

INTRODUCTION

Please read this Owner's Manual completely prior to operating the stern drive and boat for the first time. The Owner's Manual contains information critical for safe operation, and to activate and keep the limited warranty statement in effect throughout the applicable warranty period. Continuing the appropriate maintenance and care going forward can ensure long-term enjoyment of your Ilmor High-Performance Marine stern drive. **DO NOT OPERATE THE STERN DRIVE WITHOUT FIRST READING THE ENTIRE OWNER'S MANUAL AND ALL SUPPORTING DOCUMENTATION, AS WELL AS THE BOAT OWNER'S MANUAL.**

WELCOME

Ilmor High-Performance Marine would like to thank you for selecting the INDY® stern drive for your boating needs. Every part of the INDY® drive has been custom-designed to withstand the rigors of high-performance boating and is capable of handling the high torque outputs of Ilmor High-Performance Marine engines. All Ilmor High-Performance Marine power train packages are designed to provide smooth acceleration, excellent drivability, and an overall user-friendly experience in a highly efficient and reliable package.

This Owner's Guide contains operation and maintenance information specific to the product(s) described on the cover of this manual. The product you have purchased comes with a limited warranty through Ilmor High-Performance Marine. See the Ilmor High-Performance Marine Limited Warranty for more information.

READ THIS GUIDE THOROUGHLY

NOTE: If there is anything you do not understand in this manual, please contact your certified Ilmor High-Performance marine service center for clarification.

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The specifications and descriptions contained in this manual were in effect when the guide was approved for publication. Ilmor High-Performance Marine strives for continuous improvement with regard to our product offerings. Ilmor High-Performance Marine reserves the right to make product updates, change specifications or designs, or discontinue models at any time, without notice and without incurring obligation.

TRADEMARKS

All non-Ilmor trademarks, service marks, logos, slogans and trade names are the properties of their respective owners. The following is a list of trademarks that may be used throughout this manual.

Loctite
Teleflex
Torco

TABLE OF CONTENTS

INTRODUCTION.....	i
WELCOME.....	i
READ THIS GUIDE THOROUGHLY.....	i
TRADEMARKS.....	ii
SAFETY.....	1-1
DIRECT SAFETY CONCERNS	1-2
DANGERS, WARNINGS, CAUTIONS AND NOTICES.....	1-3
STERN DRIVE.....	2-1
GENERAL INFORMATION	2-1
Serial Number	2-1
Gear Ratio	2-2
Propeller Rotation	2-2
INSTALLATION REQUIREMENTS.....	2-2
Spacer Kits	2-2
Propeller Selection.....	2-3
Propeller Installation/Removal	2-3
TRIM PUMP	2-3
Tie Bar	2-4
HYDRAULIC CONNECTION BLOCK.....	2-4
MAINTENANCE.....	2-5
Routine Maintenance Schedule	2-5
Checking and Filling Drive Oil	2-6
Oil Capacity	2-7
Sacrificial Zinc Anodes.....	2-7
Torque Values.....	2-8
Lubricants and Sealants	2-9
DRIVE BREAK-IN	2-9
Follow-up	2-10
TRANSMISSION	3-1
GENERAL INFORMATION	3-1
Serial Number	3-1
Output Extension.....	3-1
MAINTENANCE.....	3-3
Routine Maintenance Schedule.....	3-3
Oil Capacity	3-3
Normal Operational Limits	3-4
END-OF-SEASON STORAGE	3-4
TROUBLESHOOTING	4-1



SPECIFICATIONS AND SERVICE LOG 5-1
 GENERAL SPECIFICATIONS5-1
 FLUID SPECIFICATIONS5-1
 OPERATING SPECIFICATIONS5-1
 SERVICE LOG5-2
 SERIAL NUMBERS5-2

DIAGRAMS..... 6-1
 OUTER DRIVE ASSEMBLY6-1
 TRANSMISSION.....6-2
 Transmission w/ Plug-In Extension.....6-2
 Transmission w/ Driveshaft Extension.....6-3

Section 1

SAFETY

Prior to operating the boat for the first time, boat operators **MUST** read this Owner's Manual in its entirety. It is also recommended to reread it prior to the first outing each boating season. Keeping the Owner's Manual on-board the boat in a dry, secure location such as a glove box is highly recommended for referral purposes. Be sure to also read the boat Owner's Manual, with particular attention to proper operation and safety concerns addressed within that publication.

It is the boat owner's and the operator's responsibility to be aware of safety issues and concerns in the proper operation of the boat. All people on-board, regardless of age, physical limitations and/or previous boating experience (or lack of experience), bear responsibility for determining the appropriate behavior and safety precautions, including care around the engine, engine compartment, stern drive, transmission and all moving parts.

Key to safety is the prescribed maintenance of the stern drive and transmission system as described in this Owner's Manual, on **www.ilmor.com**, and through information and directives provided by the suppliers of parts. A properly prepared and maintained stern drive and transmission system is less likely to stall, misfire or otherwise operate in a manner that could place the boat occupants, as well as others on the same body of water, in unsafe situations.



SECTION 1 ILMOR INDY® STERN DRIVE OWNER'S MANUAL

Throughout this Owner's Manual, specific safety information will be highlighted with symbols designed to draw particular attention to specific information. These will include:



This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alert symbol.

⚠ DANGER! *Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.*

⚠ WARNING! *Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.*

⚠ CAUTION! *Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.*

NOTICE: *Indicates a situation which can cause damage to the stern drive and transmission system, personal property and/or the environment, or cause the equipment to operate improperly.*

NOTE: *Indicates a procedure, practice or condition that should be followed in order for the stern drive and transmission system to function in the manner intended.*

The precautions listed in this Owner's Manual are not all-inclusive. Ilmor cannot anticipate any or all safety issues, nor fully anticipate the extent to which injury may occur. Information contained in this Owner's Manual reflects a consensus of opinion within the marine industry.

DIRECT SAFETY CONCERNS

It is the owner's and/or operator's responsibility to perform all safety checks to the stern drive(s) prior to, during and after operating the boat. When properly adhered to, the maintenance schedules listed in this Owner's Manual will ensure long-term operation and performance of the stern drive and transmission system. When service and maintenance are required, return the boat to a certified Ilmor High-Performance marine service center. Failure to follow procedures outlined in this Owner's Manual or through published technical information at www.ilmor.com may void the warranty.

