) 1a) Thickness of flywheel housing from block to outer face? _____
1b) Diameter of flywheel housing, measuring across the center of the flywheel from bolt hole to bolt hole? _____
1c) Diameter of the flywheel bolt circle measuring across the center of crankshaft from bolt hole to bolt hole? _____

F) Depth of oil pan at its highest point? Measured on the outside. _____

G) 1a) Pusher or puller fan, 2 Letter code on blade, the diameter of the fan & number of blades? _____
1b) Length of the fan spacer? _____
1c) Diameter of the water pump pulley? _____

H) How many belt grooves on crank pulley & the diameter? _____

I) Mechanical tachometer drive on front cover? _____

J) 1a) Position of the thermostat cover? (Example top in) _____
1b) Water pump height from the center of crank pulley to center of fan? _____

K) Alternator position? (Example left side high mount) _____

L) Starter position? (Example not illustrated) _____

If there is not a parts book available for your application, we will request your customer fill out this Engine Repower Info Request Form and submit it to Mastry along with pictures of each side of the engine.

- ☑ Pictures of the front of the engine with the fan off.
- ☑ A picture of the rear of the engine with the flywheel on and any coupling off.
- ☑ A picture looking down from the top.

Typical repower engine quotation

MASTRY ENGINE CENTER LLC
A YANMAR COMPANY www.mastry.com E-Mail: bpetit@mastry.com
Phone 800-545-4574, 727-522-9471 ext. 237, Fax 727-381-3235

YANMAR AMERICA'S FAVORITE REPOWER DIESEL **Engine Re-Power Quotation**

TO: Customer Account #: 9852 Quote #: BP123014ERPQ1

Name: Southeast Power Systems of Ft Myers, Inc.

Address: 5900 Country Lakes Dr., Ft. Myers, FL 33905

Phone #: +1 (800) 226-6970 FAX #: +1 (239) 694-5950

Customer Contact: Walter Bibb E-MAIL: wbibb@se-power.com

Job Name: John Deere 4200 Compact Utility Tractor Repower with a 3TNE78A-JT42

Mastry Engine Salesman: Bob Petit Date: 12-30-14

QUOTE NUMBER

JOB DESCRIPTION

Qty	Model or Part #	Description	Stock Location	Unit Price	Price
1	3TNV82A-BMU1	Tractor Spec. Engine	St Petersburg FL	3,845.00	3,845.00
1	129150-35042	Gasket, Oil Pickup Tube to Block	St Pete	1.17	1.17
1	010-1004-00	Sumitomo Electrical Plug Kit	St Pete	8.47	8.47

ADDITIONAL PARTS NEEDED

Sub-Total:	3,854.64
Sales Tax:	N/A
* 3CYL-CR Core Charge:	1,000.00
Approximate Inbound Freight:	N/A
Approximate Outbound Freight:	110.00
Quote Total:	$4,964.64

CORE CHARGE AND FREIGHT

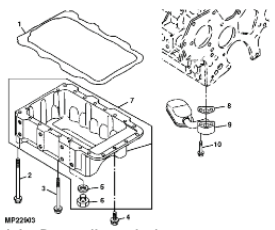
NOTES: The intake manifold is functionally the same. The air heater is not used as the new engine has glow plugs. The exhaust manifold is functionally the same. The gear housing is not functionally the same. Check to see if rear auxiliary drive is being used.
Reuse the backplate it has a special John Deere bolt pattern. The flywheel will have to be reused and modified by a machine shop as it also is a Special build for J.D. Flywheel flange pocket needs to be enlarged from 76mm to 85mm & the bolt hole circle also needs to be enlarged. See pictures below.
Reuse the pan and oil pickup tube as the oil pan is a rigid tractor style oil pan supply oil pickup tube gasket P/N 129150-35042.
Caution: Reuse the original dipstick because of the oil pan change.
Reuse the fan blade it is larger in diameter. Reuse the fan spacer it is shorter in length. The fan drive pulley is the same. The water pump is functionally the same. The crank pulley is functionally the same.
The alternator is functionally the same if it is not the "Optional Alternator" which is 55 amp. If it is the optional alternator you can reuse it with its adjusting bracket. Supply Sumitomo electrical plug kit for wire harness hookup in either case.
The starter may have to be reused because of the flywheel diameter.

