

Cris-Craft

Service BULLETIN

Bulletin: E-162 Revision #1

Date: November 1, 1967

Subject: CAUSES OF FAILURE IN THE HF-7, HJ-7 AND "P" SERIES PARAGON
HYDRAULIC REVERSE GEAR

In an analysis of hydraulic reverse gear failures, we observed that only a few gave trouble due to original defects. The majority had failed due to LOW OIL, MISADJUSTED CONTROL CABLE TRAVEL or MISADJUSTMENT OF THE REVERSE.

1. LOW OIL - Hydraulic reverse gears will not function properly unless the oil is full. It is the responsibility of the boat operator to check the oil level in the reverse gear each day of operation just as he is responsible for checking the oil level in the engine. To check hydraulic reverse gear oil level:

HF-7 & HJ-7 - Idle engine to fill oil lines and cooler. Stop engine and check reverse gear oil level at once. Maintain oil level at high mark on dip stick.

"P" Series Reverse Gear - Check reverse gear oil before starting engine. Maintain oil level at high mark on dip stick.

2. MISADJUSTED CONTROL CABLE TRAVEL - First, the boat operator must operate the hand lever through its full forward or reverse travel to engage the spring loaded detent at the control head. Second, the control cable terminal at the reverse gear must be adjusted to fully engage the stop in forward. If full engagement of the forward stop at the transmission is lacking by more than 1/16 inch, hydraulic oil pressure will fluctuate and eventual slipping of the forward drive discs will result.

It should be noted that a total 2-3/4 inch cable travel is required to fully engage the forward and reverse stops on the transmission. In some cases where long cables follow twisting routes this travel can be slightly less. On these boats it is absolutely necessary that the cable be adjusted to fully engage the FORWARD stop. As much as 1/8 inch short of engagement with the reverse stop will not adversely affect gear operation.

In the Morse Control Installation Instructions we are warned "Do not bottom transmission clutch arm at positive stops on transmission. The limit of shift arm travel must be controlled by the control cable only". These instructions in the future are going to be expanded to say, "It is very important that the detents at Forward and Reverse positions at the control arm on the transmission (clutch) be fully engaged".

3. MISADJUSTMENT OF THE REVERSE - Improperly adjusted reverse bands drag on the drum wearing the band and drum introducing foreign matter to the hydraulic oil which can prematurely wear other parts, eventually making the reverse gear inoperative.

REVERSE GEAR ADJUSTMENT

HF-7 & HJ-7 Reverse Gear: The forward clutch is direct acting and has sufficient travel to compensate for wear. Therefore, there are no adjustments for the forward drive. If there should be a dragging of the clutch in forward gear, this possibly could be caused by the lack of a positive neutral. The adjustment for positive neutral and reverse is accomplished in a single procedure. To make the proper adjustment the engine must be running at idle speed and the control lever must be in the neutral position. Remove the reverse band acorn

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screw nut from the reverse band adjusting screw and loosen the jam nut. Turn the adjusting screw IN until very tight. Gear will now be reversing. Loosen adjusting screw slowly by using a continuous motion of the wrench. As the positive neutral position is approached the coupling will show a hesitancy to turn. Continue the loosening action of the wrench until coupling has a positive stop. Continue loosening nut approximately an additional 1/8 turn beyond positive neutral and tighten the locknut. It is important that the continuous motion of the wrench be followed carefully in order to arrive at proper adjustment. Test run the boat in open water at 3000 - 3500 RPM for approximately five minutes to determine if adjustment has been properly made. Should a white vaporish smoke be evident around the breather, the reverse band is still gripping the drum and will result in early failure. After proper adjustment has been made, replace the acorn nut on the lock screw. This adjustment is necessary ONLY at the time of original installation and periodically to compensate for wear of the lining of the reverse band.

"P" Series Reverse Gear - No adjustment is necessary for the FORWARD drive multiple disc clutches, and the reverse band is self adjusting to compensate for lining wear, so that no external reverse band adjustment is necessary.

NOTE: WHEN ADDING OR REPLACING FLUID, TYPE "A" TRANSMISSION FLUID MUST BE USED.

CHRIS-CRAFT CORPORATION
SERVICE DEPARTMENT