The precautions listed in this Owner's Manual, as well as published technical information are not all-inclusive. Any replacement part, fluid or substance that is not specified as recommended should not be used as it may result in stern drive and transmission system failure. This could lead to voiding the warranty, as well as placing people in an unsafe situation.

DANGERS, WARNINGS, CAUTIONS AND NOTICES

The following safety precautions are published for your information. Ilmor does not, by the publication of these precautions, imply or in any way represent that they are the sum of all dangers present. If you are installing, operating, or servicing an Ilmor product, it is your responsibility to ensure full compliance with all applicable safety codes and requirements. All requirements of the Federal Occupational Safety and Health Act must be met when Ilmor products are operated in areas that are under the jurisdiction of the United States of America. Ilmor products operated in other countries must be installed, operated and serviced in compliance with any and all applicable safety requirements of that country.

For details on safety rules and regulations in the United States, contact your local office of the Occupational Safety and Health Administration (OSHA).

The words DANGER, WARNING, CAUTION and NOTICE are used throughout this manual to highlight important information. Be certain that the meanings of these alerts are known to all who work on or near the equipment.

Failure to adhere to and comply with the safety dangers, warnings, cautions and notices that appear in this manual can lead to serious illness, injury or even death and/or damage to your boat or the property of others. Beyond these warnings, boaters have a personal responsibility to utilize a common sense approach to the boating experience, including keeping individuals off or away from the swim platform and the stern area of the boat during the stern drive operation. Personal flotation devices (“PFDs”) save lives and ensure positive experiences. Ilmor offers many proactive approaches to the boating experience, but the consumer is ultimately responsible for the positive and safe involvement in boating.

Please note that the safety information statements presented here are categorized for information purposes only, and are not presented in any particular order of importance. Each of the statements referenced here and in the other sections of this manual provide you with important safety-related information and must be read and followed to avoid injury or damage, as applicable. We strongly encourage you to read the dangers, warnings, cautions and notices within the context in which they are presented by reading and reviewing those sections.

SECTION 1 ILMOR INDY® STERN DRIVE OWNER'S MANUAL

⚠ WARNING! Always disconnect all electrical components from the battery prior to working on or around the electrical system. Failure to do so could result in an increased risk of personal injury or product property damage.

⚠ WARNING! Always leave the tie bar disconnected during the drive angle configuration on multi-drive installations. Leaving the tie bar connected could result in an increased risk of personal injury or product/property damage.

⚠ WARNING! Always verify that the actuation of the steering and trim rams corresponds to the input from the helm controls. Make sure that both systems have their full range of motion. Failure to do so may cause personal injury or property damage.

⚠ WARNING! Always use genuine Ilmor High-Performance Marine replacement parts only. Many of the electrical components have been designed to comply with U.S. Coast Guard regulations intended to minimize the possibility of fire and explosion. The use of nonapproved replacement parts from aftermarket sources could result in fire and/or explosion and the loss of warranty coverage.

⚠ CAUTION! Always have a certified Ilmor High-Performance marine service center perform any service or maintenance on the hydraulic connection block. This component may be under extreme pressure and can cause damage or injury.

NOTICE: The INDY® Stern Drive must be fitted with Ilmor High-Performance Marine spacers only. Use of any unauthorized or modified spacers will result in a voiding of the manufacturer's warranty. Spacers can be purchased directly from Ilmor High-Performance Marine or a certified Ilmor High-Performance marine service center.

NOTICE: Propeller damage can occur if there is not adequate clearance between the propeller tips. Multiple engine installations require at least a 1 in. (25.4 mm) gap between propeller tips. Ilmor High-Performance Marine is not responsible for damage to or loss of the propeller regardless of cause. Additionally, drive damage can occur if there is insufficient clearance between the propeller and the lower unit. Ilmor High-Performance Marine is not responsible for damage to the lower unit caused by improper propeller selection and/or fitment.

NOTICE: Use a rigid external tie bar with all multiple engine configurations. Take care to raise and lower the drives simultaneously once installed. Failure to do so could result in damage to the INDY® drive and will adversely affect boat performance.

NOTICE: All fasteners used on the INDY® stern drive, unless otherwise specified, are metric and include a number of special or nonstandard fasteners. Only use fasteners that have been supplied or approved by Ilmor High-Performance Marine.

NOTICE: Always be sure that the breather is installed on the top of the tail extension bearing carrier. If the breather is not installed on the top of the tail extension bearing carrier, all the fluid will drain out and cause the unit to prematurely wear and potentially fail.

NOTICE: If the INDY® drive is not returned to the full down position, the transom bellows may warp, which will cause it to fail or deteriorate once returned to use.

NOTICE: When checking the oil level, make sure the boat is on a flat, level surface with the drive unit level. You may need to trim the drive up or down to make sure it is level.

NOTICE: In plug-in applications, operation of the transmission without the hinge pin may result in significant damage to the entire drive train and may void the manufacturer's warranty.

NOTES

Section 2

STERN DRIVE

⚠ WARNING! Always disconnect all electrical components from the battery prior to working on or around the electrical system. Failure to do so could result in an increased risk of personal injury or product property damage.

⚠ WARNING! Always use genuine Ilmor High-Performance Marine replacement parts only. Many of the electrical components have been designed to comply with U.S. Coast Guard regulations intended to minimize the possibility of fire and explosion. The use of nonapproved replacement parts from aftermarket sources could result in fire and/or explosion and the loss of warranty coverage.

⚠ CAUTION! Always have a certified Ilmor High-Performance marine service center perform any service or maintenance on the hydraulic connection block. This component may be under extreme pressure and can cause damage or injury.



GENERAL INFORMATION

Serial Number

The stern drive portion of the INDY® drive has two different serial numbers: one for the transom assembly and one for the outer drive assembly. The serial number on the outer drive assembly will contain both the gear ratio and the direction of propeller rotation. There are spaces in Serial Numbers on page 5-2 to document your serial numbers for easy reference.

The transom ID tag is located on the port side of the transom found on the exterior of the boat.



Transom ID Tag

SECTION 2 ILMOR INDY® STERN DRIVE OWNER'S MANUAL



Outer Drive ID Tag

The outer drive ID tag is located on the port side of the upper drive unit. This tag will contain information about the gear ratio in your selected drive and the direction of propeller rotation.

