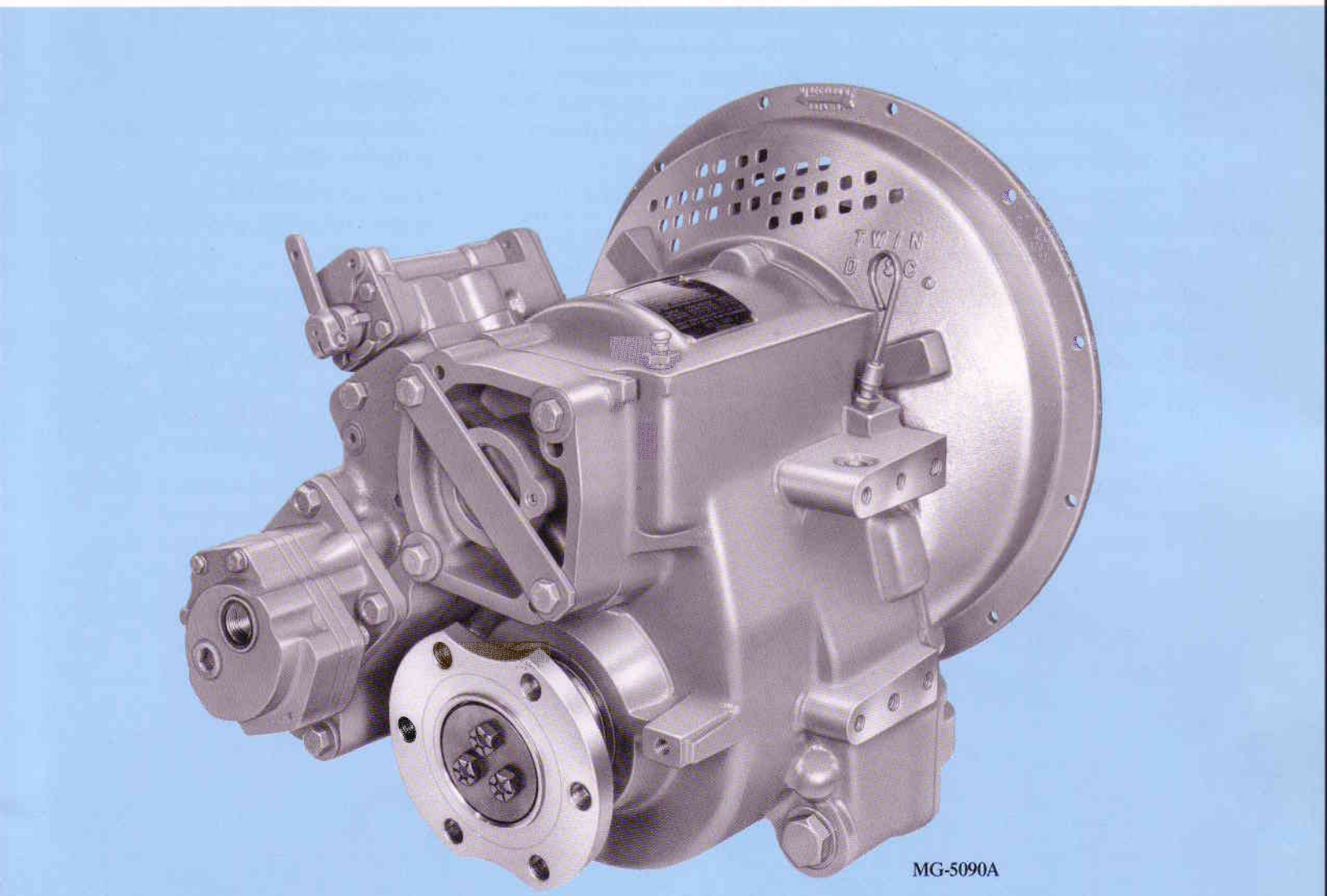
BULLETIN 319-B-91

MODELS MG-5091 & MG-5090A
MARINE TRANSMISSIONS

90 to 447 kW (120 to 600 hp)



MG-5090A

TWIN DISC, INCORPORATED · RACINE, WISCONSIN 53403, U.S.A.

