

# PRM 160 MARINE GEARBOX BY NEWAGE

## FULL HYDRAULIC OPERATION, OFFSET OUTPUT SHAFT

The PRM 160 marine gearbox is purpose built for use in both pleasure craft and commercial boats. Its full hydraulic design provides separate up / down / neutral / stop operation, also includes a shift lock mechanism for speed and water direction shifting. Self-actuating to be transmitted continuously in either direction.

Available in 130, 1 and 234 1/2 reduction ratios available, each with gears left hand or right hand power rotation. "Shift" making the PRM160 particularly well suited to racing type installations.

The gearbox is constructed of high grade cast iron, internally ribbed for rigidity and strength, and constructed from separate parts to facilitate servicing. The oil pump and hydraulic control valve being externally mounted for easy access.

The hydraulic operating system functions on normal engine lubricating oil. The gear selector is fitted with bearings, ensuring the most precise electronic transmission. First and reverse gear improve arrangements of the operating lever for good boat handling. The operating lever has a positive neutral detent and is suitable for use with proprietary engine gear control control arrangements.



Internal and external, the hydraulic system is well lubricated with the mechanical lock - up device for safety reasons, so that in the unlikely event of hydraulic failure the boat can be brought safely back to port. Suitable for this device is a continuous coast connection type of thrust gear box.

**NEWAGE**  
REVERSE TRANSMISSIONS ptd

Weymouth Quay, PO1 1SD, Dorset  
Telephone 01304 617141 Fax 01304 617155  
16000 "Spangway" Quay, Ave 10004 01005



## APPROXIMATE WEIGHTS, POWER RATING (CONTINUED)

<b>Plow/Light Commercial</b>	1.0 (2.0) HP (1.5 (3.0) kW) per 100 net cubic operating capacity
<b>Heavy Commercial</b>	1.5 (3.0) HP (2.2 (4.5) kW) per 100 net cubic operating capacity
<b>Maximum Input Speed</b>	4000 (rev/min) maximum, 3000 (rev/min) minimum

**Note:** Gross engine output (net engine output) are expressed in HP (kW) and kilowatt (kW) net cubic engine operating speed, and are based on the engine flywheel. Ratings have been established to ensure the engine provides a free life of the gearbox which should not, therefore, be under pressure if selected from above.

## MEANS OF APPLICATION DEFINITIONS

**PLOWING:** Includes plowing full gearbox duty operation at full engine displacement to capacity of total time with balance of average 50% or less of full displacement speed and maximum operating time 50% maximum use. The rated use of 50% engine performance according to this classification for any commercial load, or output rating shall be based on average pressure or work, if not otherwise defined.

**LIGHT COMMERCIAL:** Plowing with displacement only used in plowing or commercial applications may qualify for light commercializing if annual usage is less than 1500 hours and full throttle operation is limited with most operating engine hours.

**HEAVY COMMERCIAL:** Plowing Transmissions do recommend that all displacements and gear displacements not used for commercial applications should be tested to below 100% of 50% to ensure this type including tractors, rural utility, urban construction, logs, farms or other heavy loads and the manufacturer is expected to work at full performance speed. The power output of the engine that is intended must be within the engine's permissible heavy commercial rating.

## IMPORTANT NOTES

(1) It is essential for the engine, transmission model, reduction ratio and propeller size to be precisely matched so that the rated maximum flywheel speed appropriate to the selected service distribution will be achieved.

(2) It is also necessary to ensure the forward compatibility of the complete propulsion system from engine through to propeller, with due regard to the way such a gear ratio, particularly at low speed operation, affects wear such as damage to the input shaft or to transmission components.

**Note:** Transmissions do will provide all possible information and assistance to help find solutions to potential forward problems, but it is the ultimate responsibility of the person installing the drive and drive equipment to ensure that they are technically compatible.

**OPERATING PRESSURE:** Minimum 170 kPa (250 lb/in<sup>2</sup>), Maximum 210 kPa (300 lb/in<sup>2</sup>). The tapered hose, 1.0" (25.4) mm ID, and hose on the input of the valve block incorporated in the engine's program for forward rotation.

**OIL COOLING:** The normal operating temperature of the oil should be in the 80°C - 100°C range and should not be permitted to exceed 100°C. An oil cooler is necessary. Verify that water cooling temperatures are maintained, and the circulation is provided with 100 - 120° centimeters to allow it to be filled.

The rate of the water required depends on a number of factors including the transmission model, operating speed, duty cycle, inlet water temperature and ambient temperature.

**PROPPELLER WEIGHT:** Forward and reverse thrust is provided by the output shaft through reduction of efficiency capacity for all factory approved ratings.

**PROPPELLER FREE SPEEDING:** The forward output shaft can be tapered continuously with the gearbox to reduce the torque to the water, thereby permitting short engine durations with lower horsepower and gear. It is therefore not necessary to fit a propeller brake in such applications.