Gear Ratio

The INDY® drive is available with several different gear ratios in order to fine-tune your boating experience. The gear ratio for the lower unit is preset and is not subject to change. The ratio for each drive package is documented on the outer drive assembly ID tag.

The gear ratios currently available for the INDY® drive are as follows: 1.29, 1.39, 1.50 and 1.64.

Please contact Ilmor High-Performance Marine or a certified Ilmor High-Performance marine service center to request information concerning alternative or replacement gears.

Propeller Rotation

Propeller rotation is described as it is viewed from behind the propeller facing the bow of the boat. It is possible for propeller rotation to be opposite of engine rotation and it should not be assumed to be the same. Right-hand rotation can be described as clockwise when viewing from stern to bow, while left-hand rotation can be described as counterclockwise. Drives should only be run in the direction of rotation indicated; running of drives opposite to their intended rotation will result in a void of the manufacturer's warranty.

INSTALLATION REQUIREMENTS

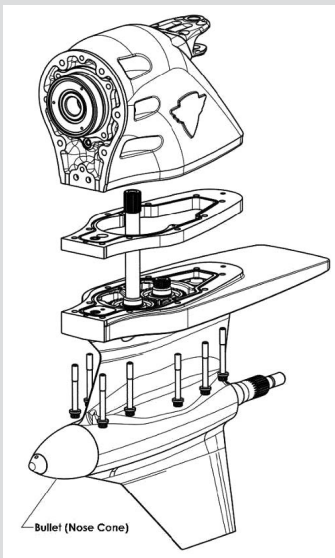
Spacer Kits

Spacer kits are available to adjust the depth of the drive. By inserting spacers between the upper and lower units of the outer drive assembly, you can tune the depth of the bullet or nose cone in the water to maximize performance and minimize drag.

Kits are available in 0.5 in., 1 in. and 2 in. heights. Kits come complete with bolts, o-rings and dowel pins.

Please contact Ilmor High-Performance Marine or any certified Ilmor High-Performance marine service center for spacer kit part numbers and purchase information.

NOTICE: The INDY® Stern Drive must be fitted with Ilmor High-Performance Marine spacers only. Use of any unauthorized or modified spacers will result in a voiding of the manufacturer's warranty. Spacers can be purchased directly from Ilmor High-Performance Marine or a certified Ilmor High-Performance marine service center.



Propeller Selection

It is the boat manufacturer's responsibility to select the correct propeller for the INDY® drive/boat combination. Due to variations in boat design, only testing can determine the best propeller for an application. See Drive Break-In on page 2-9 for testing details.

The INDY® drive is compatible with most 26 spline props up to 18 in. diameter. Please contact Ilmor High-Performance Marine, a certified Ilmor High-Performance marine service center, or your local marine supplier for additional information.

NOTICE: Propeller damage can occur if there is not adequate clearance between the propeller tips. Multiple engine installations require at least a 1 in. (25.4 mm) gap between propeller tips. Ilmor High-Performance Marine is not responsible for damage to or loss of the propeller regardless of cause. Additionally, drive damage can occur if there is insufficient clearance between the propeller and the lower unit. Ilmor High-Performance Marine is not responsible for damage to the lower unit caused by improper propeller selection and/or fitment.

Propeller Installation/Removal

Prior to propeller installation/removal, make sure that the keys have been removed from the ignition. It is recommended that a length of wood be positioned between the anti-cavitation plate and the blades of the propeller to prevent the driveshaft from spinning during tightening.

The INDY® drive is supplied with one prop nut and washer set. Additional sets are available from Ilmor High-Performance Marine or a certified Ilmor High-Performance marine service center.

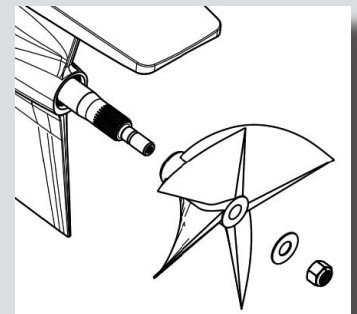
Certain propellers may require the addition of a spacer to the propshaft to ensure proper fitment. Contact your certified Sales and Service Center for additional information.

See Maintenance on page 2-5 for proper torque values and lubrication requirements.

TRIM PUMP

The INDY® drive does not include a trim pump at this time. One must be purchased separately. The pump must be capable of producing at least 3,500 psi (240 bar) in the up direction and 2,000 psi (140 bar) in the down direction.

Refer to the trim pump owner's manual for mounting, wiring, fill and bleed instructions.





Blanking Plate



Tie Bar Mount

Tie Bar

In multiple engine applications, a tie bar must be used to connect the drives to one another. In single engine applications, a blanking plate has been fitted to the drive. If a drive is to be used in a multiple engine installation, a tie bar mount will be fitted in place of the blanking plate. Both the blanking plate and the tie bar bracket serve as an oil fill point.

The tie bar mount is sized for use with most tie bars utilizing a 1 in. clevis pin. Please contact your local marine dealer or boat builder for more information.

NOTICE: Use a rigid external tie bar with all multiple engine configurations. Take care to raise and lower the drives simultaneously once installed. Failure to do so could result in damage to the INDY® drive and will adversely affect boat performance.

HYDRAULIC CONNECTION BLOCK

CAUTION! Always have a certified Ilmor High-Performance marine service center perform any service or maintenance on the hydraulic connection block. The INDY® drive uses a custom-designed hydraulic connection block to alleviate the complications of running multiple hoses through the transom. This block provides universal connection points for the internal/external steering and trim ram hoses.



Hydraulic Connection Block

MAINTENANCE

Routine Maintenance Schedule

The following can be performed by the owner:

Maintenance Item	Maintenance Interval				
	Every Use	Break-In 5–10 Hours	Every 25 Hours	Every 50 Hours	Every 100 Hours
Inspect Transom, Bellows, Outer Drive & Propeller for Damage or Corrosion	X				
Inspect Zinc Anodes & Link Wires for Damage or Corrosion	X***				
Check Fluid Level – Power Steering	X				
Check Fluid Level – Trim Pump	X				
Check Fluid Level – Drive Oil	X				
Tighten Prop Shaft & Nut	X				
Lubricate Prop Shaft Spline		X	X		
Inspect & Check Torque on All Bolts		X	X		

In addition to the above list, the following should be performed by a certified Ilmor High-Performance marine service center:

Maintenance Item	Maintenance Interval				
	Every Use	Break-In 5–10 Hours	Every 25 Hours	Every 50 Hours	Every 100 Hours/Annually #
Change Drive Oil and Filter (and associated o-rings)		X	X		
Tighten Transom Bellows				X***	X***
Inspect & Replace Transom Bellows if Damaged or Visibly Fatigued		X	X		
Inspect Tilt/Trim Pins		X***			X***
Inspect & Grease U-Joint Splines					X
Inspect Cross Bearings					X
Inspect and Tighten Tie Bar Bracket					X***
Inspect Steering and Trim Systems					X
Inspect Propshaft Seals			X***		
Inspect & Grease Driveshaft				X	X
Check Alignment of Drive & Engine		X			X

NOTE: A complete teardown and rebuild of the entire drive assembly is recommended after 200 hours.