MODEL MG-5091

- 600 hp @ 2300 rpm pleasure craft rating
- 375 hp @ 2100 rpm intermediate duty rating
- 485 lbs for low weight to hp ratio
- Popular trolling valve optional
- Identical forward and reverse ratios: 1.17:1, 1.45:1, 1.71:1, 2.04:1, 2.45:1, 2.95:1, and 3.38:1
- Identical capacity forward or reverse — provides either left or right-hand propeller rotation with identical right-hand engines
- Helical gears for quieter operation
- Oil controlled and cooled clutches
- Clutches can be serviced with transmission attached to engine
- No external plumbing (except to heat exchanger)
- Built with jig-bore accuracy
- SAE No. 1 or No. 2 housing
- Rubber block drive
- Advanced design to provide strong yet lightweight high grade iron housings

This versatile, lightweight, high-capacity marine transmission permits the use of higher powered engines that are required for best vessel performance, pleasure craft, intermediate duty and continuous duty applications.

All ratios are available in one housing configuration. Identical capacity and ratios in forward or reverse eliminate the need for opposite rotation engines. However, transmissions can be specified for use with **Left-hand Rotation Engines.** The MG-5091 offers unusually good access for service of major components without having to be removed from the engine.

TROLLING VALVE

An optional trolling valve is available for the MG-5091. The trolling valve provides the ability to obtain lower propeller speeds than would be possible at engine idle speed with the clutch fully engaged. If a raw water heat exchanger is used, then a thermostatic oil bypass valve is recommended for use in the transmission oil circuit to provide proper sump oil temperature for consistent trolling valve operation.

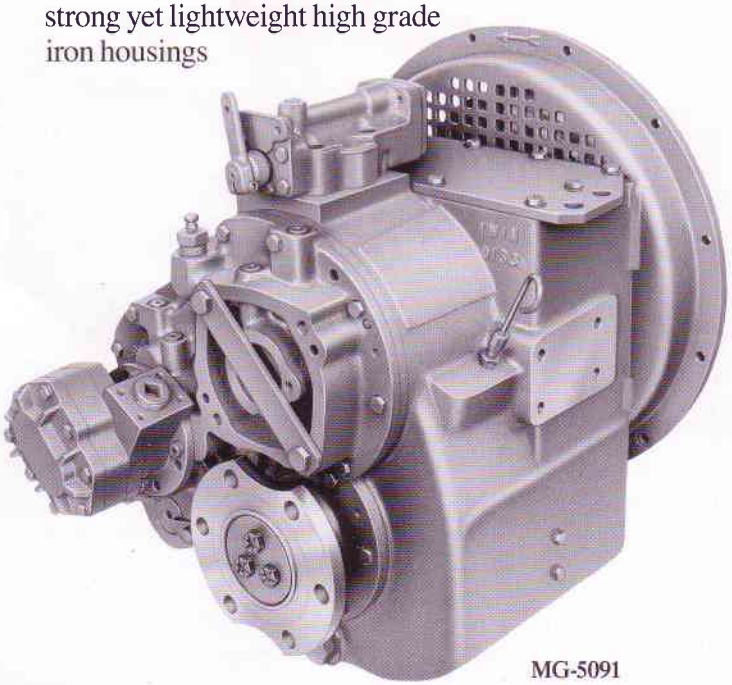
HEAT EXCHANGER

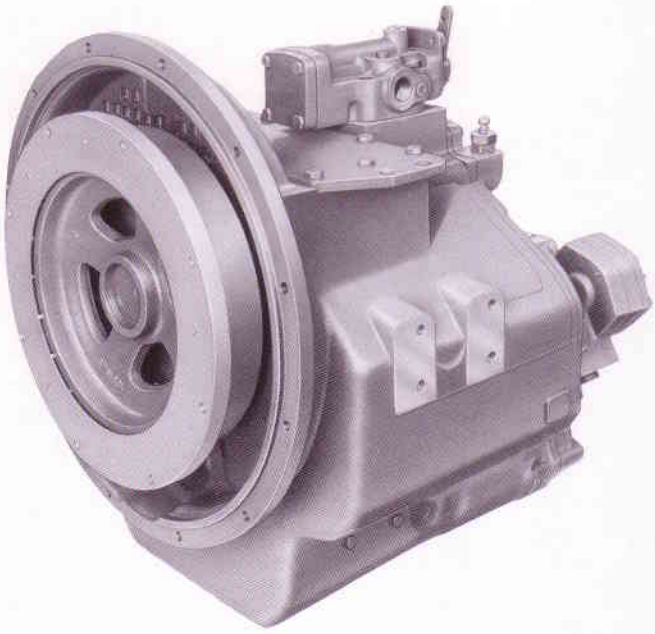
Heat exchanger kits for raw water cooling the MG-5091 are available from Twin Disc. Customers who wish to furnish their own heat exchanger should contact the nearest Twin Disc or marine engine distributor for exchanger specifications.

