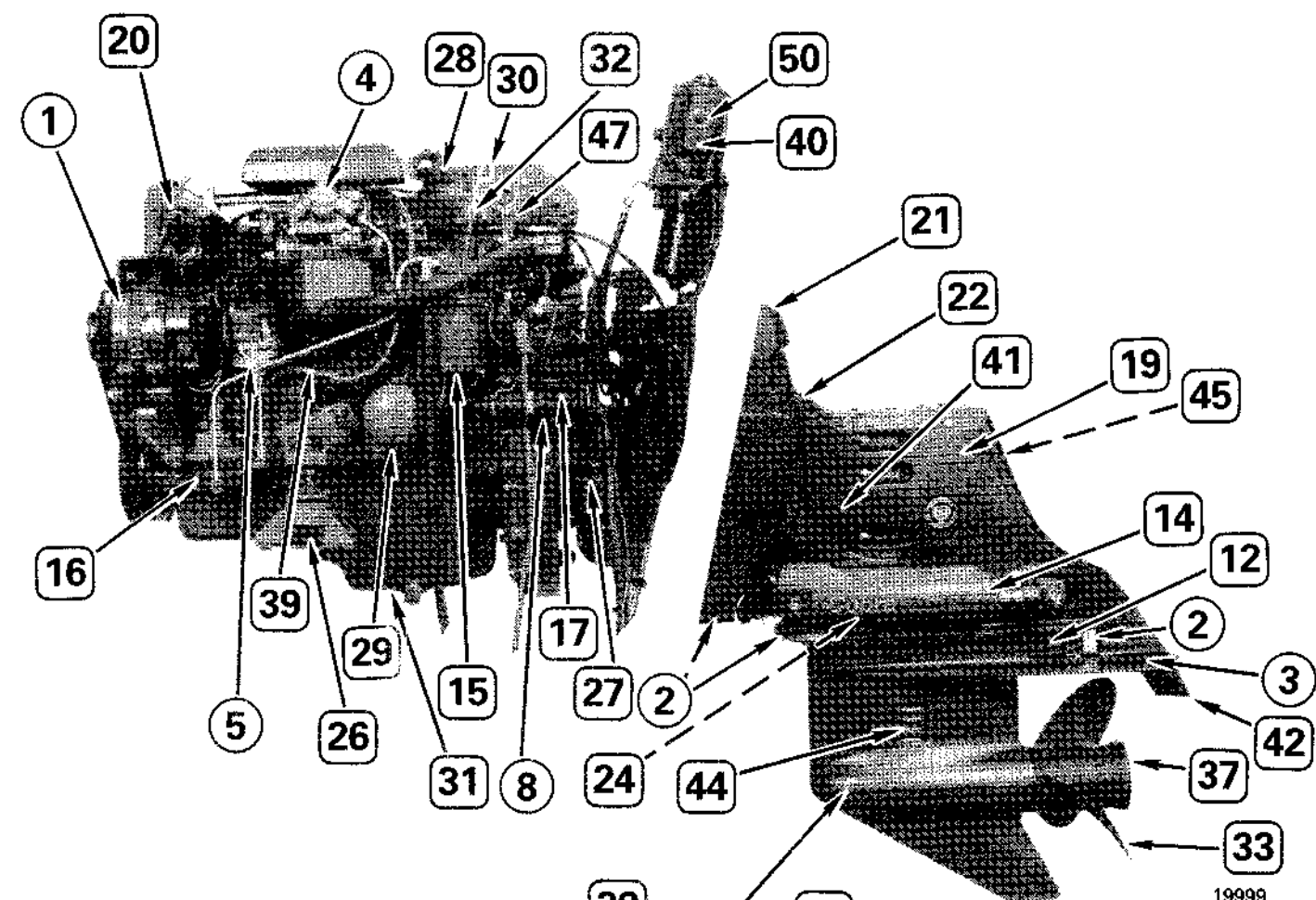
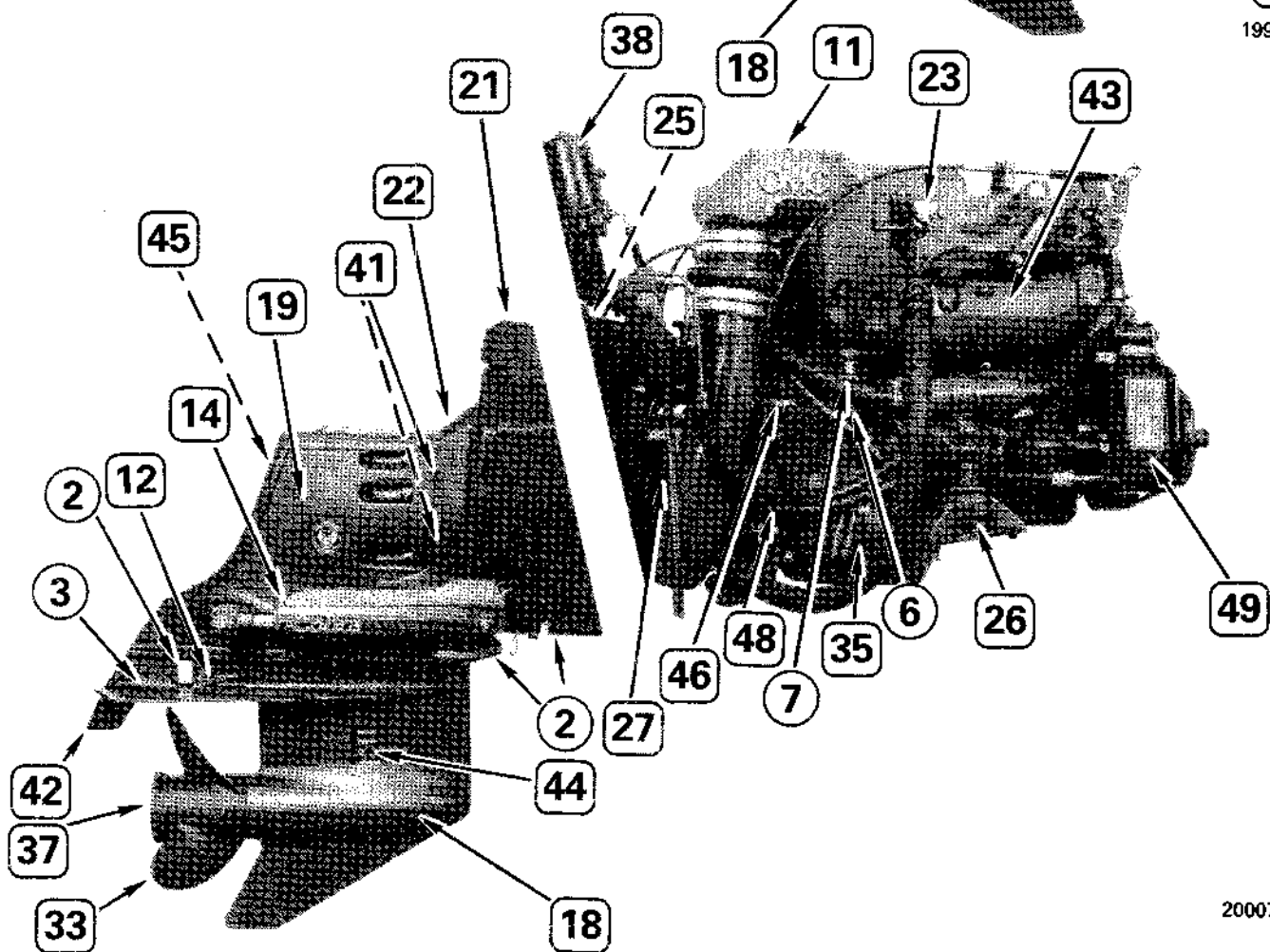
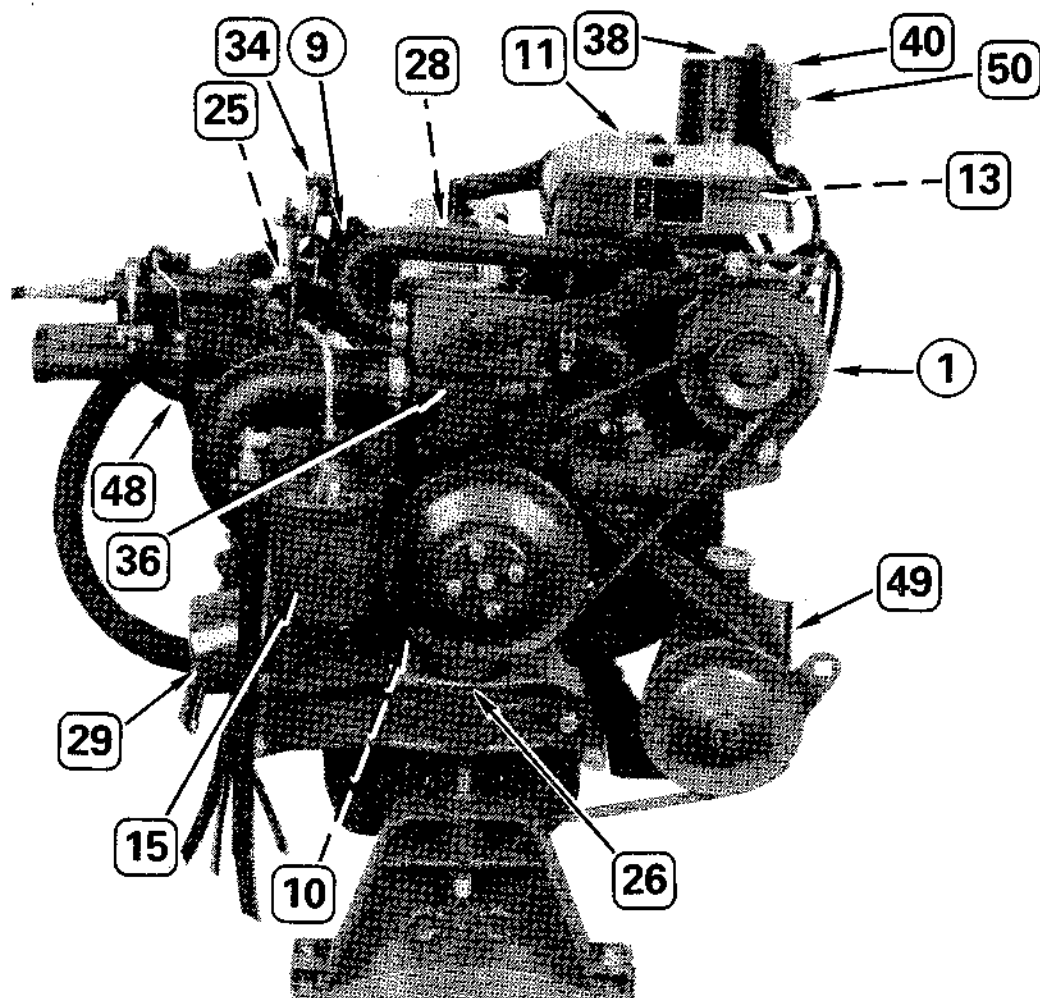