NOTES, DETAILING CHANGES NECESSARY, PARTS TO BE REUSED OR INFORMATION NEEDED

PAYMENT TERMS: Net 30 days.
Prices quoted will remain firm for a period of 30 days from this date.
Availability of engines in inventory or on order is subject to prior sale.
Shipment to you will be made within a lead-time of 3 days from receipt of order due to parts availability.
NOTE: Repower engines are now subject to E. P. A. restrictions. * Yanmar has imposed a core charge on every engine. The E. P. A. requires a core in any condition be returned for this sale. Yanmar America arranges and absorbs the core return freight up to $250.00. Upon receipt, Yanmar America will grade the core for condition and completeness. There will be deductions for missing parts, oil left in engine or not returning in the new engine crate. See attached chart.
This is a New Replacement engine with Yanmar's 2 year or 2000 hour whichever occurs first warranty.
Freight shown in total above is to Ft Myers, FL Zip Code 33905

INFORMATION BOX CONTENTS: PAYMENT TERMS, AVAILABILITY, EPA , CORE HANDLING REQUIREMENTS AND FREIGHT INFORMATION.

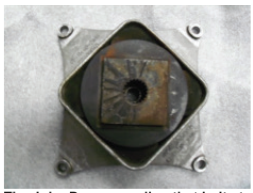
Robert Petit
Robert Petit


John Deere oil pan design.

NOTE ILLUSTRATION


Above flywheel modified by a machine shop. Increased crank flange recess from 76mm to 85mm and increased the diameter of the bolt hole circle.