POWER TAKE-OFFS

Three optional PTO's are available for the MG-5091:

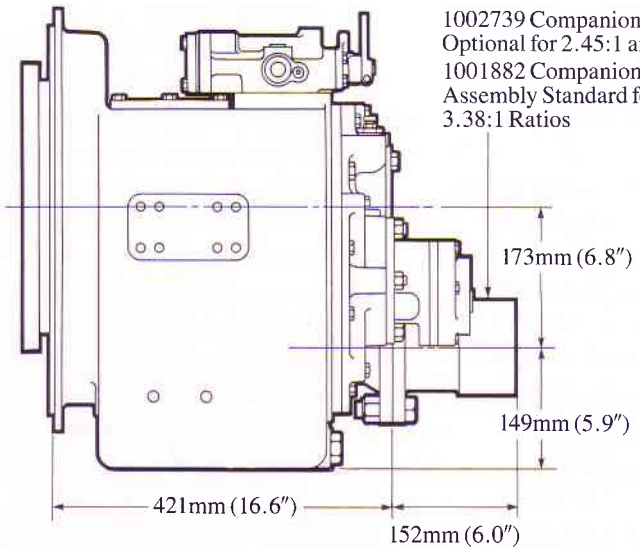
- XB6243 Live SAE C pump-mount PTO rated 112 kW (150 hp) @ 1800 rpm
- XA7554A Hydraulic Clutch SAE C pump-mount PTO rated 78 kW (104 hp) @ 1800 rpm
- XA7554 Hydraulic Clutch 1⅞" diameter shaft drive PTO rated 78 kW (104 hp) @ 1800 rpm

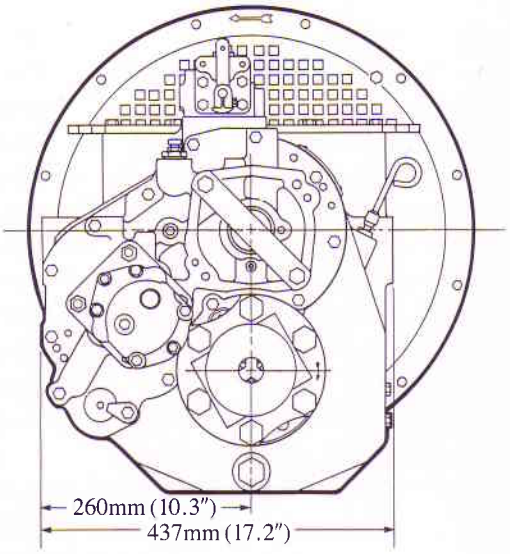




MG-5091

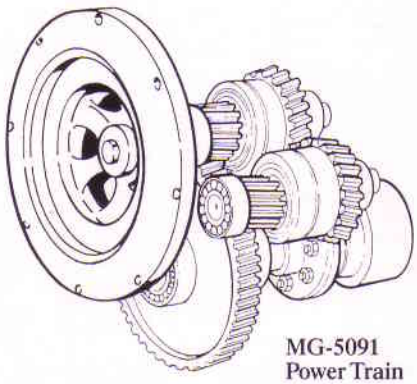
MG-5091





DRAWING NUMBER	RATIOS	*APPROX. DRY WEIGHT
1003850	1.17:1 1.45:1 1.71:1 2.04:1 2.45:1 2.95:1 3.38:1	220kg (485 lb)

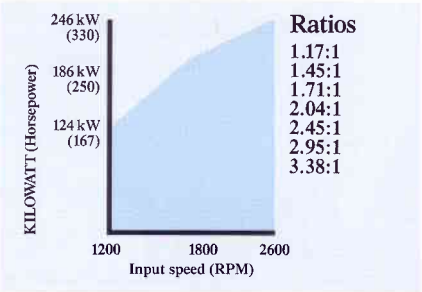
Use Certified Print for Installation
*Excluding Companion Flange



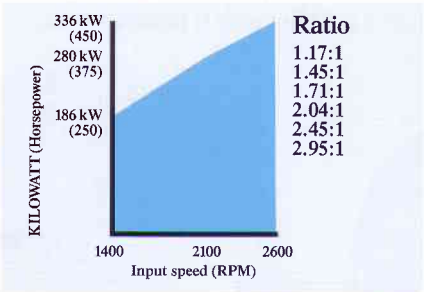
MG-5091
Power Train

INPUT POWER RATINGS — KILOWATTS (HORSEPOWER)