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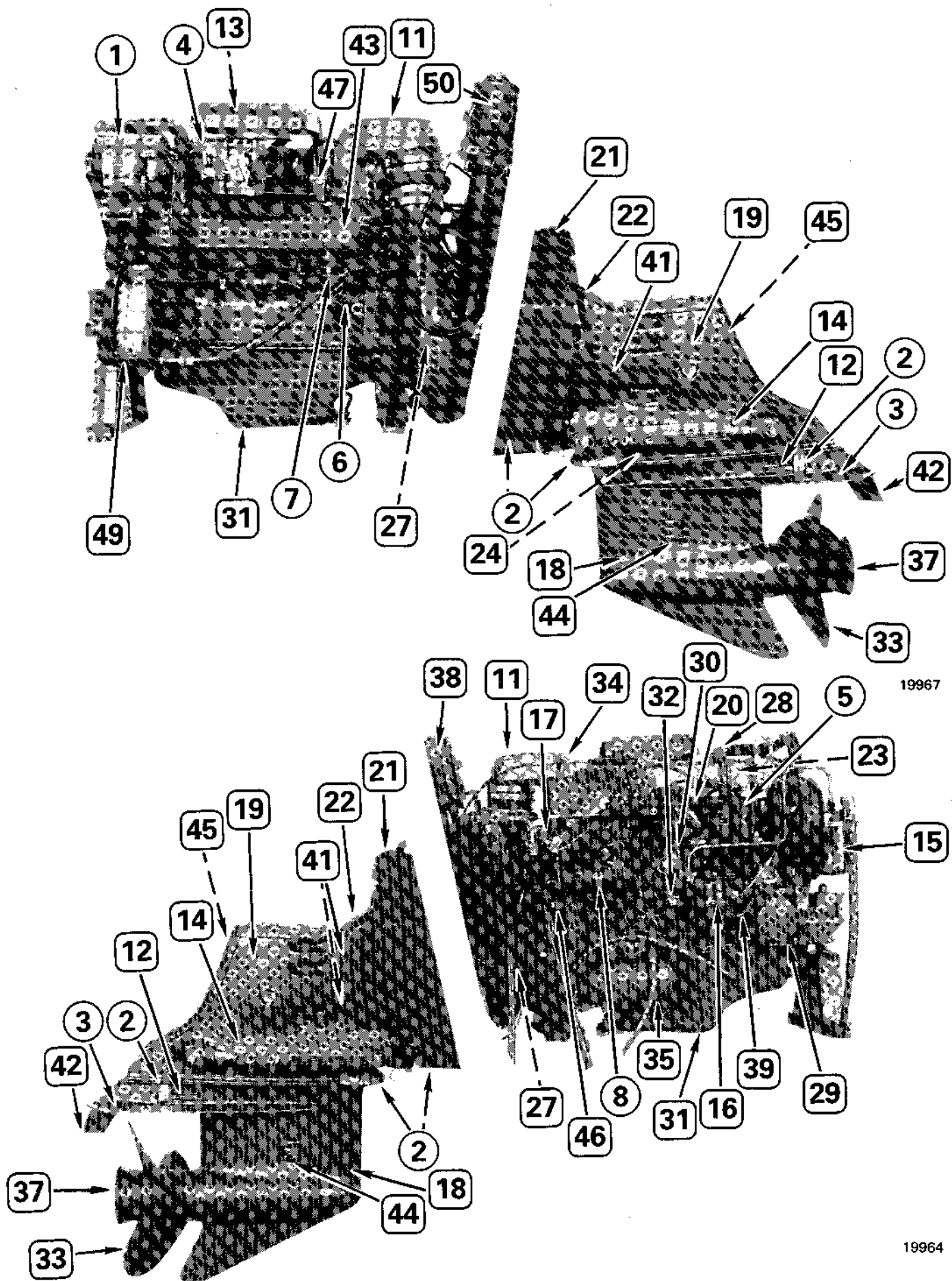
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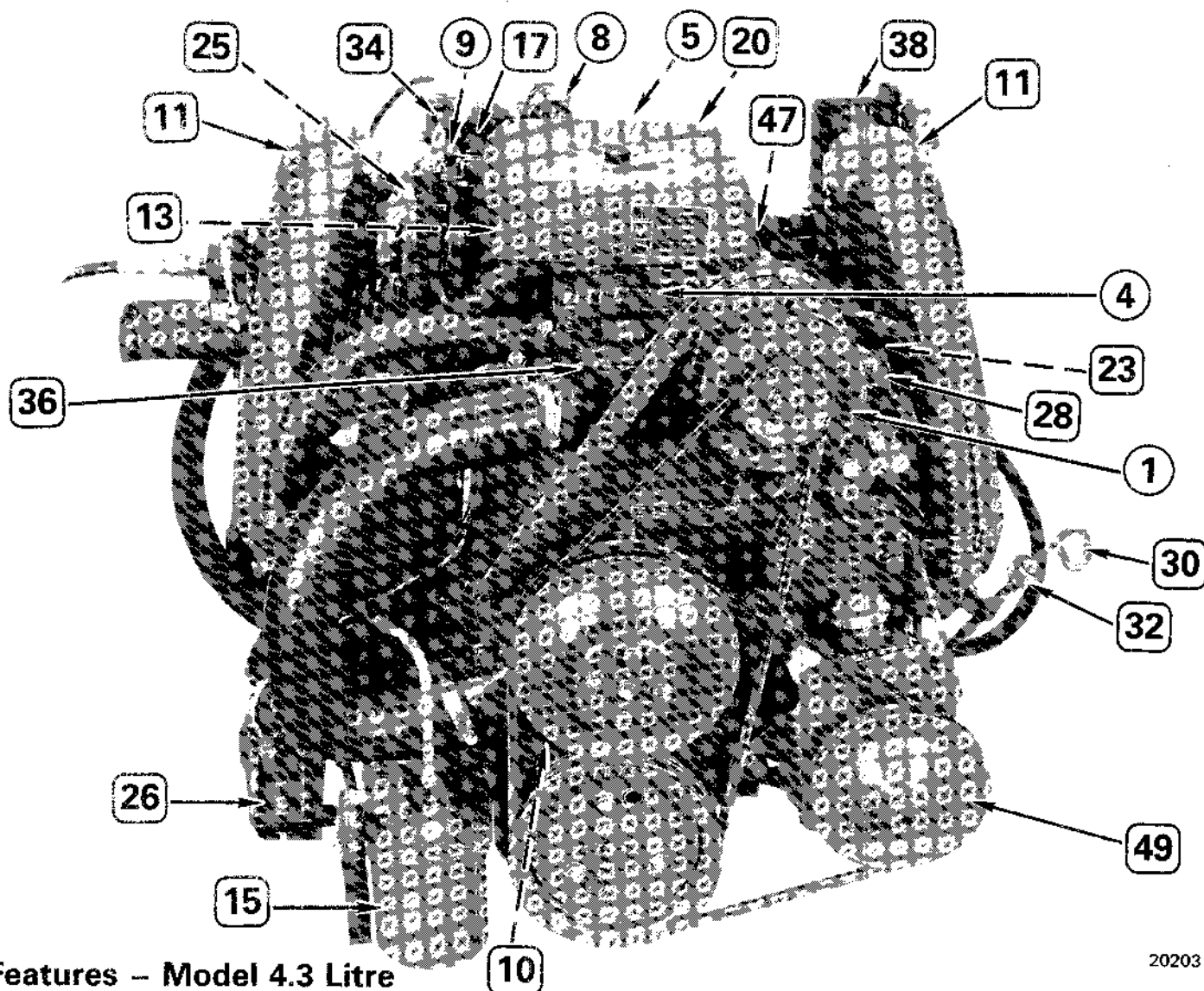
Features – Model 3.0 Litre Model 3.0 Litre HO

- | | |
|--|--|
| ① Alternator | ②⑥ Motor Mount, Front |
| ② Anodes | ②⑦ Motor Mount, Rear |
| ③ Anti-Ventilation Plate | ②⑧ Motor Oil Fill Cap |
| ④ Carburetor | ②⑨ Oil Filter |
| ⑤ Distributor | ③⑩ Oil Level Dipstick |
| ⑥ Drain (Engine) | ③⑪ Oil Pan |
| ⑦ Drain (Manifold) | ③⑫ Oil Withdrawal Tube |
| ⑧ Electrical Cable Connector | ③⑬ Propeller, SST II® (Optional) |
| ⑨ Electronic Shift Assist Module | ③⑭ Shift Bracket & Cable |
| ⑩ Engine Water Circulation Pump | ③⑮ Starter Motor |
| ⑪ Exhaust High Rise | ③⑯ Thermostat Housing |
| ⑫ Exhaust Relief Vents | ③⑰ Thru-Hub™ Exhaust |
| ⑬ Backfire Flame Arrestor | ③⑱ Trim/Tilt Pump Assembly |
| ⑭ Trim/Tilt Cylinders (Port and Starboard) | ③⑲ Transparent Fuel Pump Overflow Hose |
| ⑮ Fuel Filter | ④① Trim/Tilt Relays |
| ⑮ Fuel Pump | ④② Water Drain Plug |
| ⑮ Fuses | ④③ Trim Tab |
| ⑮ Lower Gearcase (Vertical Drive) | ④④ Water Cooled Exhaust Manifold |
| ⑮ Upper Gearcase (Vertical Drive) | ④⑤ Water Intake |
| ⑮ Ignition Coil | ④⑥ Water Pump |
| ⑮ Gimbal Housing | ④⑦ Battery Ground Terminal |
| ⑮ Pivot Housing | ④⑧ Throttle Bracket & Cable |
| ⑮ Model & Serial Number (Engine) | ④⑨ Power Steering Hydraulic Lines |
| ⑮ Model & Serial Number (Vertical Drive) | ④⑩ Power Steering Pump |
| ⑮ Model & Serial Number (Transom Mount) | ④⑪ Circuit Breaker |