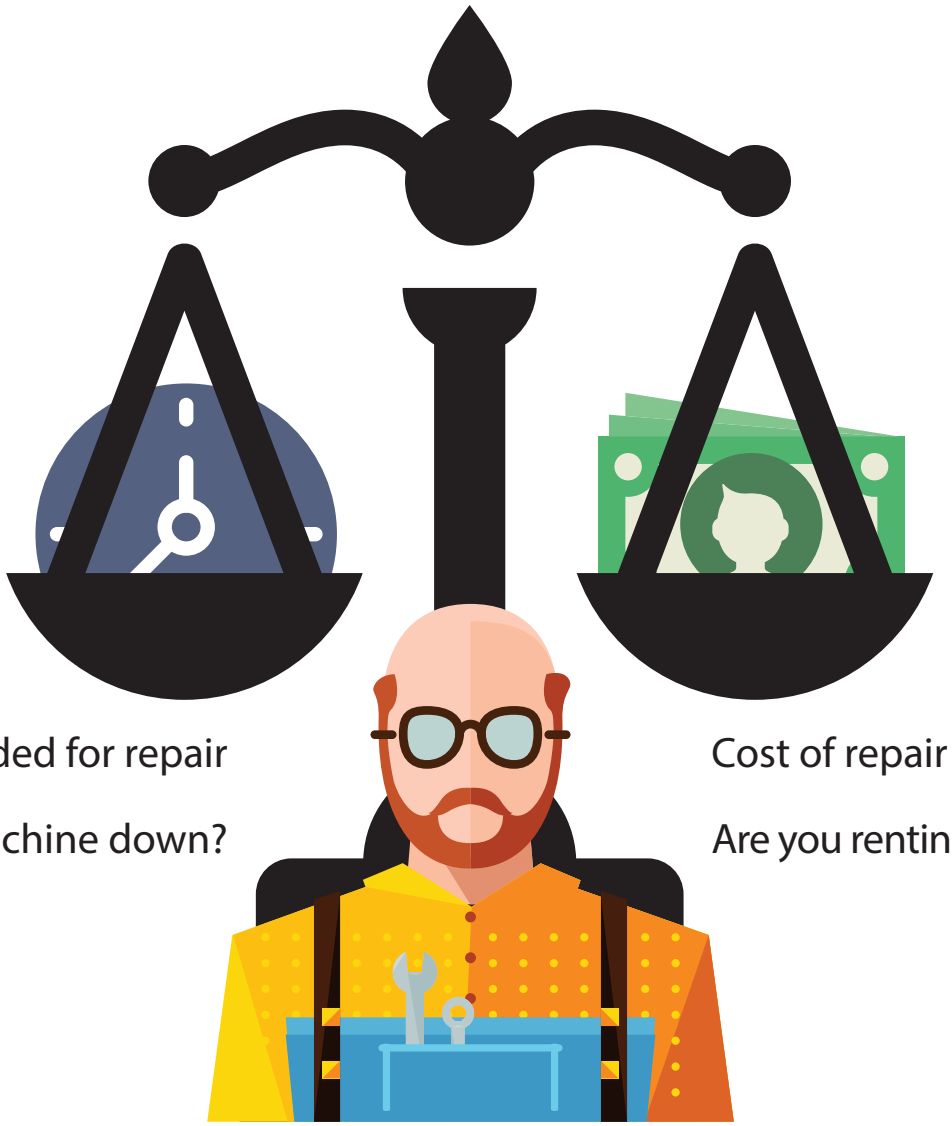
NOTE ILLUSTRATION


The John Deere coupling that bolts to above flywheel.

ADDITIONAL INFORMATION

Selling recommendation influences

At a glance



Time needed for repair

Is the machine down?

Cost of repair

Are you renting equipment?

Skill level of mechanic or shop

Age of the equipment is a secondary factor.

Warranty is a secondary factor.

The order of quoting

The order of quoting below is based on availability.

Time is the concern, skilled mechanic or shop, cost not the object.

1. Replacement Engine or Repurposed Engine 2 Year Warranty.
2. New 3/4 Engine 2 Year Warranty.
3. Reman Engine 2 Year Warranty.
4. 3/4 Engine built from parts 2 Year Warranty.
5. Long-Block, HBC Long Block, or Short-Block 6 Months Warranty.

Time is the concern, basic level of mechanic, cost not the object.

1. Replacement Engine or Repurposed Engine 2 Year Warranty.
2. New 3/4 Engine 2 Year Warranty.
3. Reman Engine 2 Year Warranty.
4. 3/4 Engine built from parts 2 Year Warranty.
5. Have an authorized Yanmar dealer do the repair up to the 3/4 engine level from what is available 6 months Warranty.

Cost is the concern, skilled mechanic or shop, time is not a concern.

1. Block OK, Head OK, Fuel Injection Pump OK do Overhaul 6 Months Warranty.
2. Block BAD, Head OK, Fuel Injection Pump OK use Short-Block 6 Months Warranty.
3. Block BAD, Head BAD, Fuel Injection Pump OK use HBC Long Block 6 Months Warranty.
4. Block BAD, Head BAD, Fuel Injection System Suspect use Replacement Engine if available 2 Year Warranty.
5. Block BAD, Head BAD, Fuel Injection System Suspect use Reman Engine
   1 Year Warranty.
6. Block BAD, Head BAD, Fuel Injection System Suspect use Repurposed Engine 2 Year Warranty.
7. Block BAD, Head BAD, Fuel Injection System Suspect use New 3/4 Engine 2 Year Warranty.

Cost is the concern, basic mechanical skills, time is not a concern.

1. Block OK, Head OK, have an authorized Yanmar dealer do the repair up to the 3/4 engine level 6 Months Warranty.
2. Block BAD use Replacement Engine 2 Year Warranty.
3. Block BAD use Reman Engine 2 Year Warranty.
4. Block BAD use New 3/4 Engine 2 Year Warranty.
5. Block BAD use Repurposed Engine 2 Year Warranty.

Core returns

Mastry's Yanmar Dealer Core Policy

1. A refundable core deposit will be added to the invoice for all 3 and 4 cylinder remanufactured, replacement, repurposed engines and short blocks. Refunds will be subject to Yanmar's inspection and approval. See accompanying Yanmar Core Engine Worksheet for the deposit values and the schedule of deductions.
2. The core engine (henceforth, in this document, the term "core engine" will also apply to short block core) returned must be the same/similar to the engine model purchased (like for like). The core must be assembled with all of the same components (fuel system, starter, turbo etc.) as supplied on the engine purchased.
3. The core engine must be in fully assembled condition with no visible or repaired cracks or holes in the block, head, or any other major component.
4. The crank must rotate 360° clockwise and counter clockwise with the original bearings installed or deductions may apply.
5. The core engine must be drained of fluid and all openings covered. Any penalties incurred from the shipping company resulting from damages and/or fines due to the core engine not being properly drained will be the responsibility of the shipper (dealer/distributor).
6. The core engine must be free from environmental wear such as corrosion, rust, fire and/or abuse.
7. Core engines must be returned to Yanmar America Corporation in the approved crate supplied with the engine or short block purchased within 60 days of the Mastry invoice date for credit.