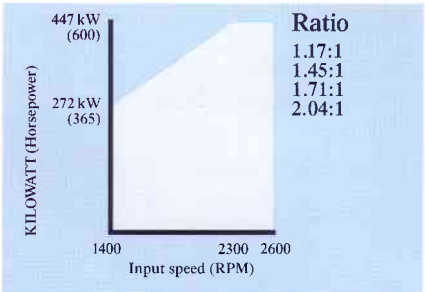
CONTINUOUS DUTY

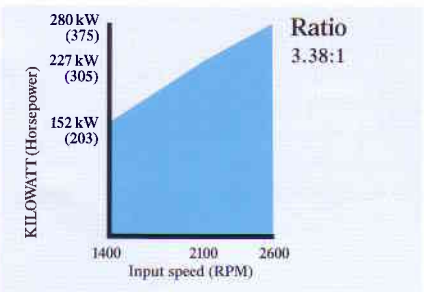


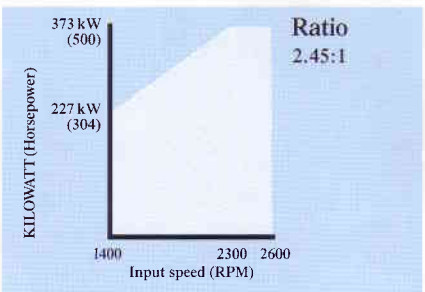
INTERMEDIATE DUTY



PLEASURE CRAFT (Planing Hull)







MODEL MG-5090A

- 600 hp @ 2300 rpm pleasure craft rating
- 375 hp @ 2100 rpm intermediate duty rating
- 475 lbs for low weight to hp ratio
- Popular trolling valve optional
- Identical forward and reverse ratios: 1.45:1, 1.73:1, 1.96:1, and 2.43:1
- 7° down angle for near level engine installation
- Helical gears for quieter operation
- Identical capacity forward or reverse — provides either left or right-hand propeller rotation with identical engines
- Oil controlled and cooled clutches
- No external plumbing (except to heat exchanger)
- Built with jig-bore accuracy
- SAE No. 1 or No. 2 housing
- Rubber block drive
- Advanced design to provide strong yet lightweight high grade iron housings

This lightweight, high-capacity marine transmission permits the use of higher powered engines that are required for best vessel performance.

The MG-5090A offers conical helical gearing for quieter operation. A 7° down angle provides for near level engine installation. This feature is of particular interest to marine architects for optimizing space in planing type hulls.

All ratios are available in one housing configuration. Identical capacity and ratios in forward or reverse eliminate the need for opposite rotation engines. However, transmissions can be specified for use with **Left-hand Rotation Engines.**

TROLLING VALVE

An optional trolling valve is available for the MG-5090A. The trolling valve provides the ability to obtain lower propeller speeds than would be possible at engine idle speed with the clutch fully engaged. If a raw water heat exchanger is used, then a thermostatic oil bypass valve is recommended for use in the transmission oil circuit to provide proper sump oil temperature for consistent trolling valve operation.

