Service Bulletin

Bulletin No. 2005-63R1
CMD 2005-03R1

Circulate to: ☑ Sales Manager ☐ Accounting ☑ Service Manager ☑ Technician ☐ Parts Manager

▲ = Revised June 2006. This bulletin supercedes the previous bulletin 2005-63.

Approved Bravo Drives for Non-MerCruiser Engines

Models Affected

Application	Model	Serial Number
Diesel	Bravo I X	All
Diesel	Bravo II X	All
Diesel	Bravo III X	All

Situation

Cummins MerCruiser Diesel sells Bravo X series sterndrives and transom assemblies to other marine engine manufacturers as a normal course of business. Prior to the completion of such sales, Cummins MerCruiser Diesel reviews and approves engine, sterndrive and ratio combinations to ensure that they meet strict engineering guidelines. Cummins MerCruiser Diesel supports the sterndrives and transom assemblies (not the engines) of approved applications from a service and warranty standpoint. Engine warranties and service support are the sole responsibility of the respective engine manufacturer.

The following tables list these engine manufacturers along with the sterndrive ratios that have been approved for their respective engine applications and usage.

Approved Bravo Drives and Ratios By Engine Manufacturer and Model

CUMMINS

QSB 230 / 6BT 5.9-M (230 HP at 3000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	-	1.50:1	-

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FNM

HPE 200 (200 HP at 4000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	1.65:1	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	2.20:1	2.00:1
	-	-	2.20:1

HPEP 250 (250 HP at 4000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	-	1.81:1	1.65:1
	-	-	1.81:1
	-	-	2.00:1

HPE 200 (200 HP at 4000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	1.65:1	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	2.20:1	2.00:1
	-	-	2.20:1

LOMBARDINI

LDW194JMT (160 HP at 4000 RPM) / LDW245JMT (200 HP at 4000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	1.65:1	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	2.20:1	2.00:1
	-	-	2.20:1

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MARINE DIESEL

MD 170 (170 HP at 3500) / MD 250 (250 HP at 3600)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	-	1.81:1	1.65:1
	-	-	1.81:1

NANNI DIESEL

Z 4.155 (155 HP at 3600 RPM) / Z 4.380 TDI (175 HP at 3600 RPM) / Z 4.390 TDI (200 HP at 3600 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	1.65:1	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	2.20:1	2.00:1

Z 6.300 (275 HP at 3600 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	-	1.81:1	1.65:1
	-	-	1.81:1

STEYR

MO144 M38 (144 HP at 3800 RPM) / MO144 V38 (144 HP at 3800 RPM)/ MO 164 M40 (163 HP at 4000 RPM) / MO 236 K63 (212 HP at 4300 RPM) / MO256 H45 (250 HP at 4500 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	1.65:1	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	2.20:1	2.00:1

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VOLKSWAGEN

TDI 150-5 (150 HP at 4000 RPM) / TDI 225-6 (225 HP at 4200 RPM) / TDI 165-5 (165 HP at 4000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	1.65:1	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	2.20:1	2.00:1
	-	-	2.20:1

YANMAR

6LPA-DTZP (260 HP at 3800 RPM) / 6LPA-STZP (315 HP at 3800 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	-	1.81:1	1.65:1
	-	2.00:1	1.81:1

4LHA-HTZP (160 HP at 3300 RPM) / 4LHA-DTZP (200 HP at 3300 RPM) / 4LHA-STZP (240 HP at 3300 RPM) / 6BY 260 (260 HP at 4000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	-	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	-	2.00:1

4BY 150 (150 HP at 4000 RPM) / 4BY 180 (180 HP at 4000 RPM) / 6BY 220 (220 HP at 4000 RPM)

Drive	Bravo One X	Bravo Two X	Bravo Three X
Gear Ratio	1.36:1	1.50:1	1.36:1
	1.50:1	1.65:1	1.50:1
	1.65:1	1.81:1	1.65:1
	-	2.00:1	1.81:1
	-	2.20:1	2.00:1
	-	-	2.20:1

Assumptions and Conditions

- Cruising speed must not exceed 90% of WOT RPM.
- Must be operated at pleasure duty in accordance with EPA mode number E4 & E5 (equivalent to ICOMIA 28-83).
- Must be propped correctly in accordance with Cummins MerCruiser Diesel Application Manual to achieve the engine manufacturer's rated RPM at WOT.