   Mastry Engine Center will:
8. Upon shipment of engine or short block provide:
   - A prefilled Yanmar Core Engine Worksheet that will include:
     - Distributor/Dealer Name
     - Distributor/Dealer Account Number
     - Machine Make and Model Number
     - Core Engine Model and Serial Number
     - New Engine Model and Serial Number
   - Provide a filled in Yanmar Core Identification Tag
9. Provide a Yanmar RGA number by phone, email or fax within 48 hours of request.
10. After receipt of Yanmar RGA, Mastry will call QW Express to schedule a pickup of an engine core. Yanmar will pre-pay freight up to $250 for shipments within the Continental U.S. and Canada. It will be your responsibility to fill in the Yanmar RGA number to the Yanmar Core Engine Worksheet when provided.
11. All returned core engines must be accompanied by the completed Core Engine Worksheet and have the completed Core Engine Return Tag attached.
12. Failure to adhere to any of these policies may result in the forfeiture of part or all of the core deposit.
13. Yanmar will provide an acknowledgement with a verified core engine value will be supplied within 21 business days of engine core receipt at Yanmar America Corporation.
14. Engine Core Deduction Schedule

Deduction Schedule				
		3 CYL.	4 CYL. Up to 98 Models	4 CYL. 98 Models and above
Engine Core Deposit - Total		**$1,000**	**$1,500**	**$2,000**
Major Deductions				
Fluids not drained	*1	-$250	-$250	-$250
Water Pump		-$200	-$200	-$200
Fuel Injection Pump		-$400	-$500	-$600
Injectors (each)		-$100	-$100	-$100
Block (rebuildable condition)	*2	-$600	-$900	-$1,200
Head(s) (rebuildable condition)	*2	-$200	-$300	-$400
Crank	*3	-$200	-$300	-$400
Yanmar shipping pallet/crate		-$100	-$100	-$100
Turbo (if applicable)	*4	-$450	-$450	-$450
Starter (if applicable)	*4	-$200	-$200	-$200
Alternator (if applicable)	*4	-$200	-$200	-$200
Short Blocks Deposit - Total		**-$800**	**-$1,200**	**-$1,600**
Block (rebuildable condition)	*2	-$600	-$900	-$1,200
Crank	*3	-$200	-$300	-$400

*** Notes:**

1. Any penalties incurred from the shipping company resulting from damages and/or fines due to the core engine not being properly drained of all fluids will be the responsibility of the shipper (dealer/distributor).
2. The block and head(s) must not contain any visible cracks or holes.
3. The crank must rotate 360° cw & ccw or deductions may apply.
4. Not required on all core engines, only necessary when the component is part of the new engine's configuration.

It is recommended that dealers keep copies of all documents for their records.

This policy is subject to change without prior notice.

Core return and follow up

YANMAR

Core Engine Worksheet

** Please print legibly in the *BLUE* highlighted areas. **

Distributor Name:	Mastry Engine Center
Dist. Account No.:	XXX
Dealer Name:	Wise Forklift
Dealer Account No.:	XXX
Yanmar RGA No:	YAR-XXX

Return Core Engine		Equipment Information	
Make:	Yanmar (John Deere)	Make:	John Deere
Model:	3TN84-RJ	Model:	955
SN:	XXX	SN:	XXX