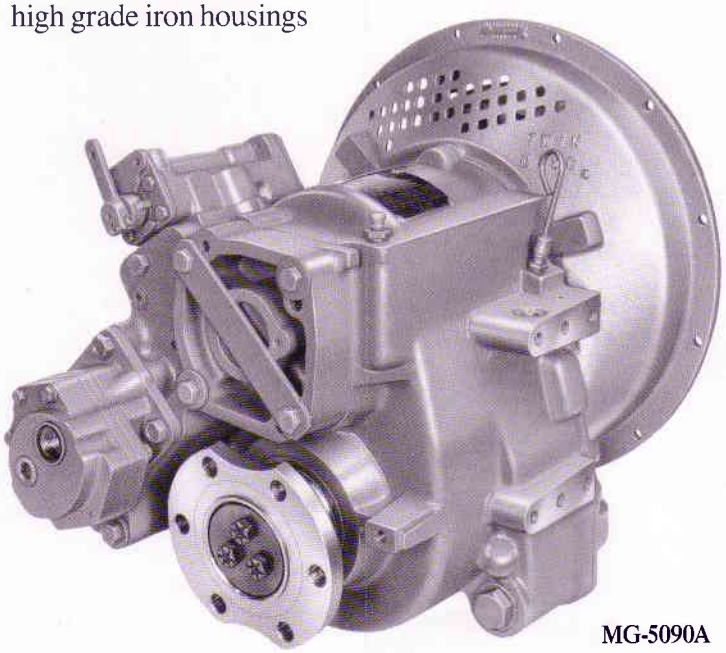
HEAT EXCHANGER

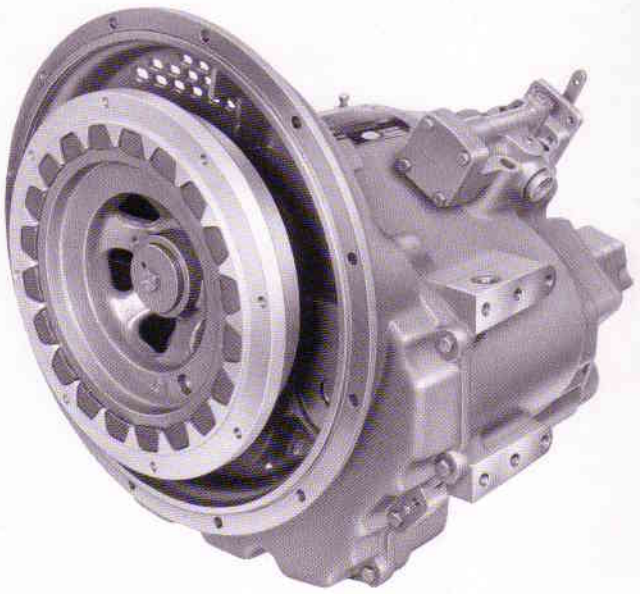
Heat exchanger kits for raw water cooling the MG-5090A are available from Twin Disc. Customers who wish to furnish their own heat exchanger should contact the nearest Twin Disc or marine engine distributor for exchanger specifications.

POWER TAKE-OFFS

Three optional PTO's are available for the MG-5090A:

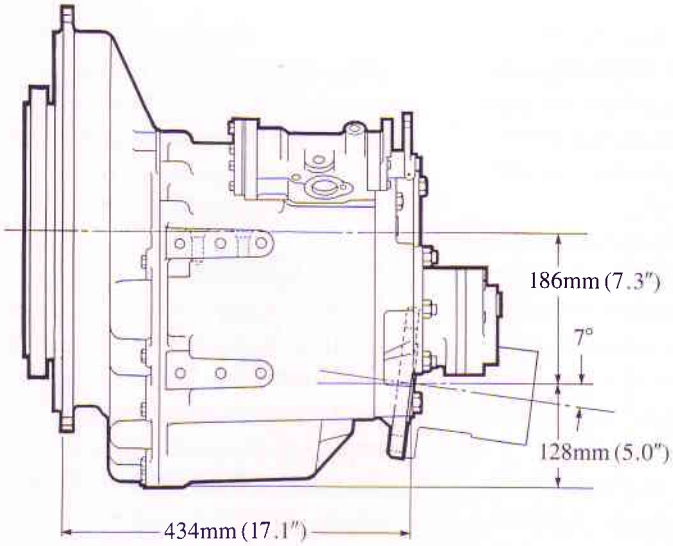
- XB6243 Live SAE C pump-mount PTO rated 112 kW (150 hp) @ 1800 rpm
- XA7553A Hydraulic Clutch SAE C pump-mount PTO rated 78 kW (104 hp) @ 1800 rpm
- XA7553 Hydraulic Clutch 1⅞″ diameter shaft drive PTO rated 78 kW (104 hp) @ 1800 rpm

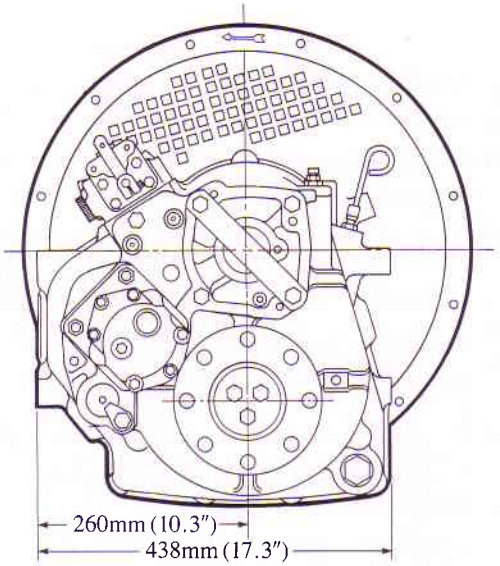




MG-5090A

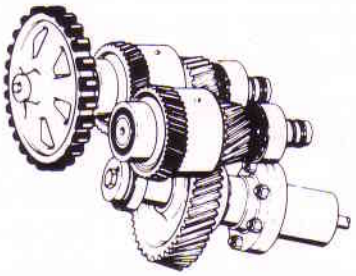
MG-5090A





DRAWING NUMBER	RATIOS	*APPROX. DRY WEIGHT
1001828	1.45:1 1.73:1 1.96:1 2.43:1	218kg (475 lb)