19967

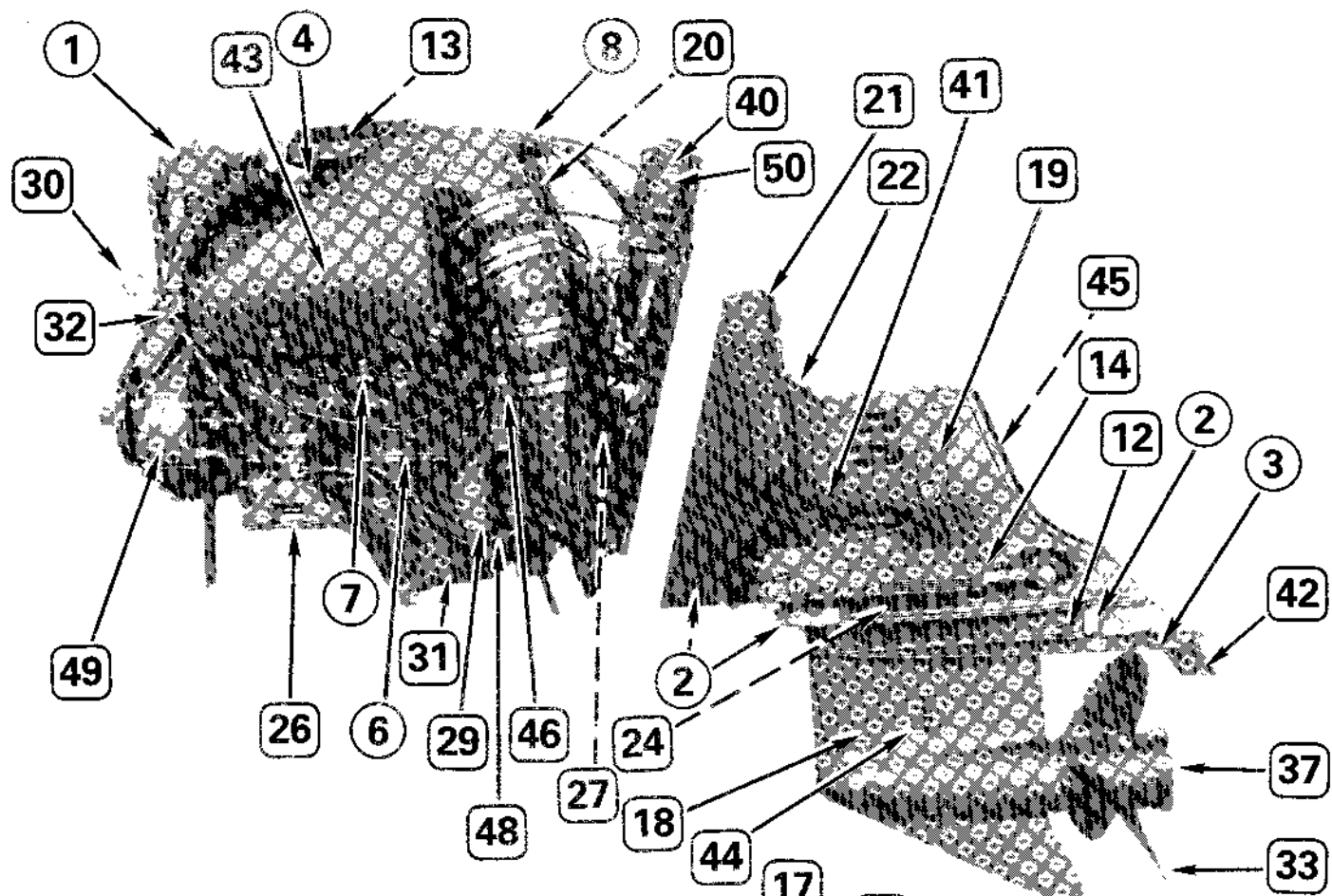
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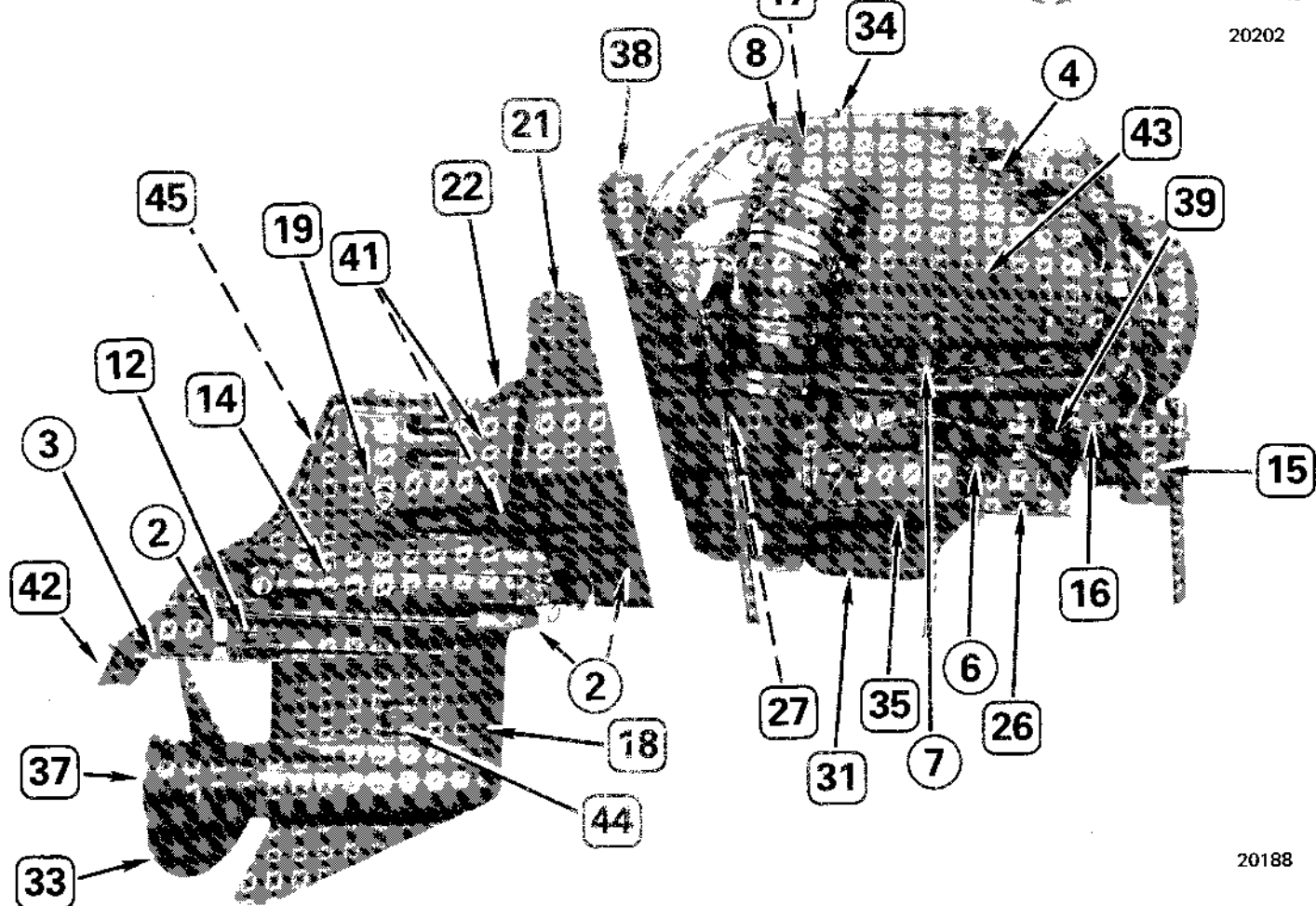
Features – Model 4.3 Litre

20203

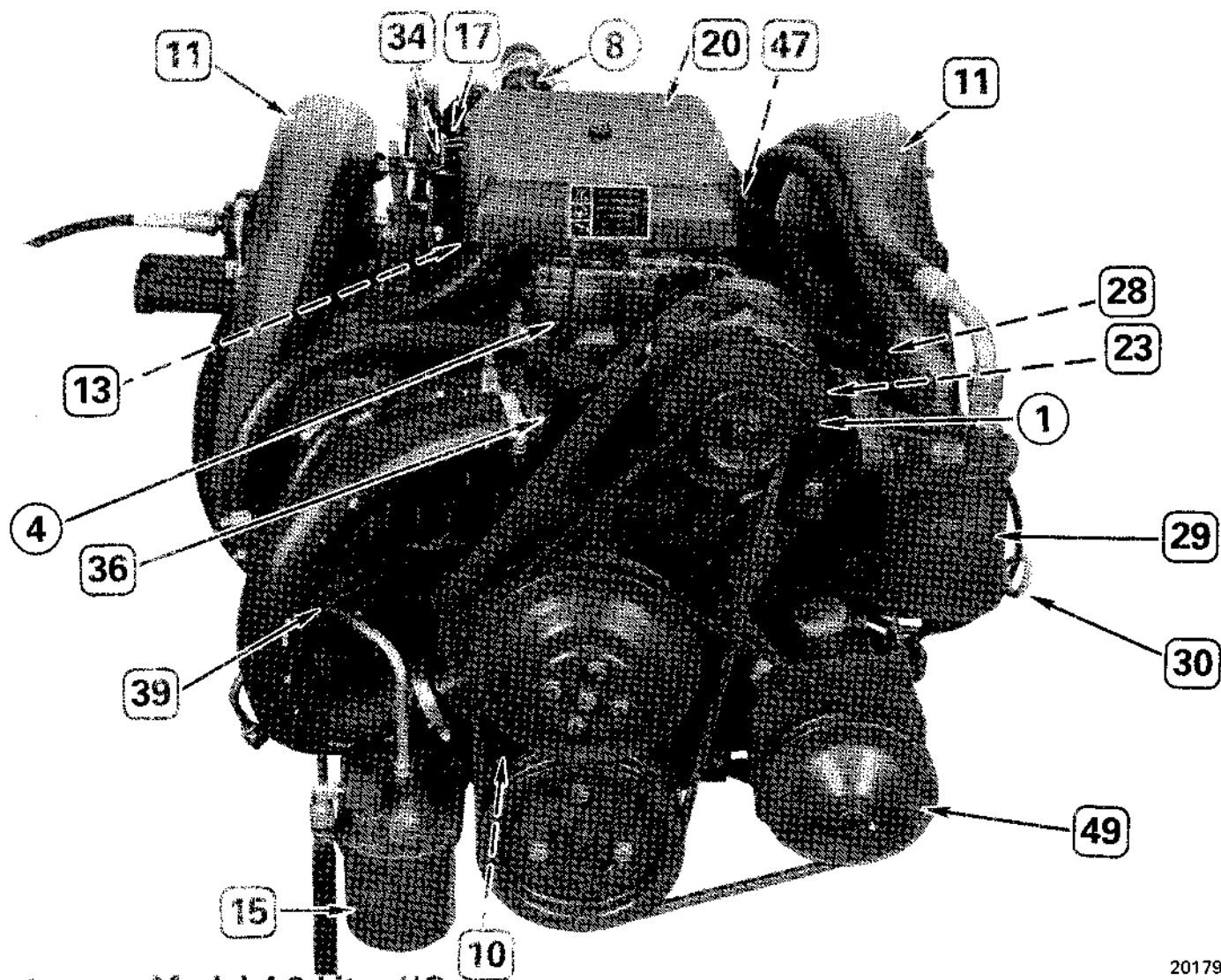
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| ① Alternator | ②⑥ Motor Mount, Front |
| ② Anodes | ②⑦ Motor Mount, Rear |
| ③ Anti-Ventilation Plate | ②⑧ Motor Oil Fill Cap |
| ④ Carburetor | ②⑨ Oil Filter |
| ⑤ Distributor | ③① Oil Level Dipstick |
| ⑥ Drain (Engine) | ③② Oil Pan |
| ⑦ Drain (Manifold) | ③③ Oil Withdrawal Tube |
| ⑧ Electrical Cable Connector | ③④ Propeller, SST II® (Optional) |
| ⑨ Electronic Shift Assist Module | ③⑤ Shift Bracket & Cable |
| ⑩ Engine Water Circulation Pump | ③⑥ Starter Motor |
| ⑪ Exhaust High Rise | ③⑦ Thermostat Housing |
| ⑫ Exhaust Relief Vents | ③⑧ <i>Thru-Hub™ Exhaust</i> |
| ⑬ Backfire Flame Arrestor | ③⑨ Trim/Tilt Pump Assembly |
| ⑭ Trim/Tilt Cylinders (Port and Starboard) | ④① Transparent Fuel Pump Overflow Hose |
| ⑮ Fuel Filter | ④② Trim/Tilt Relays |
| ⑯ Fuel Pump | ④③ Water Drain Plug |
| ⑰ Fuses | ④④ Trim Tab |
| ⑱ Lower Gearcase (Vertical Drive) | ④⑤ Water Cooled Exhaust Manifold |
| ⑲ Upper Gearcase (Vertical Drive) | ④⑥ Water Intake |
| ⑳ Ignition Coil | ④⑦ Water Pump |
| ㉑ Gimbal Housing | ④⑧ Battery Ground Terminal |
| ㉒ Pivot Housing | ④⑨ Throttle Bracket & Cable |
| ㉓ Model & Serial Number (Engine) | ④⑩ Power Steering Hydraulic Lines |
| ㉔ Model & Serial Number (Vertical Drive) | ④⑪ Power Steering Pump |
| ㉕ Model & Serial Number (Transom Mount) | ⑤① Circuit Breaker |