Replacement Engine Information		
Model:	3TNV88-BKMW*	SN: P4XXX

Deduction Schedule						Return Core Engine Evaluation			
		2 CYL. and below	3 CYL.	4 CYL. 88 Models and below	4 CYL. 92 Models and above	Inspected By (Full Name)	Deduction Value	Yanmar Confirmed	Notes
Engine Core Charge Part Number		2CYL-CR	3CYL-CR	4CV2-CR	4CV3-CR				
Engine Core Deposit - Total		$800	$1,000	$1,500	$2,000				
Major Deductions									
Fluids not drained	*1	-$250	-$250	-$250	-$250				
Water Pump		-$200	-$200	-$200	-$200				
Fuel Injection Pump		-$300	-$400	-$500	-$600				
Injectors (each)		-$100	-$100	-$100	-$100				
Block	*2	-$400	-$600	-$900	-$1,200				
Head	*2	-$100	-$200	-$300	-$400				
Crank	*3	-$200	-$200	-$300	-$400				
Yanmar shipping pallet/crate		-$100	-$100	-$100	-$100				
Turbo (if applicable)	*4	-$450	-$450	-$450	-$450				
Starter (if applicable)	*4	-$200	-$200	-$200	-$200				
Alternator (if applicable)	*4	-$200	-$200	-$200	-$200				
Short Block Core Charge Part #		SB-2CYL-CR	SB-3CYL-CR	SB-4CV2-CR	SB-4CV3-CR				
Short Blocks Deposit - Total		$600	$800	$1,200	$1,600				
Block	*2	-$400	-$600	-$900	-$1,200				
Crank	*3	-$150	-$200	-$300	-$400				
						TOTAL:			

Minor Deductions: Includes covers (valve, timing, & oil pan), fan, pulleys, flywheel, flywheel cover, and brackets. Total value for all of these minor items shall not exceed 30% of the total core deposit value.

Yanmar Core Inspector Name

*** Notes:**

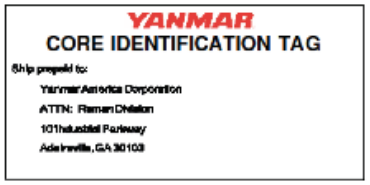
1. Any penalties incurred from the shipping company resulting from damages and/or fines due to the core engine not being properly drained of all fluids will be the responsibility of the shipper (dealer/distributor).
2. The block, head, or any other major component must not contain any visible or repaired cracks or holes.
3. The crank must rotate 360˚ cw & ccw or deductions may apply.
4. Not required on all core engines, only necessary when the component is part of the new engine's configuration.

**** CORE CONFIRMATION SHEET WILL BE RETURNED TO THE DISTRIBUTOR ****

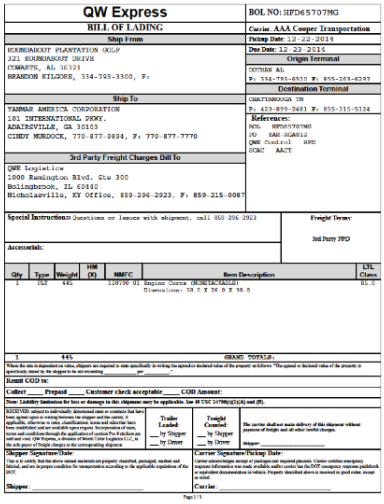
Version 02-20-14

Yanmar Core Tags

FRONT



BACK



A Core Engine Worksheet is filled out along with a Sample Yanmar Core Tag by a repower specialist. They will then obtain an RGA number from Yanmar America. Obtaining an RGA number may take a few days. Once the RGA number is obtained, they will arrange with the freight broker for a Bill of Lading, and e-mail or fax you the Core Tag, Core Engine Worksheet and Bill of Lading. This is usually done one day in advance of pick up.

After 45 days from invoice date if you know the core was not returned, you are obligated to contact your customer. A core MUST be returned within 60 days of sale on all Engine, Long-Block & Short-Block sales. Yanmar arranges and absorbs the return freight up to $250.00. On New Old Stock engines the cores are returned to Mastry Engine Center at the customer's expense. If the customer decides not to return a core, the serial number tag and EPA labels must be returned to Mastry Engine Center along with a letter on their letterhead (accompanied by pictures), that states "the core engine was destroyed and scrapped locally".

Notes

MASTRY ENGINE CENTER LLC

A YANMAR COMPANY

mastry.com

1-800-545-4574
Industrial Sales Fax: 727-381-3235
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Sales / Engine Repowers FL, Tallahassee East, Caribbean	Jeff Timon jtimon@mastry.com 727-348-4633
Sales / Engine Repowers AL, GA, FL Panhandle, Tallahassee West NC, SC	Jerry Purvis jpurvis@mastry.com 229-347-8394

Revision Date: September 23, 2020