## APPROXIMATE WEIGHT AND OIL CAPACITY

<b>Dry Weight</b>	40 kg (100 lb) including shafts, if not including prop or gear
<b>Oil Capacity</b>	1.0 liter (1.0 gallon) per transmission required to fit the operating output

**ADAPTORS FOR PIPES**

PISTON NO.	SIZE	SIZE	SIZE	SIZE	SIZE
Part number	M17000000	M17000000	M17000000	M17000000	M17000000
Weight, kg (lb)	0.2 (0.4)	1.0 (2.2)	0.2 (0.4)	1.0 (2.2)	0.2 (0.4)

**PLUGS AND HOLES FOR PIPES**

PART NO.	INTERNAL DIAMETER	INSULATING HOLE PATTERNS		REMARKS	
		SIZE	PISTON-CIRCLE DIA.		
M17000	12.00mm (0.4724 in.)	5	6.35mm (0.2500 in.)	6.75mm (0.2657 in.)	See Part . . .
		5	6.35mm (0.2500 in.)	7.62mm (0.3000 in.)	
		5	6.35mm (0.2500 in.)	8.89mm (0.3500 in.)	
M17001	12.00mm (0.4724 in.)	5	6.35mm (0.2500 in.)	10.00mm (0.3937 in.)	See Part . . .
		5	6.35mm (0.2500 in.)	11.18mm (0.4398 in.)	
		5	6.35mm (0.2500 in.)	12.35mm (0.4862 in.)	
M17002	12.00mm (0.4724 in.)	5	6.35mm (0.2500 in.)	13.50mm (0.5315 in.)	See Part . . .
		5	6.35mm (0.2500 in.)	14.68mm (0.5776 in.)	
		5	6.35mm (0.2500 in.)	15.85mm (0.6239 in.)	
		5	6.35mm (0.2500 in.)	17.02mm (0.6701 in.)	
		5	6.35mm (0.2500 in.)	18.19mm (0.7163 in.)	
		5	6.35mm (0.2500 in.)	19.37mm (0.7624 in.)	
		5	6.35mm (0.2500 in.)	20.54mm (0.8086 in.)	
		5	6.35mm (0.2500 in.)	21.71mm (0.8547 in.)	
		5	6.35mm (0.2500 in.)	22.89mm (0.9008 in.)	
		5	6.35mm (0.2500 in.)	24.06mm (0.9470 in.)	
M17003	14.20mm (0.5591 in.)	5	6.35mm (0.2500 in.)	7.62mm (0.3000 in.)	Part 2120 series.
		5	6.35mm (0.2500 in.)	8.80mm (0.3461 in.)	
		5	6.35mm (0.2500 in.)	9.98mm (0.3922 in.)	
		5	6.35mm (0.2500 in.)	11.15mm (0.4384 in.)	
		5	6.35mm (0.2500 in.)	12.33mm (0.4845 in.)	
		5	6.35mm (0.2500 in.)	13.50mm (0.5307 in.)	
		5	6.35mm (0.2500 in.)	14.68mm (0.5768 in.)	
		5	6.35mm (0.2500 in.)	15.85mm (0.6230 in.)	
M17004	4.70mm (0.1850 in.)	5	6.35mm (0.2500 in.)	6.35mm (0.2500 in.)	Refer to Part . . .
M17004	11.80mm (0.4646 in.)	Supplies and Supplies Ltd.			Refer to Part . . .

**OTHER ACCESSORIES FOR PIPES**

PART NUMBER	DESCRIPTION	WEIGHT	
		kg	lb
M17005	Oil cooler	1.2	2.6
M17006	Oil pump (part)	0.5	1.1
M17007	Oil cooler mounting bracket	0.2	0.4
M17008	Teflon half coupling (alloy based)	2.5	5.5
M17009	Teflon flexible coupling	1.5	3.3
M17010	Fluoropolymer start switch	0.04	0.1
M17011	Oil pressure gauge (alloy mounting)	0.1	0.2

## OUTLINE DIMENSIONS - FRONT



Adaptors	W		H (Maximal)	
	mm	Inches	mm	Inches
SA25	440.00	17.320	15.00	0.591
SA35	490.00	19.290	16.50	0.650
SA45	540.00	21.250	18.00	0.709
SA55	590.00	23.220	19.50	0.768
SA75	740.00	29.130	25.50	1.004

### Installation angle

The maximum forward and rear installation angle perpendicular to W is 17°

### Important note

All information given in this brochure is correct at the time of going to press. However, in the interests of continuous product design development, modifications to design details are made. Therefore, only specifications should be regarded as general guidelines and have no effect on product delivery. Also specific performance requirements must be stated clearly if it is to apply with reference to the guide.

Information in parentheses only needs not be present. If any contract order, specified installation drawings and technical support. All goods are supplied in accordance with our standard conditions of sale.