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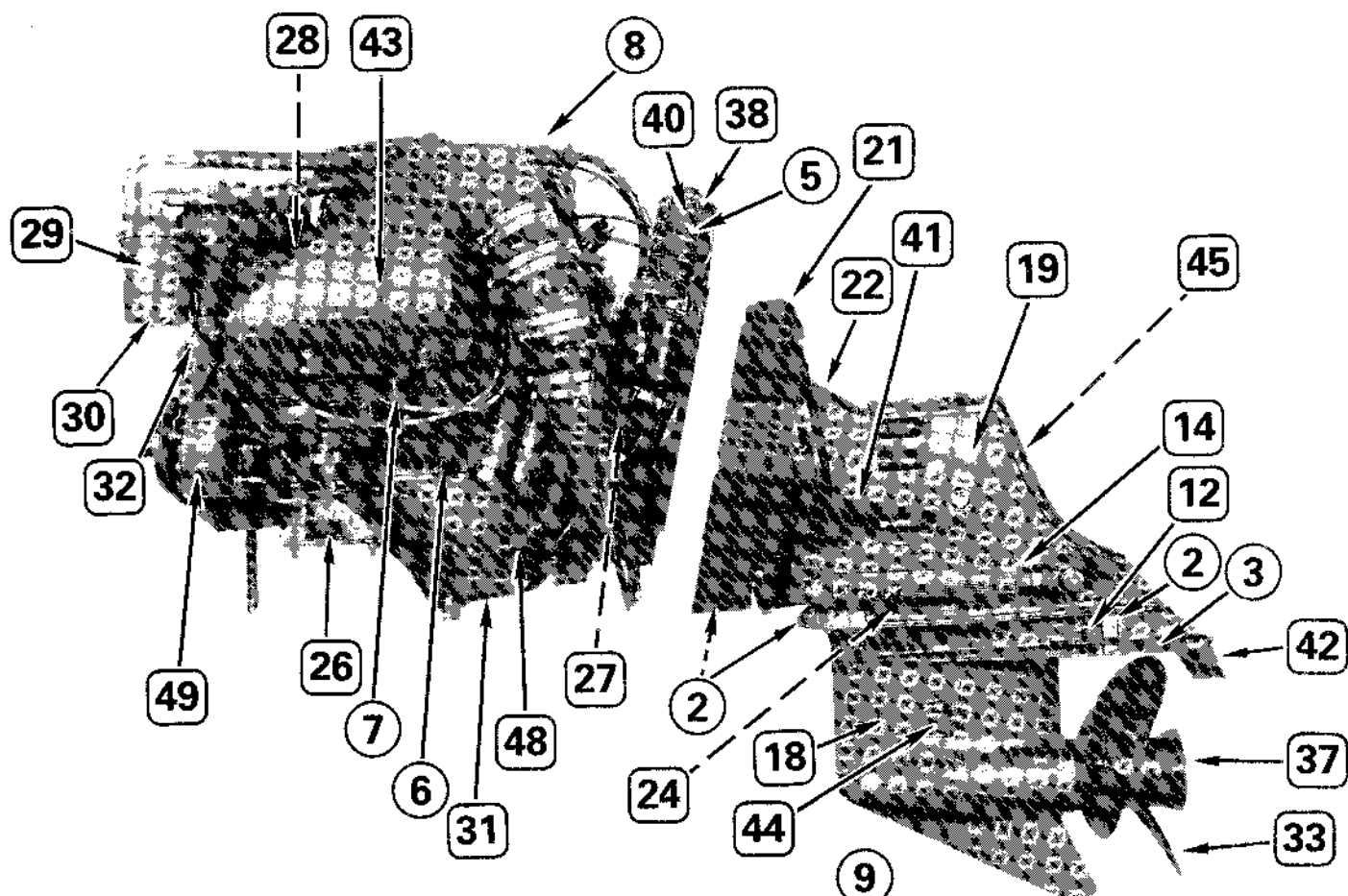
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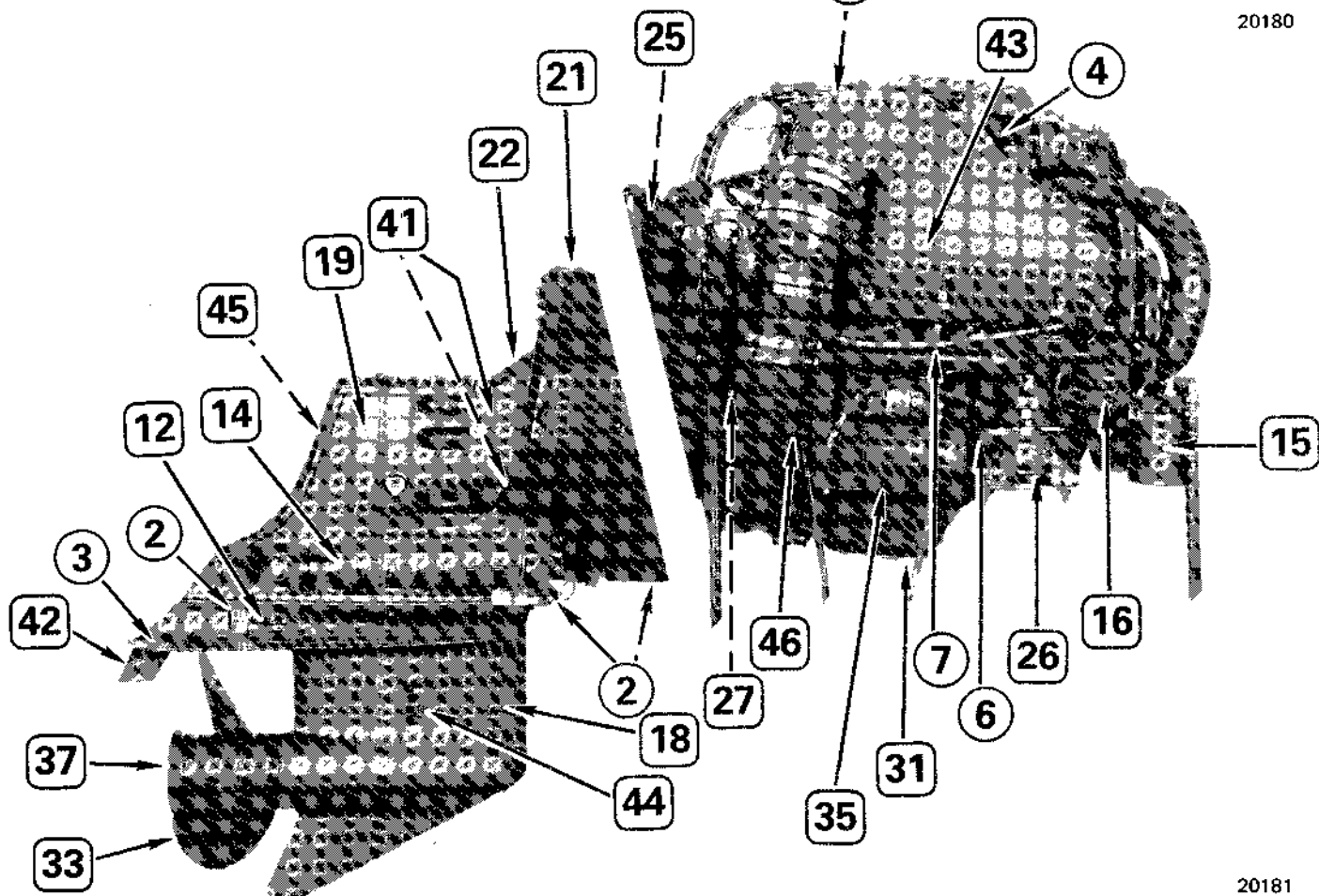
Features -- Model 4.3 Litre HO

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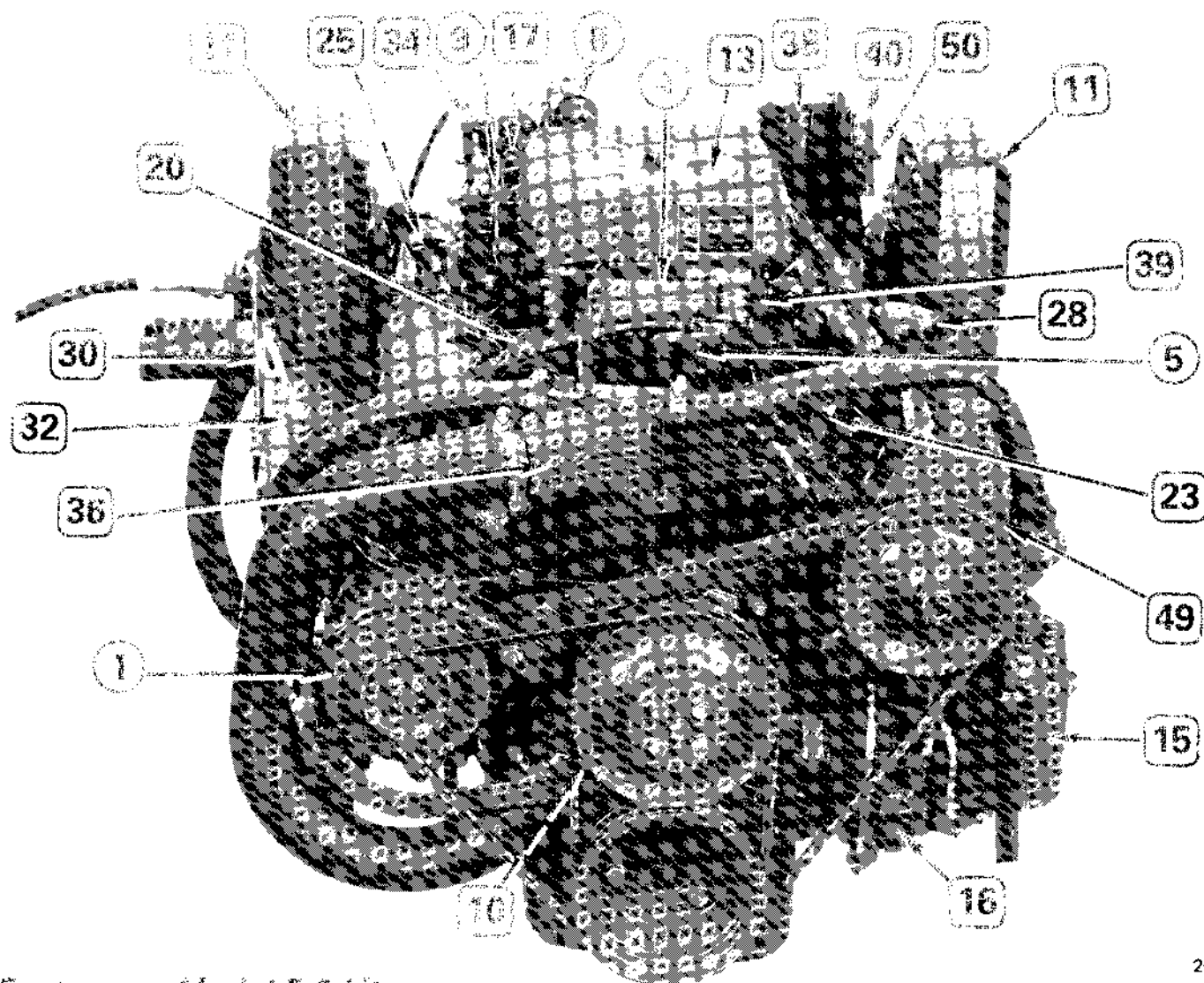
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| ① Alternator | ②⑥ Motor Mount, Front |
| ② Anodes | ②⑦ Motor Mount, Rear |
| ③ Anti-Ventilation Plate | ②⑧ Motor Oil Fill Cap |
| ④ Carburetor | ②⑨ Oil Filter |
| ⑤ Circuit Breaker | ②⑩ Oil Level Dipstick |
| ⑥ Drain (Engine) | ②⑪ Oil Pan |
| ⑦ Drain (Manifold) | ②⑫ Oil Withdrawal Tube |
| ⑧ Electrical Cable Connector | ②⑬ Propeller, SST II® (Optional) |
| ⑨ Electronic Ignition | ②⑭ Shift Bracket & Cable |
| ⑩ Engine Water Circulation Pump | ②⑮ Starter Motor |
| ⑪ Exhaust High Rise | ②⑯ Thermostat Housing |
| ⑫ Exhaust Relief Vents | ②⑰ <i>Thru-Hub™ Exhaust</i> |
| ⑬ Backfire Flame Arrestor | ②⑱ Trim/Tilt Pump Assembly |
| ⑭ Trim/Tilt Cylinders (Port and Starboard) | ②⑲ Transparent Fuel Pump Overflow Hose |
| ⑮ Fuel Filter | ②⑳ Trim/Tilt Relays |
| ⑯ Fuel Pump | ②㉑ Water Drain Plug |
| ⑰ Fuses | ②㉒ Trim Tab |
| ⑱ Lower Gearcase (Vertical Drive) | ②㉓ Water Cooled Exhaust Manifold |
| ⑲ Upper Gearcase (Vertical Drive) | ②㉔ Water Intake |
| ⑳ Ignition Coil | ②㉕ Water Pump |
| ㉑ Gimbal Housing | ②㉖ Battery Ground Terminal |
| ㉒ Pivot Housing | ②㉗ Throttle Bracket & Cable |
| ㉓ Model & Serial Number (Engine) | ②㉘ Power Steering Hydraulic Lines |
| ㉔ Model & Serial Number (Vertical Drive) | ②㉙ Power Steering Pump |
| ㉕ Model & Serial Number (Transom Mount) | |