Whichever comes first

*** Replace sooner if regular checks indicate wear or damage.

WARNING! Always disconnect all electrical components from the battery prior to working on or around the electrical system.

WARNING! Always use genuine Ilmor High-Performance Marine replacement parts only. Replacement parts are available directly from Ilmor High-Performance Marine or from certified Ilmor High-Performance marine service centers.

Checking and Filling Drive Oil

This service must be performed while the boat is out of the water and the propeller is removed from the drive.

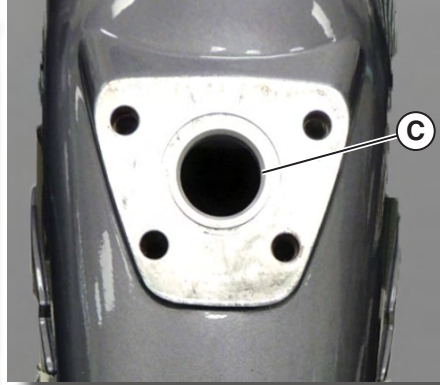
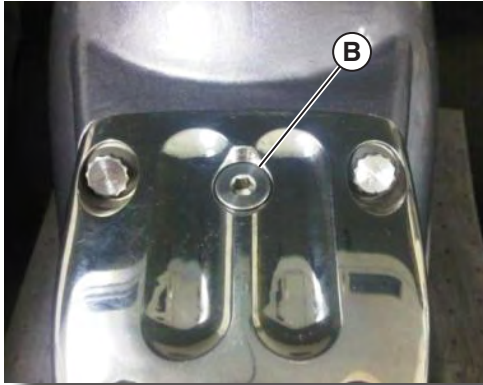
Maintaining the proper oil level is critical in ensuring the performance and life of the INDY® drive and its components. Perform the following procedure to most accurately check the oil level.

1. Trim the drive so that the anti-cavitation plate is level (horizontal).
2. Start the associated engine and shift the drive into forward gear for approximately 30 seconds. Then, shift back to neutral and shut off the engine. Remove the key from the ignition.
3. Place a pan or tray underneath the drive to catch any excess oil. Using a hex key, carefully loosen the plug in the oil level check hole (A). The oil level should be above this hole.



If oil is visible, retighten the plug using the hex key.

4. If the oil is below it, remove the plug. To add oil:
 - a. Remove the plug in the tie bar bracket (B) using a hex key, or
 - b. Remove the blanking plate (C) using a 12 mm 12-point socket wrench.



5. Add the specified oil (see Lubricants and Sealants on page 2-9) until it reaches plug (A).
6. Reinsert and tighten plug (A). Then add 0.5 to 1 qt (0.47 to 0.95 L) more oil to the drive.
7. Depending on your drive, reinsert plug (B) and tighten with the hex key. Or reinstall blanking plate (C) and, using a 12 mm 12-point socket wrench, reinstall the bolts as specified in Torque Values on page 2-8.

NOTICE: All fasteners used on the INDY® stern drive, unless otherwise specified, are metric and include a number of special or nonstandard fasteners. Only use fasteners that have been supplied or approved by Ilmor High-Performance Marine.

Oil Capacity

For a complete fill, the INDY® drive outer assembly requires approximately 4.5 qt (4.26 L) of oil as specified in Lubricants and Sealants on page 2-9. Use the method specified in Checking and Filling Drive Oil on page 2-6 to fill your drive to the appropriate level.

Sacrificial Zinc Anodes

The INDY® drive is outfitted with four sacrificial zinc anodes: two on the lower drive unit and two on the gimbal bell. All external components are linked either by direct contact or via a link wire located near the center of the gimbal bell. These anodes protect external metal components from galvanic corrosion and should be inspected regularly and replaced when approximately 50% of the anode has eroded.

Because it is impossible to know the exact details of how a boat will be moored, a life expectancy cannot be given for the anodes. See Routine Maintenance Schedule on page 2-5 for inspection intervals.



Transom Anode Removal

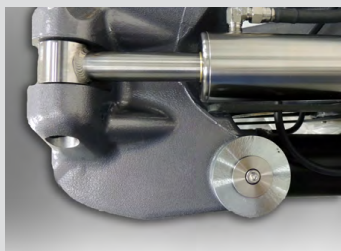
NOTE: The transom assembly utilizes two alike anodes with one on each side of the drive trim ram.

1. Remove retainer screw with a 6 mm hex key.
2. Remove retainer and anode. Discard anode accordingly. Do not discard retainer.
3. Inspect for corrosion; clean area if necessary.
4. Install new anode in place with retainer.
5. Apply Blue Loctite 243 to the retainer screw and install. Check Torque Values on page 2-8.
6. Repeat steps for opposite side.

INDY® Drive Lower Unit Anode Removal

NOTE: The INDY® drive lower unit utilizes two alike anodes.

1. Remove retainer screw with a 6 mm hex key.
2. Remove retainer washer, serrated washer and anode. Discard anode accordingly. Do not discard retainer or serrated washer.
3. Inspect for corrosion; clean area if necessary.
4. Place serrated washer on retainer.
5. Install new anode in place with serrated washer and retainer. See image.
6. Apply Blue Loctite 243 to the retainer screw and install. Check Torque Values on page 2-8.
7. Repeat steps for opposite side.



Torque Values

	Bolt Size	Torque		Threadlocker
		N·m	ft-lb	
Transom Cover Bolts	M6	10	8	Blue Loctite 243
Blanking Plate to Upper Unit	M12*	61	45	Blue Loctite 243
Zinc Anodes	M8	24	18	Blue Loctite 243
Propeller Nut		136	100	

* M12 bolts for the tie bar mount or blanking plate are a nonstandard head size and require an M12 12-point socket.