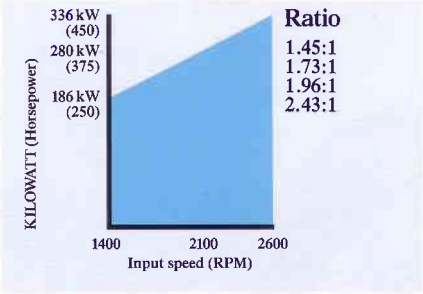
Use Certified Print for Installation
*Excluding Companion Flange



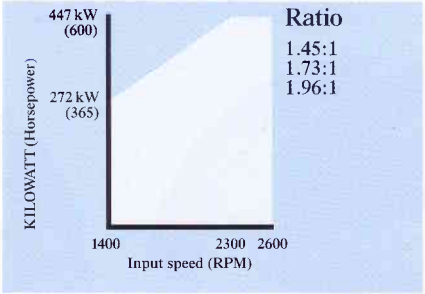
MG-5090A
Power Train

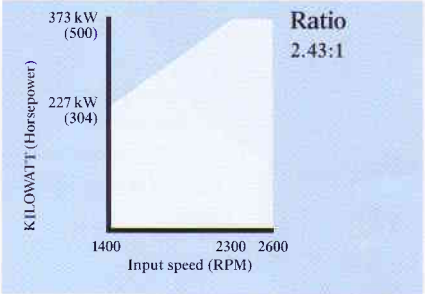
INPUT POWER RATINGS — KILOWATTS (HORSEPOWER)

INTERMEDIATE DUTY



PLEASURE CRAFT (Planing Hull)





For Service Classification Definitions see back cover.

SERVICE CLASSIFICATION DEFINITIONS

CONTINUOUS DUTY

Often called "Work Boat Duty," these marine transmission applications are expected to operate continuously at full engine governed speed. The propulsion engine power setting must be known and must be within the marine transmission's allowable input rating for continuous day long or around the clock service.

Most displacement hull vessels are powered for Continuous Duty service. However, the actual engine (and marine transmission) power loading depends on:

a. The propeller used
b. The vessel's work assignment
c. The captain's choice of throttle setting during continuous service

Twin Disc recommends that all displacement and semi-displacement hull commercial applications be classed as Continuous Duty usage of the marine transmission.

Examples:

Fishing trawlers
Purse seiners
Lobster boats and crab boats
Tugs
Tow boats
Buoy tenders
Offshore supply boats
Ferries
Research vessels
Ocean freighters

INTERMEDIATE DUTY

Pleasure or Commercial usage of planing or semi-displacement hull craft can qualify for Intermediate Duty Service Classification if full throttle operation will average only a few hours per day with major portion of usage at partial throttle and total annual usage will be 2000 hours or less.

Examples:

Long Range Pleasure Cruisers
Sportfish Charter Boats
Party Fishing Boats
Crew Boats
Harbor and Coastal Patrol Boats
Search and Rescue Boats
Fire Boats

PLEASURE CRAFT

Maximum power capacity is intended only for personal use, planing hull pleasure craft where full engine throttle operation will be less than 5% of total time with balance of time at 87% of full throttle engine rpm or less. Marine transmissions used in long-range pleasure cruisers, sportfish charters or any commercial service should not be selected according to Pleasure Craft Service Classification.

IMPORTANT NOTICE

Disregarding propulsion system torsional compatibility could cause damage to components in the drive train resulting in loss of mobility. At minimum, system incompatibility could result in gear clatter at low speeds.

The responsibility for ensuring that the torsional compatibility of the propulsion system is satisfactory rests with the assembler of the drive and driven equipment.

Torsional vibration analysis can be made by the engine builder, marine survey societies, independent consultants and others. Twin Disc is prepared to assist in finding solutions to potential torsional problems that relate to the marine transmission.

TWIN DISC, INCORPORATED
Racine, Wisconsin 53403, U.S.A.
South Africa Singapore Australia
TWIN DISC INTERNATIONAL S.A.
1400 Nivelles, Belgium

BULLETIN 319-B-91 5M-6-92

PRINTED IN UNITED STATES OF AMERICA