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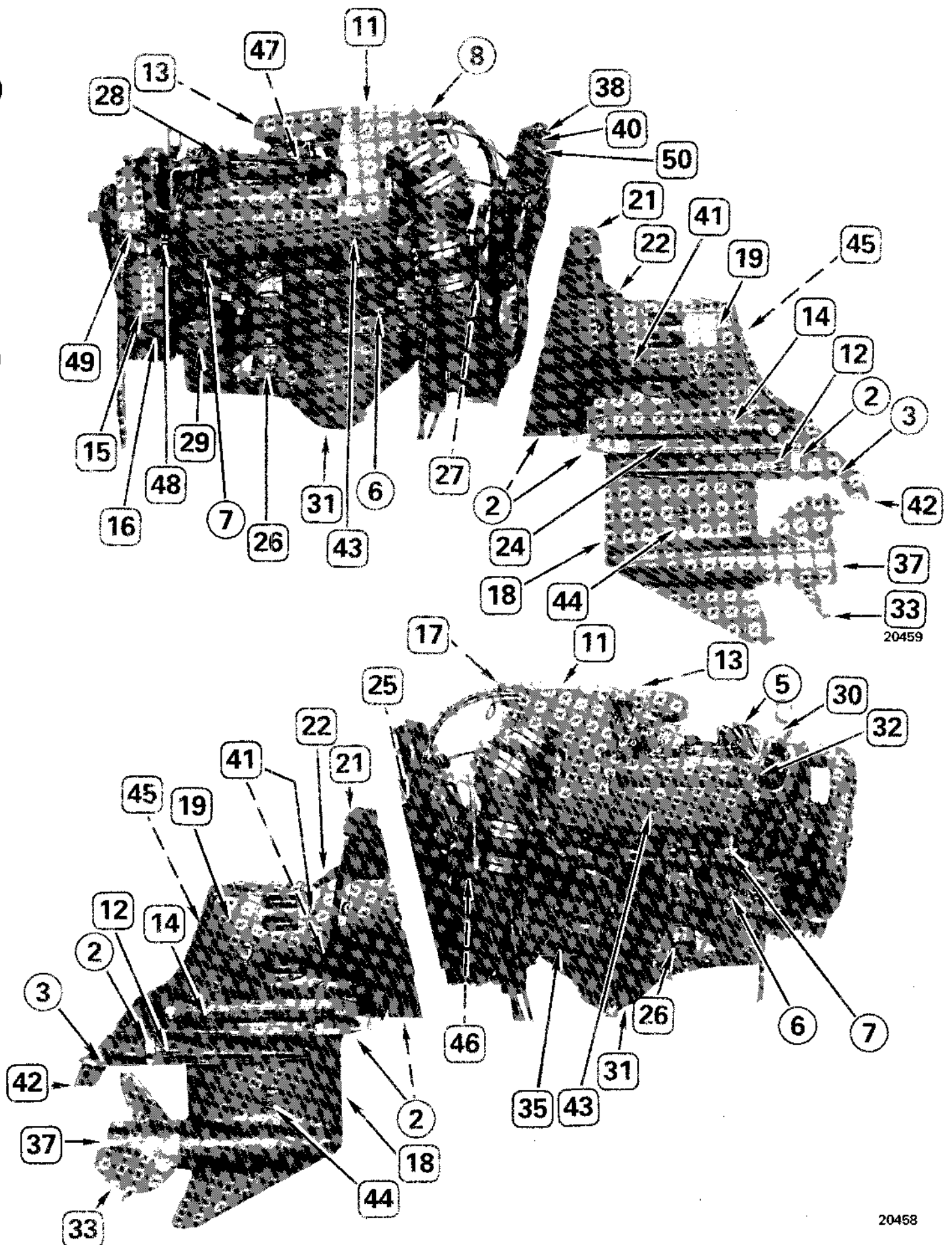
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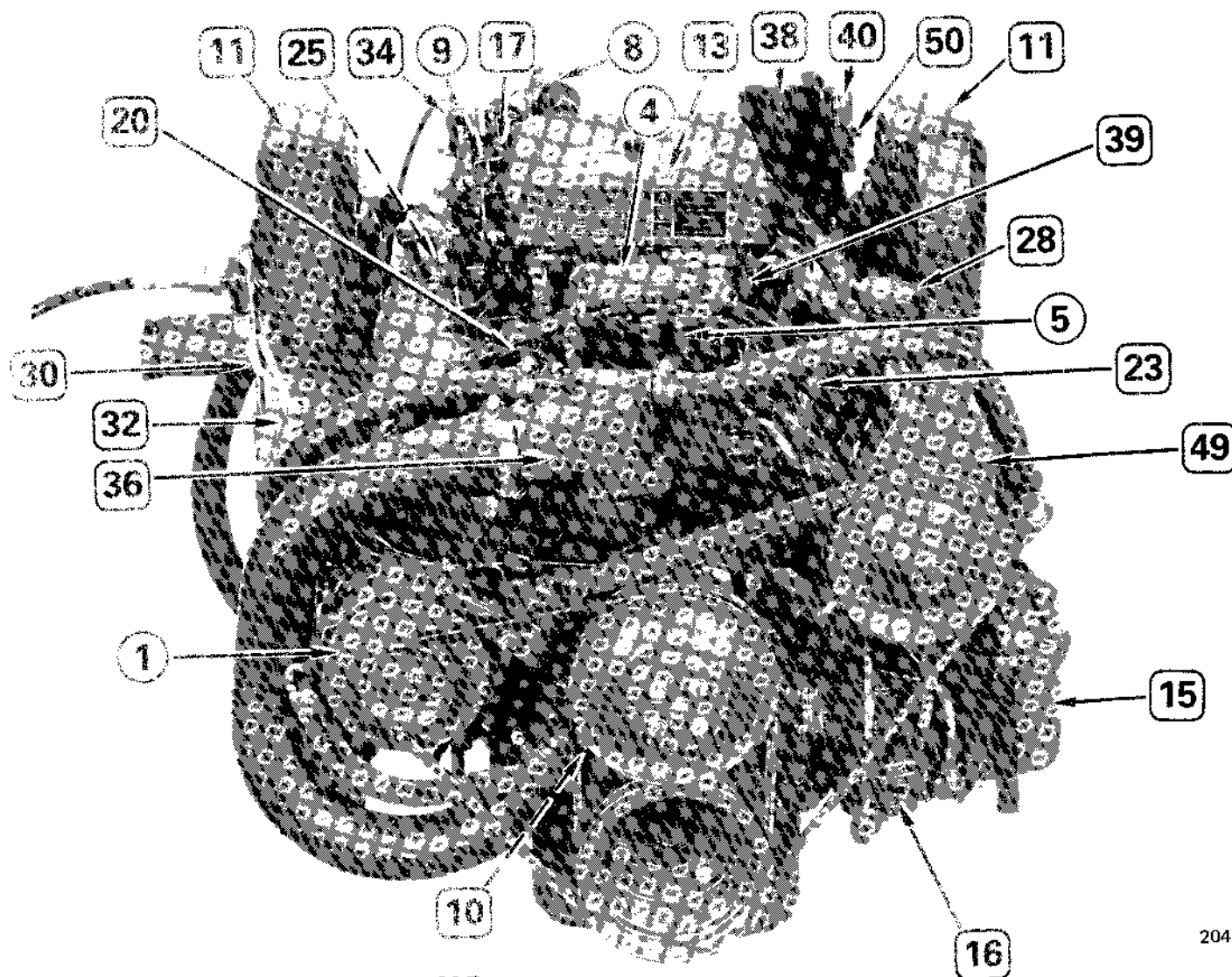


Features - Model 5.0 Litre

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|--|---------------------------------------|
| ① Alternator | ② Motor Mount, Front |
| ② Anodes | ③ Motor Mount, Rear |
| ③ Anti-Ventilation Plate | ④ Motor Oil Fill Cap |
| ④ Carburetor | ⑤ Oil Filter |
| ⑤ Distributor | ⑥ Oil Level Dipstick |
| ⑥ Drain (Engine) | ⑦ Oil Pan |
| ⑦ Drain (Manifold) | ⑧ Oil Withdrawal Tube |
| ⑧ Electrical Cable Connector | ⑨ Propeller, SST II® (Optional) |
| ⑨ Electronic Shift Assist Module | ⑩ Shift Bracket & Cable |
| ⑩ Engine Water Circulation Pump | ⑪ Starter Motor |
| ⑪ Exhaust High Rise | ⑫ Thermostat Housing |
| ⑫ Exhaust Relief Vents | ⑬ Thru-Hub™ Exhaust |
| ⑬ Backfire Flame Arrestor | ⑭ Trim/Tilt Pump Assembly |
| ⑭ Trim/Tilt Cylinders (Port and Starboard) | ⑮ Transparent Fuel Pump Overflow Hose |
| ⑮ Fuel Filter | ⑯ Trim/Tilt Relays |
| ⑯ Fuel Pump | ⑰ Water Drain Plug |
| ⑰ Fuses | ⑱ Trim Tab |
| ⑱ Lower Gearcase (Vertical Drive) | ⑲ Water Cooled Exhaust Manifold |
| ⑲ Upper Gearcase (Vertical Drive) | ⑳ Water Intake |
| ⑳ Ignition Coil | ㉑ Water Pump |
| ㉑ Gimbal Housing | ㉒ Battery Ground Terminal |
| ㉒ Pivot Housing | ㉓ Throttle Bracket & Cable |
| ㉓ Model & Serial Number (Engine) | ㉔ Power Steering Hydraulic Lines |
| ㉔ Model & Serial Number (Vertical Drive) | ㉕ Power Steering Pump |
| ㉕ Model & Serial Number (Transom Mount) | ㉖ Circuit Breaker |