NOTICE: All fasteners used on the INDY® stern drive, unless otherwise specified, are metric and include a number of special or nonstandard fasteners. Only use fasteners that have been supplied or approved by Ilmor High-Performance Marine.

Lubricants and Sealants

Description	Use
Blue Loctite 243	Fasteners and Blanking Plate Bolts
Torco Multi-Purpose Waterproof Lubricant	Input Shaft Splines
	Propeller Shaft Splines
Torco MTF (Manual Transmission Fluid)	Drive Oil
Synthetic ATF	Power Steering
10W30	Trim

DRIVE BREAK-IN

The best method for achieving this is to use a schedule of acceptable running loads, with a minimum time to achieve in each before progressing on to the next higher level. Some levels also have a recovery time which allows surfaces to cool, and for chemical reactions to take place between the lubricating oil and the gear material. Each boat hull and engine combination has a different range of actual water speeds, which makes it difficult to create a generic schedule of speeds to run. However, one can be estimated for your own craft by scaling as a function of the expected top speed for that craft. The basic layout is as follows:

Load % Full	Speed % Max	Time (minutes)	Recovery (minutes)
20	50	20	N/A
30	60	10	N/A
40	68	10	N/A
50	75	10	5
60	81	5	5
75	89	5	5
100	100	5	5

If your craft is estimated to have a top speed of 70 knots, then your first target is 50% of that, or 35 knots. You would run at least 20 minutes at that speed (as close as possible). The next target is 60% of maximum speed, or 42 knots, this time running for at least 10 minutes before moving on. The last four steps all have prescribed recovery times during which the speed should be brought below 50% of maximum.

Follow-up

During the initial usage of new gears, small particles are shed from the gear surfaces. This is normal and does not necessarily indicate a problem. The particles will be captured on magnets near the oil pump inlet, and in the filter in the nose cone. Additionally, the oil contains an additive package that is consumed while protecting the gears, with the highest consumption rate occurring early in the life of the drive.

For these two reasons, it is necessary to perform the break-in service after 5–10 hours of initial break-in and running. The power train package must be brought to a certified Ilmor High-Performance marine service center at this time. Failure to do so could result in voiding of the manufacturer's warranty.

Section 3

TRANSMISSION

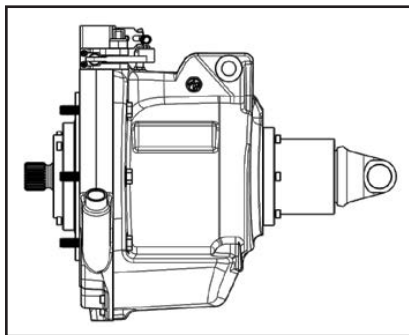
GENERAL INFORMATION

Serial Number

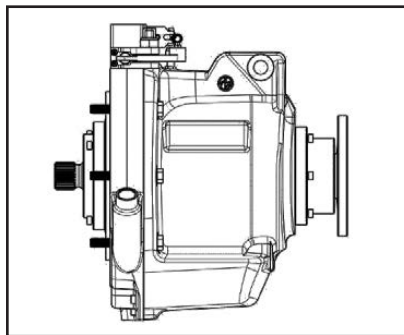
The serial number can be found on the top of the transmission, directly in front of the hinge pin (mounting pin), and should be documented in Serial Numbers on page 5-2.

Output Extension

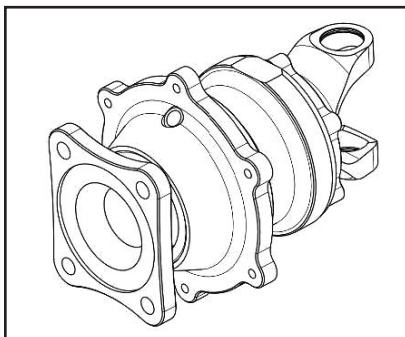
Depending on the required application, the transmission will be fitted with one of two output extensions: a u-joint yoke for plug-in applications or an output flange for use with a drive shaft. If a drive shaft is required, the transom assembly will be fitted with the tail extension bearing carrier.



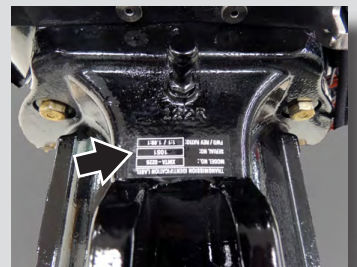
U-Joint Yoke



Output Flange



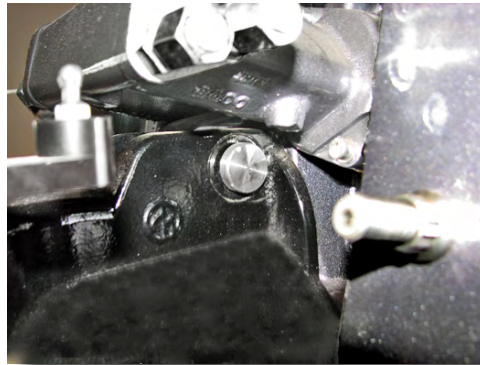
Tail Extension Bearing Carrier



Serial Number Location

SECTION 3 ILMOR INDY® STERN DRIVE OWNER'S MANUAL

In plug-in applications, the engine and transmission will be supported via a hinge pin through the two holes in the upper rear of the transmission housing and the transom assembly, eliminating the need for additional supports. In applications requiring a drive shaft, a rear motor plate must be installed on the engine.



Engine and Transmission Hinge Pin

For more information about custom drive shafts, please contact your boat builder or local race shop.

NOTICE: In plug-in applications, operation of the transmission without the hinge pin may result in significant damage to the entire drive train and may void the manufacturer's warranty.

Shift Cable

A shift cable must be attached to the valve body on the top front of the transmission using the morse over cable clamp and quick disconnect fitting provided. The transmission is designed for use with an industry-standard Teleflex-Morse 33C series cable.

For additional information about shift cable installation or specifications, contact your boat builder.



MAINTENANCE

Routine Maintenance Schedule

When performing maintenance, make sure the engine is off and the key is removed from the ignition.