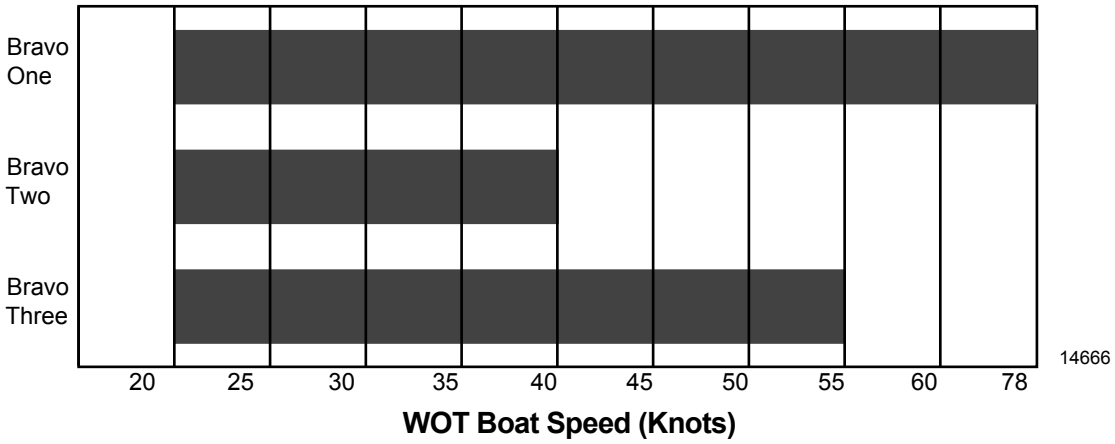
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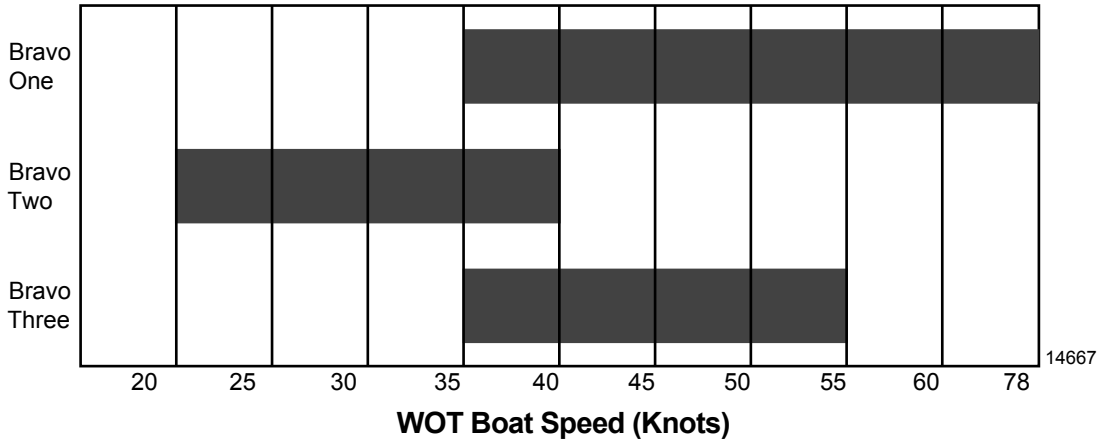
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- 1 knot = 1.15 MPH
- All diesel applications must use Bravo X series sterndrives.
- Recommendations are based on certified gear ratios and available MerCruiser propeller combinations for loose drive sales and approved sales codes for engine packages.
- Applicable for single and twin engine applications.

Application Range: Up to 200 HP Diesel



Application Range: Over 200 HP Diesel



Warranty

To obtain warranty coverage, the application must meet these requirements:

1. Receive approval from Cummins MerCruiser Diesel.
2. Meet the guidelines provided in the Diesel Sterndrive and Inboard Application Manual.
3. Be registered within the Mercury warranty system.

All other warranty requirements, coverage and limitations apply and will not differ from standard Cummins MerCruiser Diesel packaged products. Warranty coverage is determined based on the country of registration, if the registration is outside of the United States.

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When registering one of these products, you will need to provide the serial numbers for the engine, sterndrive, and transom assembly. All diesel warranty claims are to be filed using the engine serial number. If the engine serial number is not in the Mercury warranty database, the claim is to be submitted using the sterndrive serial number.

Authorized MerCruiser gasoline engine dealers may also provide support for the sterndrive and transom components as the parts; service and warranty procedures are common to both the gasoline and diesel platforms.

International: Follow instructions issued by the Marine Power International office or the authorized Marine Power Distributor.

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