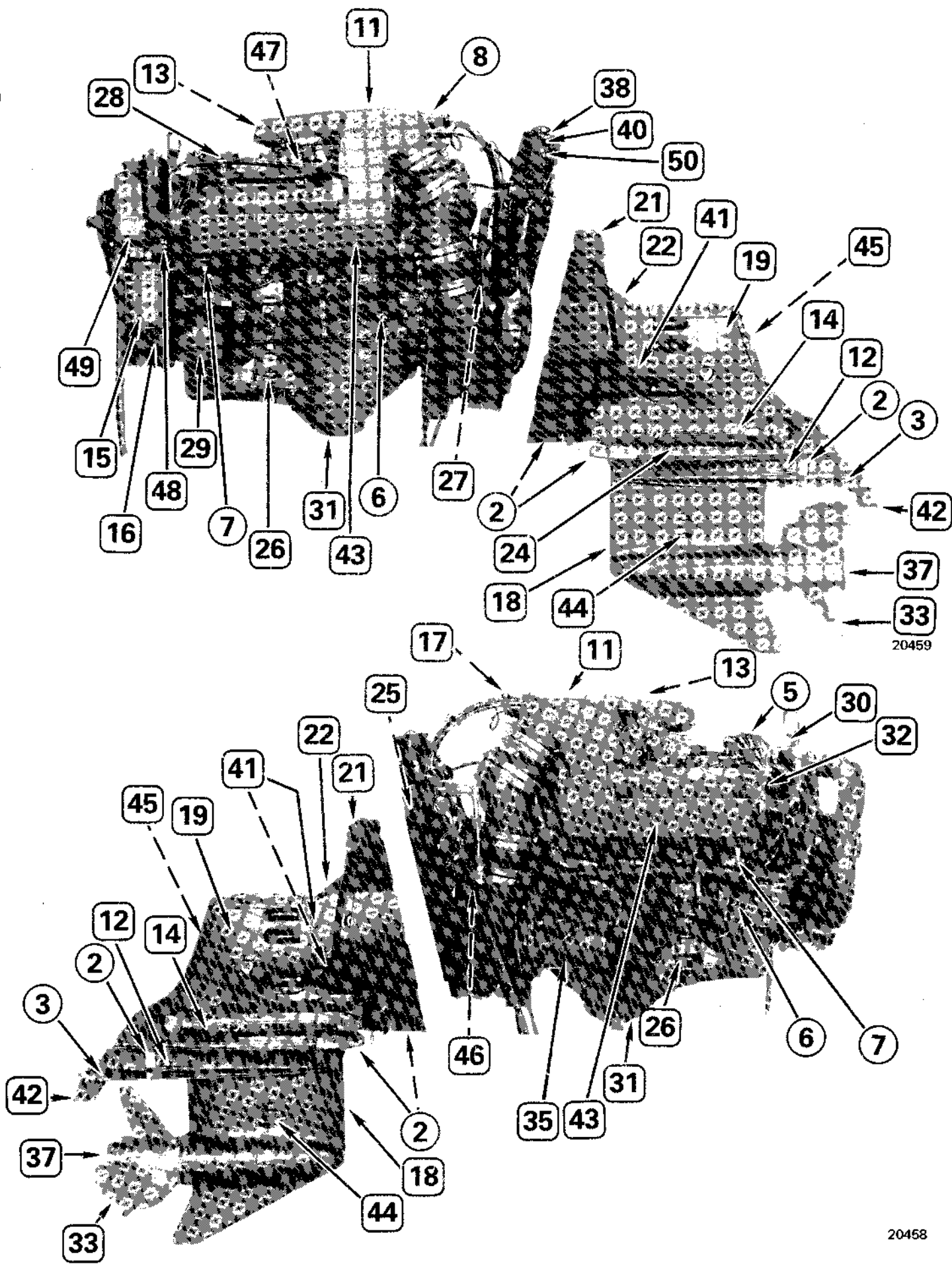




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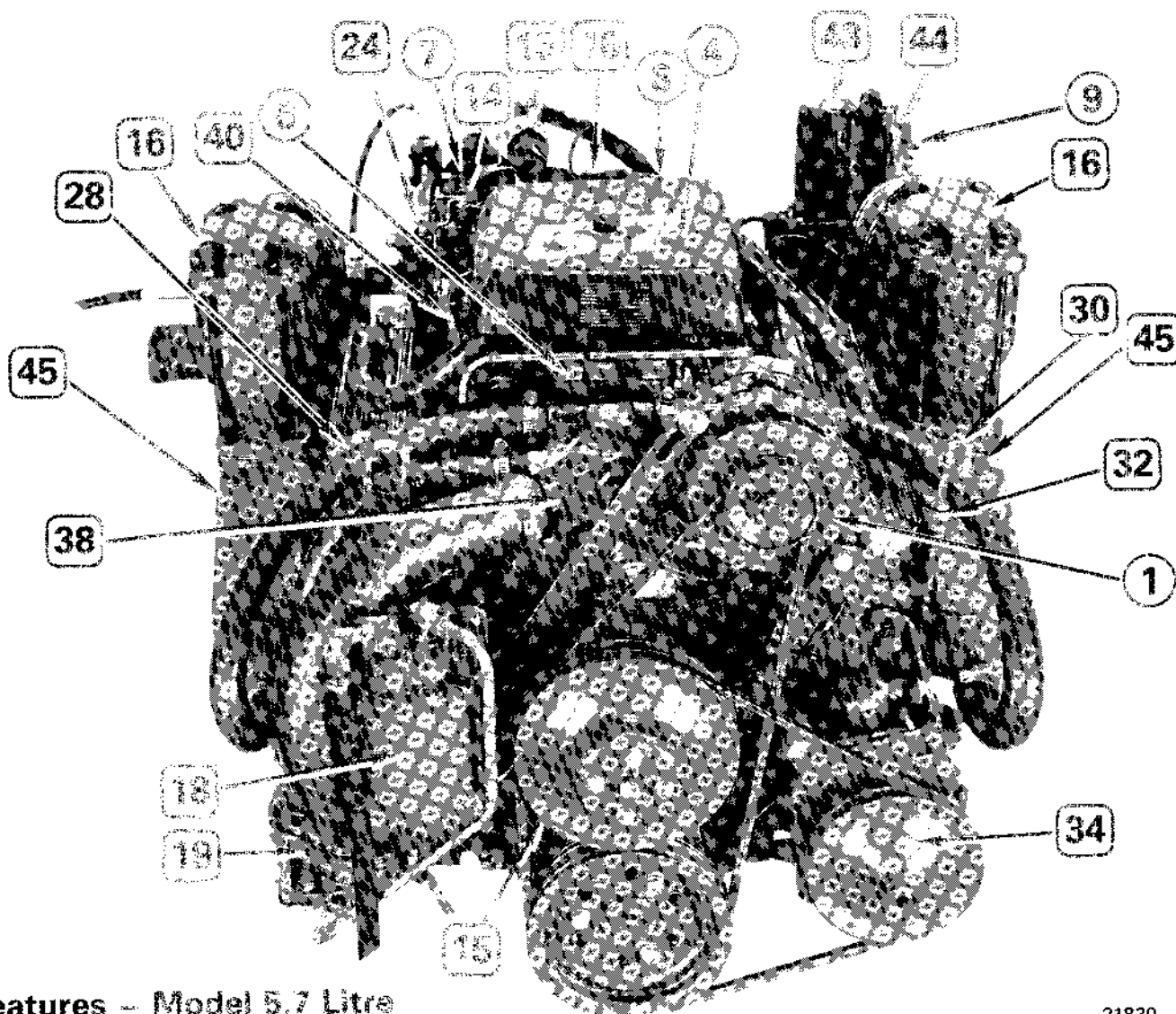
Features – Model 5.0 Litre HO

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| ① Alternator | ②⑥ Motor Mount, Front |
| ② Anodes | ②⑦ Motor Mount, Rear |
| ③ Anti-Ventilation Plate | ②⑧ Motor Oil Fill Cap |
| ④ Carburetor | ②⑨ Oil Filter |
| ⑤ Distributor | ③① Oil Level Dipstick |
| ⑥ Drain (Engine) | ③② Oil Pan |
| ⑦ Drain (Manifold) | ③③ Oil Withdrawal Tube |
| ⑧ Electrical Cable Connector | ③④ Propeller, SST II® (Optional) |
| ⑨ Electronic Shift Assist Module | ③⑤ Shift Bracket & Cable |
| ⑩ Engine Water Circulation Pump | ③⑥ Starter Motor |
| ⑪ Exhaust High Rise | ③⑦ Thermostat Housing |
| ⑫ Exhaust Relief Vents | ③⑧ Thru-Hub™ Exhaust |
| ⑬ Backfire Flame Arrestor | ③⑨ Trim/Tilt Pump Assembly |
| ⑭ Trim/Tilt Cylinders (Port and Starboard) | ③⑩ Transparent Fuel Pump Overflow Hose |
| ⑮ Fuel Filter | ④① Trim/Tilt Relays |
| ⑯ Fuel Pump | ④② Water Drain Plug |
| ⑰ Fuses | ④③ Trim Tab |
| ⑱ Lower Gearcase (Vertical Drive) | ④④ Water Cooled Exhaust Manifold |
| ⑲ Upper Gearcase (Vertical Drive) | ④⑤ Water Intake |
| ⑳ Ignition Coil | ④⑥ Water Pump |
| ㉑ Gimbal Housing | ④⑦ Battery Ground Terminal |
| ㉒ Pivot Housing | ④⑧ Throttle Bracket & Cable |
| ㉓ Model & Serial Number (Engine) | ④⑨ Power Steering Hydraulic Lines |
| ㉔ Model & Serial Number (Vertical Drive) | ④⑩ Power Steering Pump |
| ㉕ Model & Serial Number (Transom Mount) | ⑤① Circuit Breaker |