The following can be performed by the owner:

Maintenance Item	Fluid/Lube	Maintenance Interval				
		Each Use	Break-In 5–10 Hours	25 Hours	Every 50 Hours	Every 100 Hours/ Annually*
Check Fluid Level – Transmission & Bearing Carrier	Synthetic ATF	X				

* Whichever comes first.

The following can be performed by a certified Ilmor High-Performance marine service center:

Maintenance Item	Fluid/Lube	Maintenance Interval				
		Each Use	Break-In 5–10 Hours	25 Hours	Every 50 Hours	Every 100 Hours/ Annually*
Change Fluid – Transmission & Bearing Carrier	Synthetic ATF		X	X		
Inspect & Tighten All Lines	–		X			X
Inspect & Check Torque on All Bolts	–		X			X
Inspect & Grease Input Shaft Spline	Torco Marine Grease					X

* Whichever comes first.

NOTE: In addition to the routine maintenance items outlined above, it is recommended that after 200 hours of use a thorough teardown, inspection and rebuild be performed by a certified Ilmor High-Performance marine service center.

Oil Capacity

NOTICE: When checking the oil level, make sure the boat is on a flat, level surface with the drive unit level. You may need to trim the drive up or down to make sure it is level.

The transmission requires 2 qt (1.9 L) of fluid, as specified in Routine Maintenance Schedule on page 3-3. The level can be checked via the dipstick located on the port side of the transmission. Use the dipstick to determine the exact quantity of oil required.

Remove the dipstick and wipe it with a clean rag. Insert the dipstick back into the transmission and remove it. Check the oil level on the dipstick. It should be between the ADD and FULL marks. If oil needs to be added, add oil through the dipstick hole and recheck the oil level with the dipstick.



SECTION 3 ILMOR INDY® STERN DRIVE OWNER'S MANUAL

When using a driveshaft configuration, the tail extension bearing carrier will require an additional 1/2 qt (1/2 L) of fluid. The fluid level in the bearing carrier must be checked by a certified Ilmor High-Performance marine service center.

Lubricants and Sealants

Description	Use
Synthetic ATF	Transmission Oil

Normal Operational Limits

The following values are the normal operational limits recommended by Ilmor High-Performance Marine in order to ensure the life and performance of the transmission and other INDY® drive package components.

Max rpm During Shifting	1,000 rpm
Max rpm in Reverse Gear	2,000 rpm
Normal Operating Temperature @ WOT	158°F (70°C)
Max Operating Temperature	212°F (100°C)

END-OF-SEASON STORAGE

If the boat is to be stored for 30 days or longer, it is recommended that the INDY® drive be winterized along with the engine. The following is a checklist of recommended items to perform before end-of-season storage. See Routine Maintenance Schedule on page 3-3 and Lubricants and Sealants on page 3-4 for more information.

1	Inspect transom bellows for damage or fatigue.	
2	Check drive and transmission oil.	
3	Inspect drive components for damage (skeg, gimbal bell, gimbal ring, etc.).	
4	Clean external surfaces and apply a corrosion inhibitor.	
5	Return INDY® drive to the full down position.	

NOTICE: If the INDY® drive is not returned to the full down position, the transom bellows may warp, which will cause it to fail or deteriorate once returned to use.

Section 4

TROUBLESHOOTING

The following chart is offered as assistance in identifying and correcting minor issues that may occur. Problems are listed in the order of most-likely to least-likely. Not all possible problems, causes and solutions can be listed here.

When experiencing problems, check surroundings before shutting down the engine. If suddenly stopping the power would result in placing other boats and boaters in jeopardy, continue until it is safe(r) to slow or stop and analyze the situation.

Always be aware of surroundings and how your actions may impact others.



Problem	Possible Cause	Potential Solution
Engine will turn over but will not start.	Transmission is not in neutral.	Move transmission lever into neutral position.
Transmission is “slipping” while in gear	Transmission fluid is too low.	Check fluid level and add fluid if necessary.
High fluid temperature	Fluid level high	Pump out fluid to FULL mark on dipstick.
	Fluid level low	Add fluid.
	Plugged or restricted fluid cooler	Replace cooler and flush water system.
	No water in cooling system	Check cooling system and repair.
	Unknown	Consult certified Ilmor High-Performance marine service center.
Fluid on transmission housing	Loose screws	Tighten to specification.
	Loose screw connections	Tighten; replace.
	Loose dipstick	Tighten; replace.
	Fluid level high	Pump out fluid to FULL mark on dipstick.
	Unknown	Consult certified Ilmor High-Performance marine service center.
Fluid and water mixed	Damaged fluid cooler	Consult certified Ilmor High-Performance marine service center.
Shifts hard	Shift cable	Consult certified Ilmor High-Performance marine service center.
	Unknown	Consult certified Ilmor High-Performance marine service center.

SECTION 4 ILMOR INDY® STERN DRIVE OWNER'S MANUAL

Problem	Possible Cause	Potential Solution
Slow engagement	Low fluid level	Add fluid.
	Shift cable	Consult certified Ilmor High-Performance marine service center.
	Unknown	Consult service station.

Please contact your certified Ilmor High-Performance marine service center for additional support.

Section 5

SPECIFICATIONS AND SERVICE LOG

GENERAL SPECIFICATIONS

Gear Ratios	1.29, 1.39, 1.50, 1.64 Bevel Gear
Lubrication	Pressure Fed/Ilmor Dry Sump
Lower Unit	Torque Split – Twin Spiral Bevel Gear
Oil Reservoir/Cooling	Integral
Steering Rams	Stainless Steel/2.00 in. diameter
Trim Ram	Hard Anodized Alloy/2.125 in. diameter
Propshaft Type	26 spline propellers up to 18 in. diameter
“X” Spacer Sizes	0.50 in., 1.00 in., 2.00 in.
Drive and Transmission Weight	426 lb (193 kg)

FLUID SPECIFICATIONS

	Type	Capacity
Transmission Fluid	Synthetic ATF	2 qt (1.9 L) (2.5 qt [2.4 L] with driveshaft extension)
Drive Oil	Torco MTF	4.5 qt (4.3 L)

OPERATING SPECIFICATIONS

Max rpm During Shifting	1,000 rpm
Max rpm in Reverse Gear	2,000 rpm
Normal Operating Temperature @ WOT	158°F (70°C)
Max Operating Temperature	212°F (100°C)