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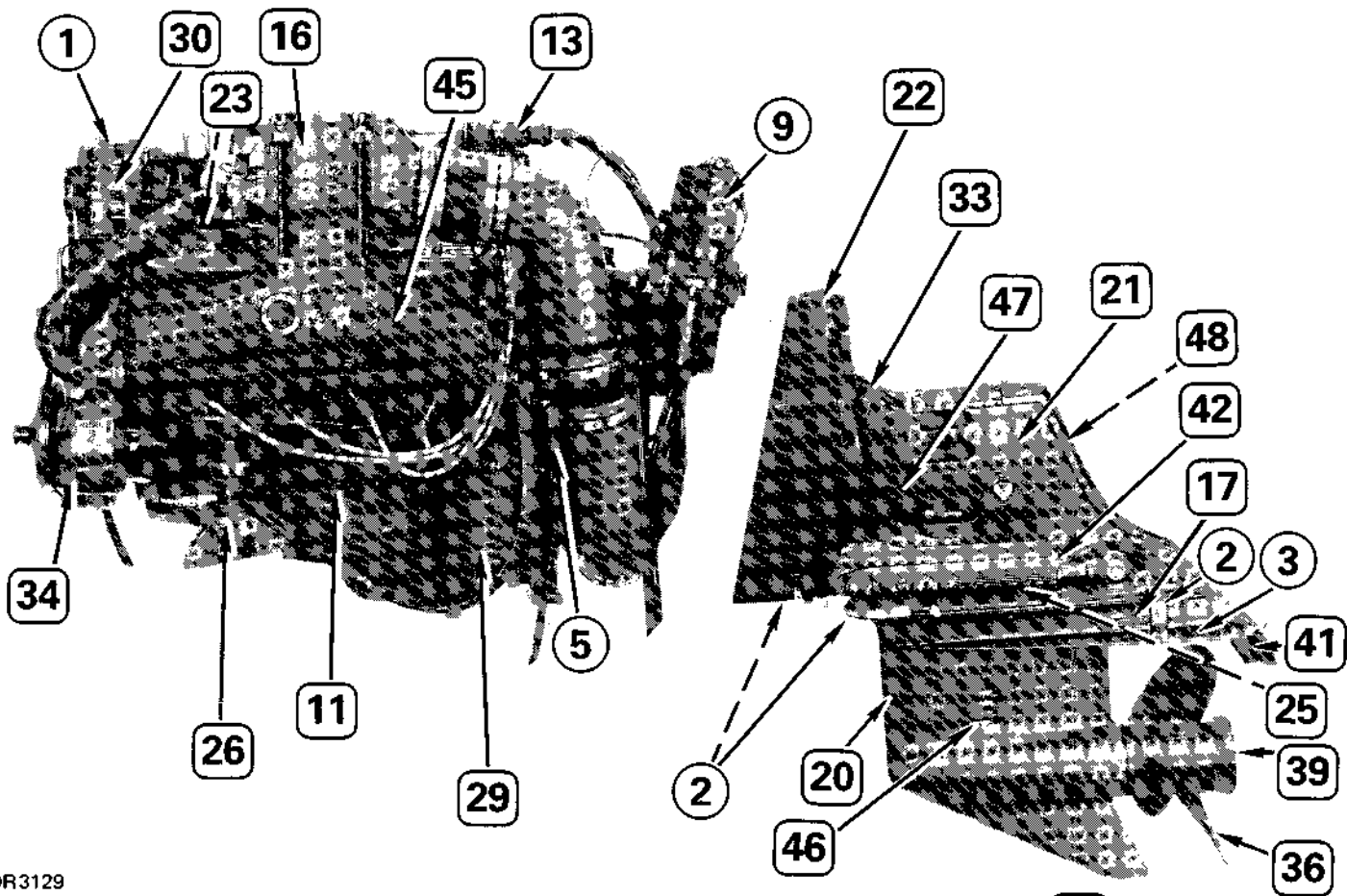
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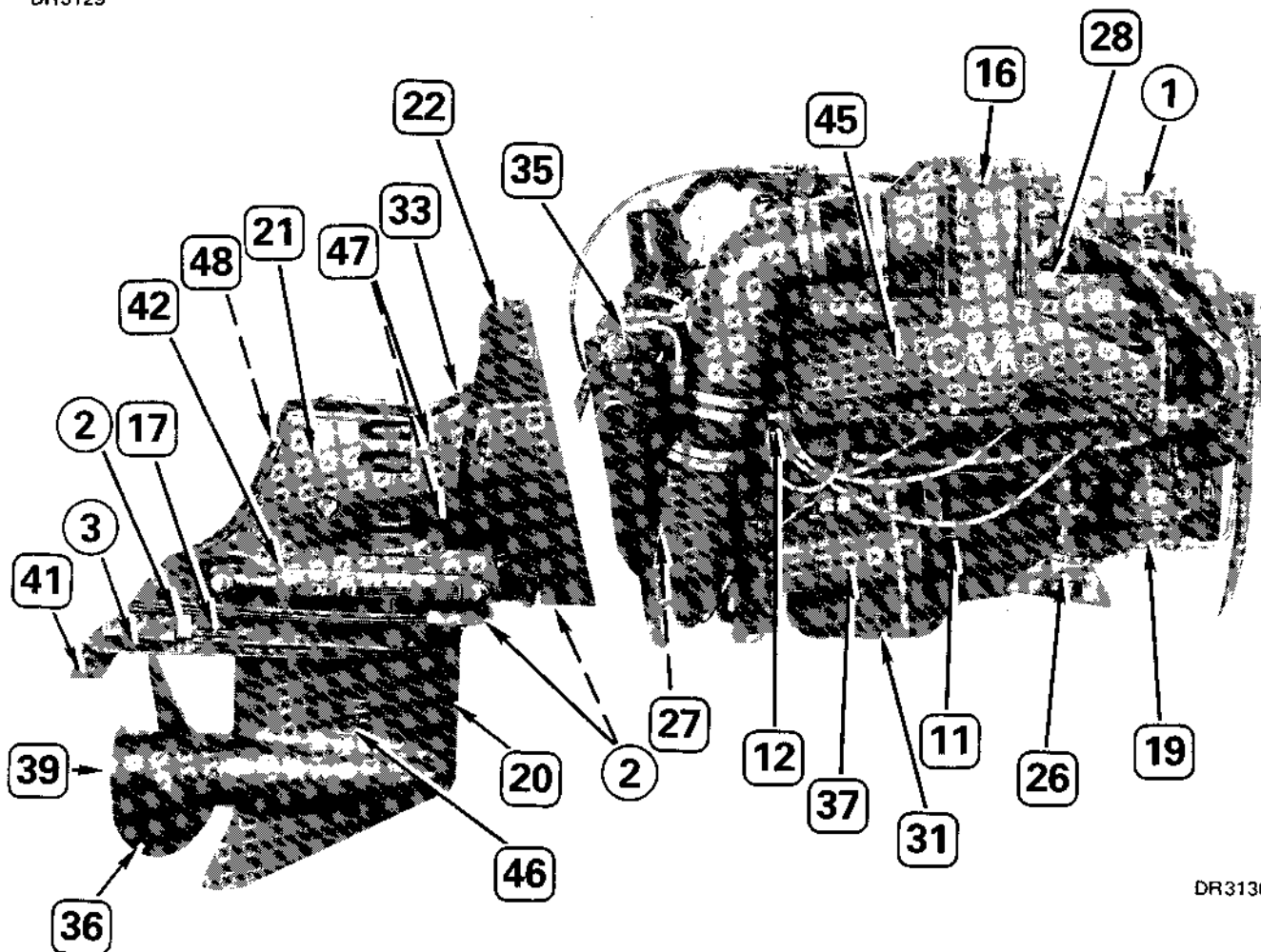
Features - Model 5.7 Litre

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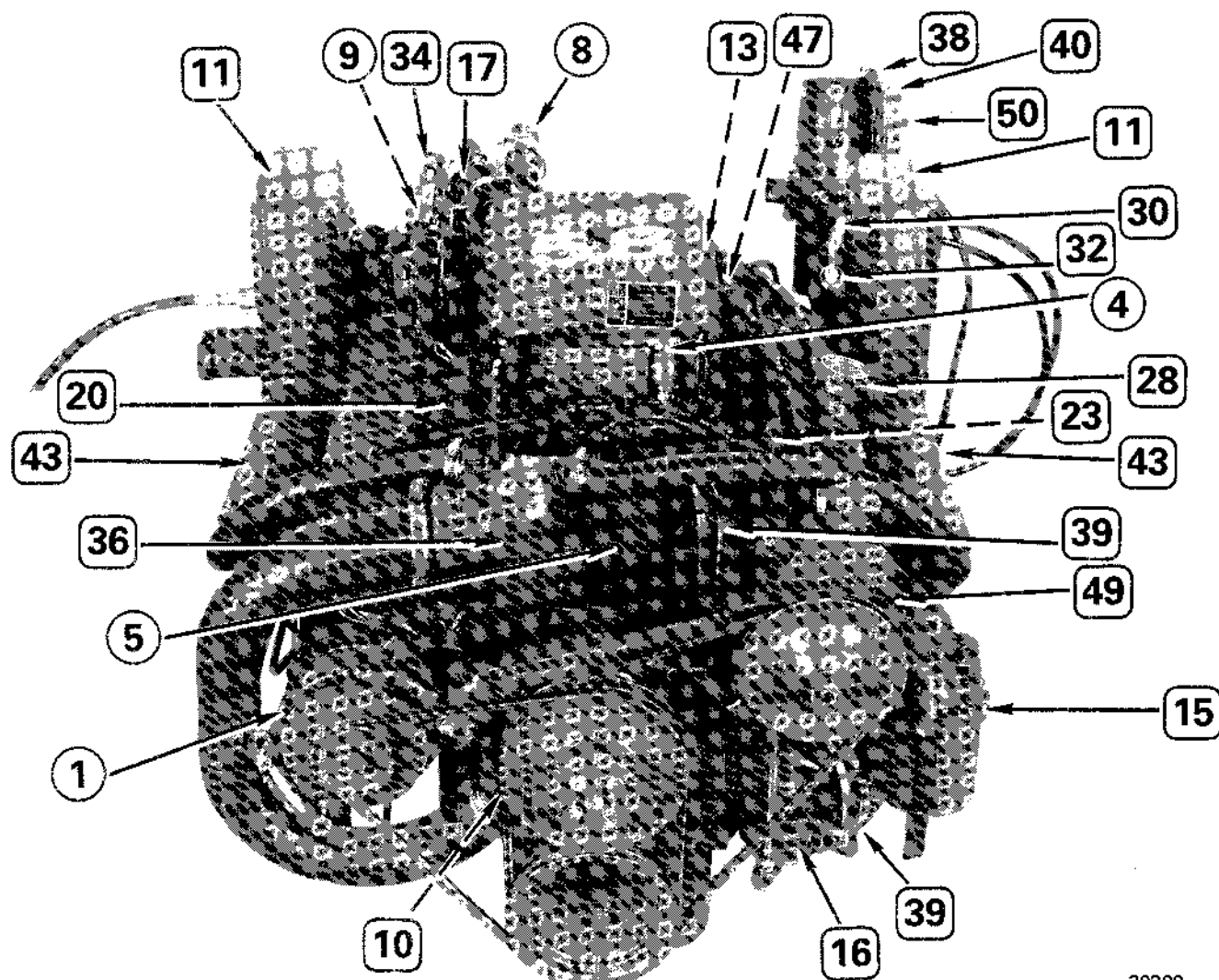
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| ① Alternator | ②③ Motor Mount, Front |
| ② Anodes | ④ Motor Mount, Rear |
| ③ Anti-Ventilation Plate | ⑤ Motor Oil Fill Cap |
| ④ Backfire Flame Arrestor | ⑥ Oil Filter |
| ⑤ Battery Ground Terminal | ⑦ Oil Level Dipstick |
| ⑥ Carburetor | ⑧ Oil Pan |
| ⑦ 50 Amp Fuses | ⑨ Oil Withdrawal Tube |
| ⑧ Ignition Coil | ⑩ Pivot Housing |
| ⑨ Trim/Tilt Circuit Breaker | ⑪ Power Steering Pump |
| ⑩ Distributor | ⑫ Power Steering Valve and Cylinder |
| ⑪ Drain (Engine) | ⑬ Propeller, SST II® (Optional) |
| ⑫ Drain (Manifold) | ⑭ Starter Motor |
| ⑬ Electrical Cable Connector | ⑮ Thermostat Housing |
| ⑭ Electronic Shift Assist Module | ⑯ Thru-Hub™ Exhaust |
| ⑮ Engine Water Circulation Pump | ⑰ Transparent Fuel Pump Overflow Hose |
| ⑯ Exhaust High Rise | ⑱ Trim Tab |
| ⑰ Exhaust Relief Vent | ⑲ Trim/Tilt Cylinders (Port and Starboard) |
| ⑱ Fuel Filter | ⑳ Trim/Tilt Pump Assembly |
| ⑲ Fuel Pump | ㉑ Trim/Tilt Relays |
| ⑳ Lower Gearcase (Vertical Drive) | ㉒ Water Cooled Exhaust Manifold |
| ㉑ Upper Gearcase (Vertical Drive) | ㉓ Water Intake |
| ㉒ Gimbal Housing | ㉔ Water Drain Plug |
| ㉓ Model & Serial Number (Engine) | ㉕ Water Pump |
| ㉔ Model & Serial Number (Transom Mount) | |
| ㉕ Model & Serial Number (Vertical Drive) | |



DR3129



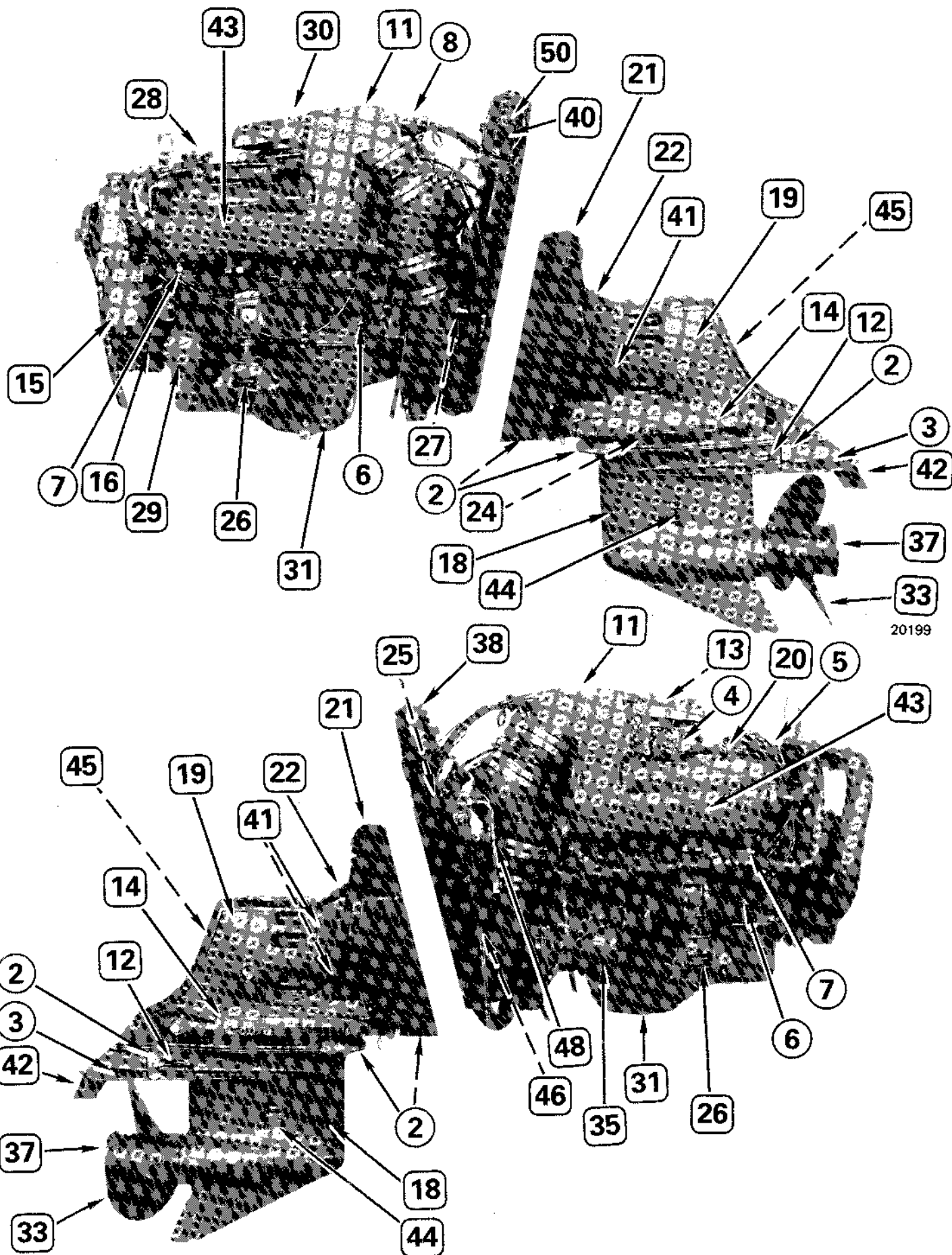
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Features – Model 5.8 Litre

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| ① Alternator | ②⑥ Motor Mount, Front |
| ② Anodes | ②⑦ Motor Mount, Rear |
| ③ Anti-Ventilation Plate | ②⑧ Motor Oil Fill Cap |
| ④ Carburetor | ②⑨ Oil Filter |
| ⑤ Distributor | ③⑩ Oil Level Dipstick |
| ⑥ Drain (Engine) | ③⑪ Oil Pan |
| ⑦ Drain (Manifold) | ③⑫ Oil Withdrawal Tube |
| ⑧ Electrical Cable Connector | ③⑬ Propeller, SST II® (Optional) |
| ⑨ Electronic Shift Assist Module | ③⑭ Shift Bracket & Cable |
| ⑩ Engine Water Circulation Pump | ③⑮ Starter Motor |
| ⑪ Exhaust High Rise | ③⑯ Thermostat Housing |
| ⑫ Exhaust Relief Vents | ③⑰ Thru-Hub™ Exhaust |
| ⑬ Backfire Flame Arrestor | ③⑱ Trim/Tilt Pump Assembly |
| ⑭ Trim/Tilt Cylinders (Port and Starboard) | ③⑲ Transparent Fuel Pump Overflow Hose |
| ⑮ Fuel Filter | ④① Trim/Tilt Relays |
| ⑮ Fuel Pump | ④② Water Drain Plug |
| ⑰ Fuses | ④③ Trim Tab |
| ⑱ Lower Gearcase (Vertical Drive) | ④④ Water Cooled Exhaust Manifold |
| ⑲ Upper Gearcase (Vertical Drive) | ④⑤ Water Intake |
| ⑳ Ignition Coil | ④⑥ Water Pump |
| ㉑ Gimbal Housing | ④⑦ Battery Ground Terminal |
| ㉒ Pivot Housing | ④⑧ Throttle Bracket & Cable |
| ㉓ Model & Serial Number (Engine) | ④⑨ Power Steering Hydraulic Lines |
| ㉔ Model & Serial Number (Vertical Drive) | ④⑩ Power Steering Pump |
| ㉕ Model & Serial Number (Transom Mount) | ④⑪ Circuit Breaker |



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This *OMC Cobra®* Stern Drive Service Manual

Covers The Following Models

Engine	Model	Options*	Vertical Drive	Transom Mount
2.3 Litre	232BMRPWS	M, R	986030	986028
	232BPRPWS	P, R	986030	986028
3.0 Litre	302AMRPWC	M, R	986321	986028
	302BMRPWS	M, R	986321	986028
	302BMRPWR	M, R	986321	986028
	302APRPWC	P, R	986321	986028
	302BPRPWS	P, R	986321	986028
	302BPRPWR	P, R	986321	986028
3.0 Litre HO	302CPRPWS	P, R	986321	986028
	302CPRPWR	P, R	986321	986028
	302CMLPWS	M, L	986322	986028
	302CMLPWR	M, L	986322	986028
	302CMRPWS	M, R	986321	986038
	302CMRPWR	M, R	986321	986038
4.3 Litre	432APRPWS	P, R	986032	986028
	432AML PWS	M, L	986033	986028
4.3 Litre HO	434APRPWS	P, R	986032	986028
	434AML PWS	M, L	986033	986028
5.0 Litre	502BPRPWS	P, R	986035	986028
5.0 Litre HO	502APRPWS	P, R	986035	986028
	502AML PWS	M, L	986036	986028
5.7 Litre	574APRPWS	P, R	986037	986028
	574AML PWS	M, L	986038	986028
5.8 Litre	584APRPWS	P, R	986037	986028
	584AML PWS	M, L	986038	986028

Note

**PWR Models
Follow All PWS
Service Recommendations**

*Options:

L = counter-rotation vertical drive
M = mechanical steering
P = power steering
R = standard rotation vertical drive

Gear Ratios

Models	Upper Ratio	Lower Ratio	Overall Ratio
2.3 Litre	21:21	13:26	2.00:1 (.50)
3.0 Litre & 3.0 Litre HO	21:21	14:26	1.86:1 (.54)
4.3 Litre & 4.3 Litre HO	21:19	14:26	1.68:1 (.60)
5.0 Litre & 5.0 Litre HO	21:18	14:26	1.59:1 (.67)
5.7 Litre & 5.8 Litre	21:16	14:26	1.41:1 (.71)

EXAMPLE:

With an overall ratio of 2.00:1, two revolutions of the engine results in one revolution of the propeller shaft, or one revolution of the engine results in one-half revolution of the propeller shaft.

Section 2

Service Information

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Safety Warning

Before working on any part of the *OMC Cobra®* stern drive, read the section called Safety at the beginning of this manual.

SYMBOLS

Certain symbols or combinations of symbols may appear on your *OMC Cobra*® stern drive or on their accessories. It is very important that you understand their meaning or purpose. If any symbol is not clearly understood, see your Dealer.

"Safety Warning" Symbols



Means risk of **SERIOUS** injury is present. Follow instructions in the Owner's/Operator's Manual before using motor or accessory.



Means place shift control in **NEUTRAL** before starting motor. Follow instructions in Owner's/Operator's Manual before starting motor.



Indicates that **ELECTRICITY** of more than 50 volts is present.



Indicates that contents are under pressure.



Identifies poisonous material.



Indicates a potential fire hazard.

"Condition" Symbols



Identifies the meter which indicates accumulative running hours of engine.

"Condition" Symbols



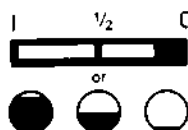
Identifies the meter which indicates battery voltage, or amperage.



Identifies the meter which indicates engine speed expressed in revolutions per minute.



Identifies battery or a meter which indicates status of battery-generator charging system.



Indicates the amount of liquid in tank.



Identifies the meter which indicates the pressure of engine's lubricating oil system.



Identifies the meter which indicates engine coolant pressure.



Identifies the meter which indicates engine coolant temperature.



Safety Related

"Condition" Symbols



FILTER: Identifies a device which removes contaminants from engine's oil system.



FILTER: Identifies a device which removes contaminants from the transmission oil system.

"Functional Description" Symbols



Identifies the STOP SWITCH. It may also identify STOP position of the throttle control.



Identifies the operating device for starting the motor.



Identifies engine drain plugs and fittings.



FILTER: Identifies a device which removes contaminants from fuel.



Identifies the EMERGENCY IGNITION CUTOFF SWITCH. Emergency engine stop.

"Functional Description" Symbols

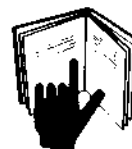


FUSE: Identifies a device which protects the electrical system from overload.



Identifies the negative ground or negative voltage connection.

"Instructional" Symbols



Means read your Owner's/Operator's Manual before operating the product. It contains information or instructions vital for operation of product.



Indicates GASOLINE is to be used or GASOLINE is present.



Indicates OIL is to be used or OIL is present.



Indicates lubricating oil used in transmission.



ENGINE OIL FILL: Location for introduction of oil into the engine.



Indicates areas to be lubricated.

Tuning The Engine

The purpose of an engine tune-up is to restore power and performance that has been lost through wear, corrosion or deterioration of one or more parts or components. In the normal operation of an engine, these changes can take place gradually at a number of points, so that it is seldom advisable to attempt an improvement in performance by correction of one or two items only. Time will be saved and more lasting results will be obtained by following a definite and thorough procedure of analysis and correction of all items affecting power and performance.

Economical, trouble-free operation can better be ensured if a complete tune-up is performed once every year, preferably in the spring. Components that affect power and performance can be divided into three groups:

1. Components affecting compression
2. Components affecting ignition
3. Components affecting carburetion

Tune-up procedures should cover these groups in the order given. While the items affecting compression and ignition may be handled according to personal preference, correction of items in the carburetion group should not be attempted until all items affecting compression and ignition have been satisfactorily corrected. Most of the procedures for performing a complete engine tune-up will be covered in greater detail in this manual. This section will deal mainly with the order of procedures involved in tuning the engine

Engine Compression Testing

 **During all work done around the engine, while the engine is running or being cranked, use extreme care to avoid getting fingers or clothing caught in any belts, pulleys, or other moving parts.**

 **1. Visually inspect stern drive unit for leaks, missing parts or other obvious defects. Replace deteriorated parts.**

2. Compression check: Proper compression is essential for good engine performance. an engine with low or uneven compression cannot be properly tuned.

- a. Operate engine to normal operating temperature.

 **Engine must *not* be started and run without water for cooling.**