SERVICE LOG

Service	Date	Date	Date	Date	Date	Date

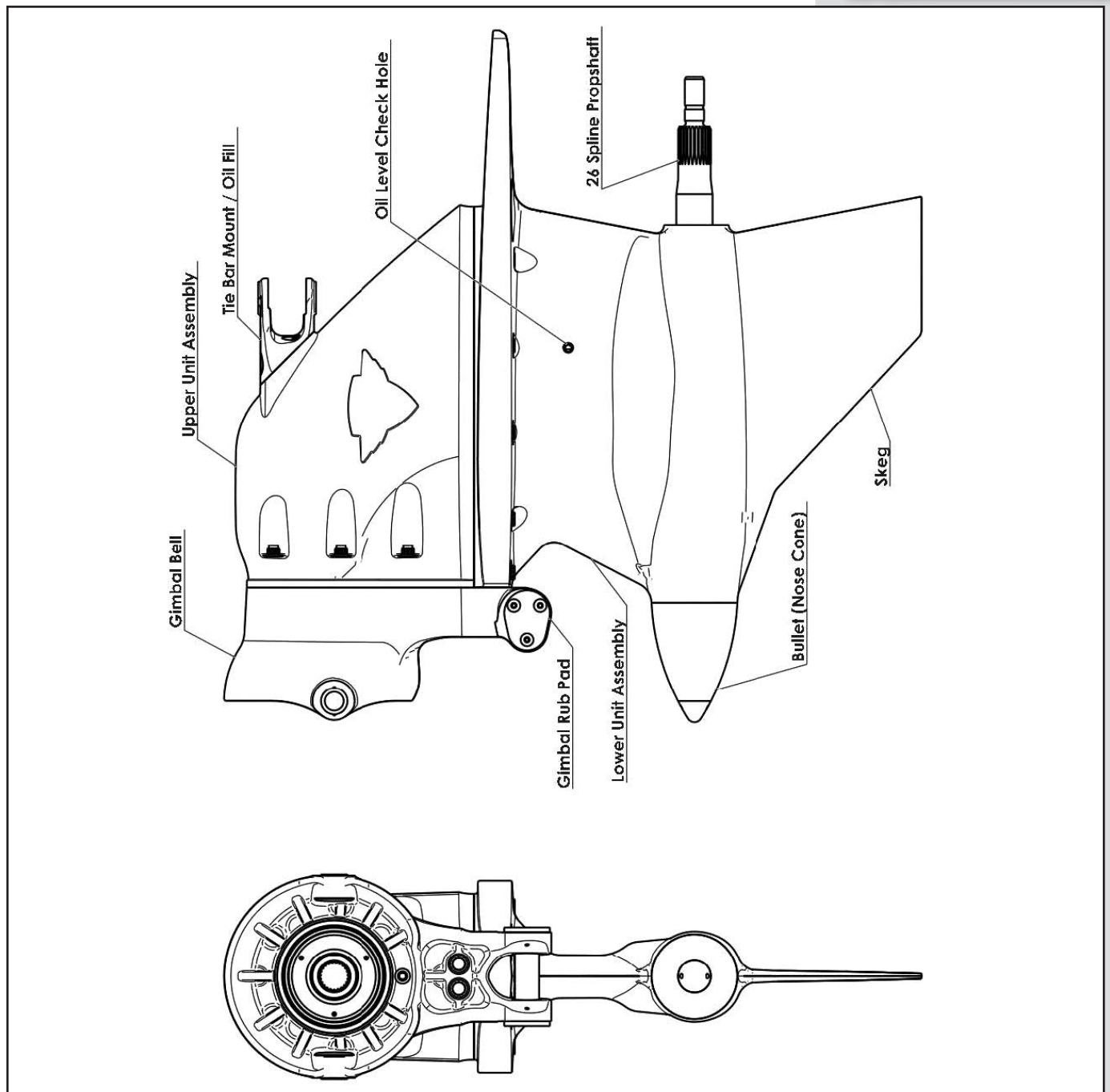
SERIAL NUMBERS

Transmission	
Transom	
Upper	
Lower	
Transmission	
Transom	
Upper	
Lower	

Section 6

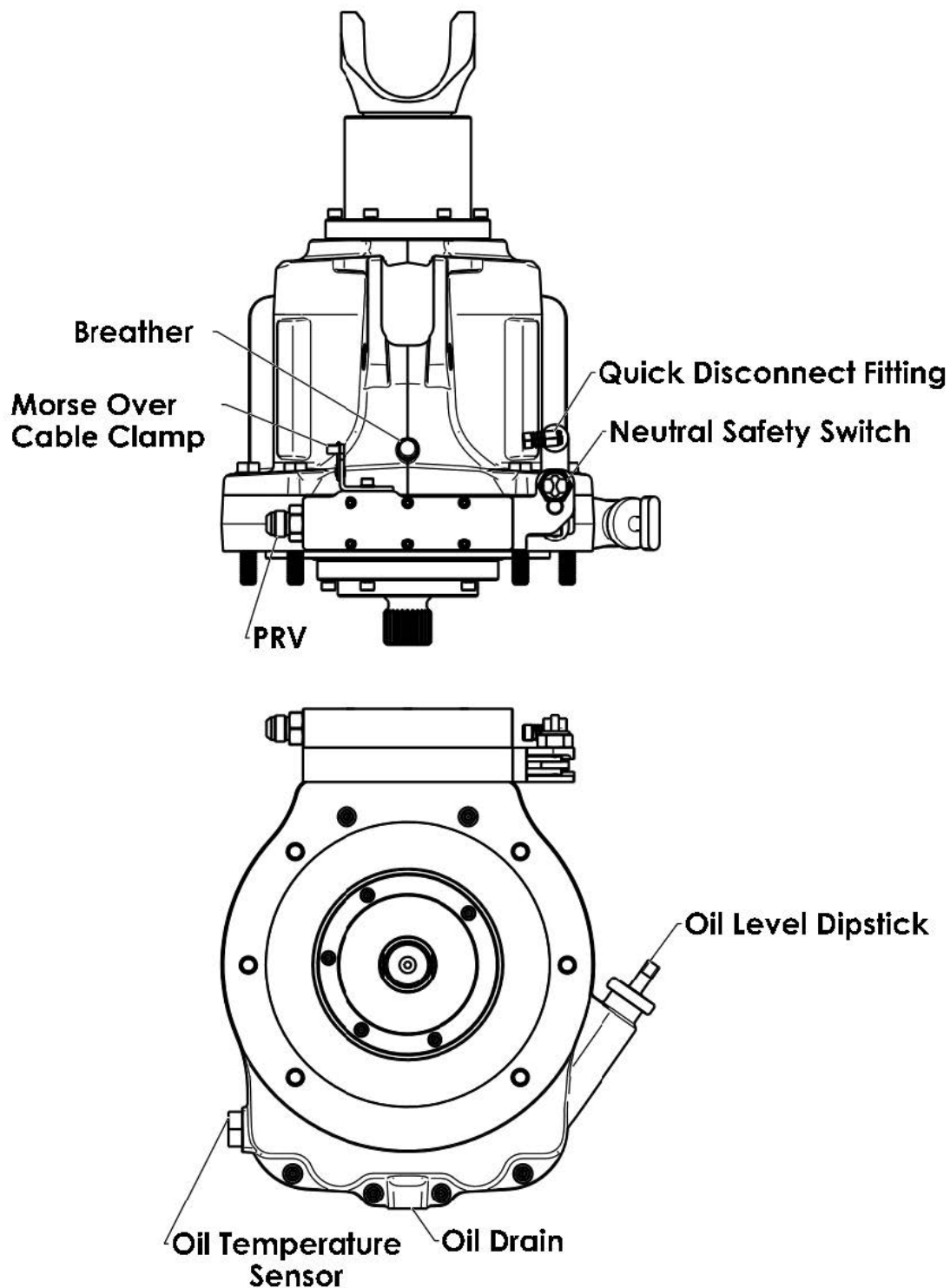
DIAGRAMS

OUTER DRIVE ASSEMBLY

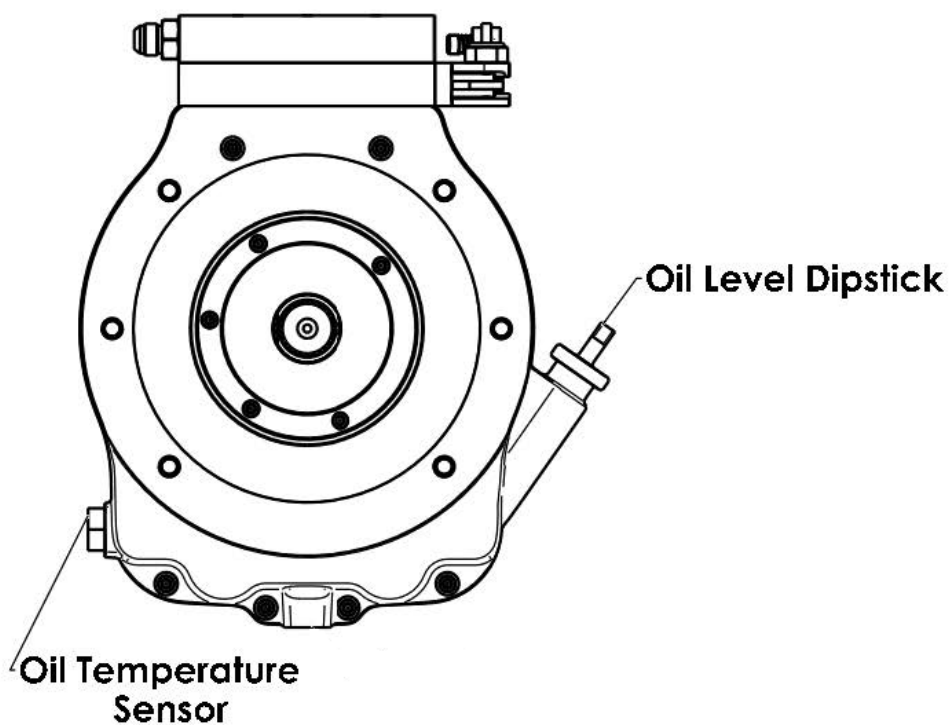
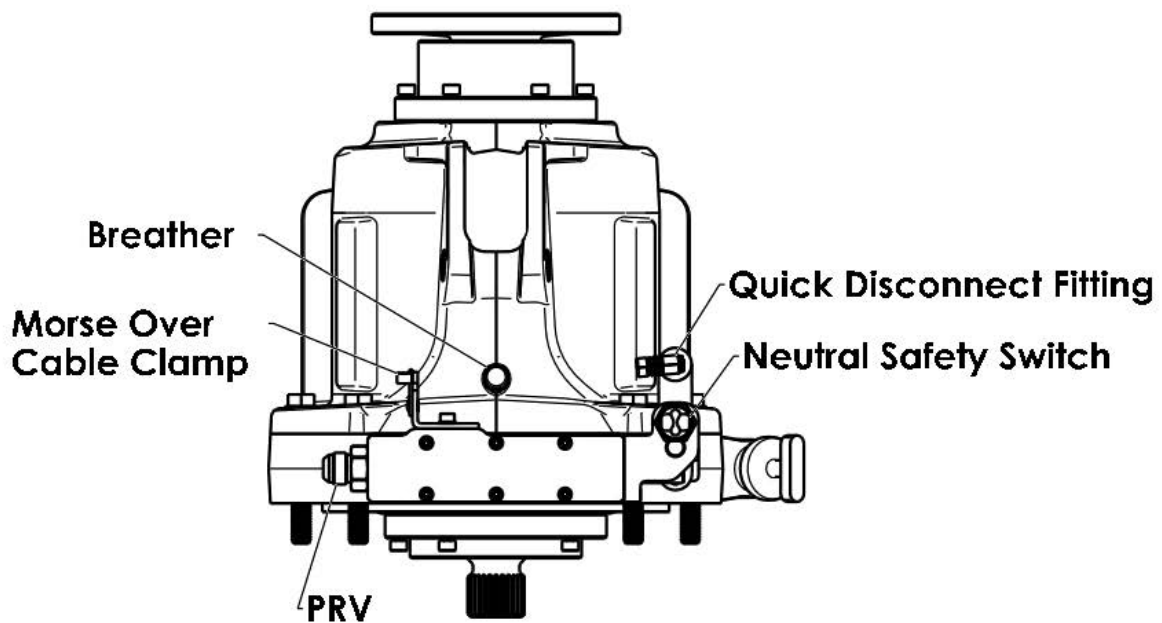


TRANSMISSION

Transmission w/ Plug-In Extension



Transmission w/ Driveshaft Extension



NOTES