WHITE FARM EQUIPMENT

# Service Bulletin

File: GB-26-111 (Rev. 1)

Subject: Connecting Rod Bolts 283 and 310 Cubic Inch Engines

Date: 1-25-85

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THIS BULLETIN SUPERSEDES AND CANCELS SERVICE BULLETIN GB-26-111, DATED 3-25-83.

## PROBLEM

Connecting rod bolt failures on some 1755, 1855 and 1955 tractors.

## OBSERVATION

Connecting rod bolt failures are caused by one or more of the following:

1. Single most common cause of bolt failure is excessive engine speed. In addition to people turning up speed to obtain more horsepower, as tractor ages speed can increase due to reduced friction in engine and drive train, and wearing of high no-load adjusting screw against its stop. HIGH NO-LOAD SPEED MUST NOT EXCEED 2600 RPM. Torsional forces as well as other forces working on connecting rods build rapidly when this speed is exceeded.

2. Over tightening rod bolts is second most common cause of failure. This is created by inaccurate reading or improper use of torque wrench. Also, there is a tendency during engine rebuild for the mechanic to be concerned about bolt loosening and as a result, "gives it just a little bit more".

3. Some failures are related to radius on 30-322 6972 Bolt and chamfer in connecting rod cap. (Figures 1 and 2.) Here two situations can exist:

   3.1 Rod cap was not chamfered on early engines because of the design of the 156 295A Place Bolt. When 30-322 6972 Bolt is used with this design cap, interference exists and proper clamping action cannot be obtained.

   3.2 Or, chamfer has been added in the field and is not properly machined either not eliminating the interference, or chamfer is too large which reduces head contact with cap.

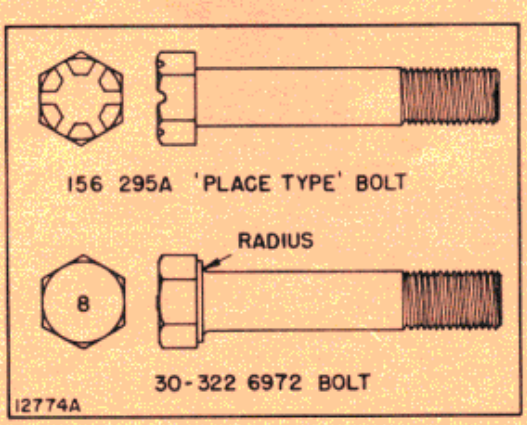


Fig. 1 Old Connecting Rod Bolts

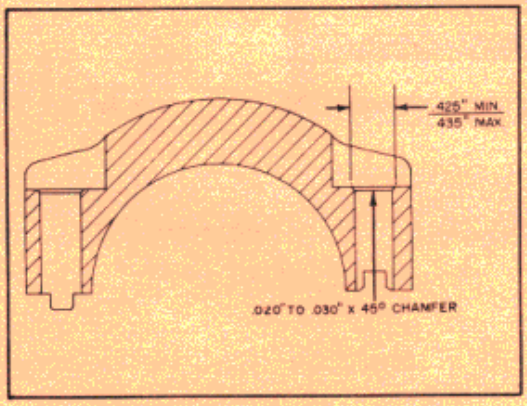


Fig. 2 Connecting Rod Cap

CORRECTION

Confidence in rebuilding 1755, 1855 and 1955 engines can be accomplished by observing the following:

1. Adjust high no-load speed to 2550-2600 RPM using an accurate tachometer. Only one turn of adjusting screw means a 150 RPM change in speed.

2. Use 12 new 20-700 2212 12 Point Rod Bolts and 12 new 20-700 2213 Hardened Washers when reassembling engine. (Fig. 3.). These parts are designed to provide proper fit with either a non-chamfered cap or a cap with improper chamfer machining.

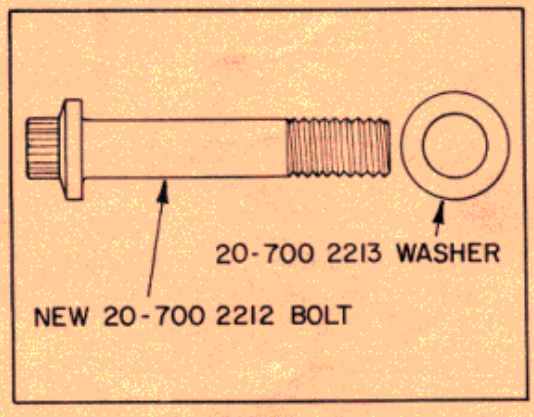


Fig. 3 12 Point Head Bolt

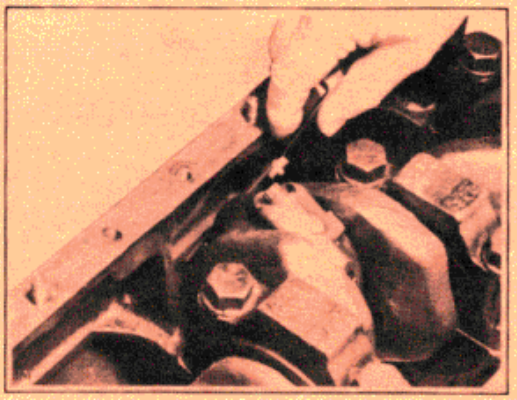

Fig. 4 Checking Head Bolt Clearance

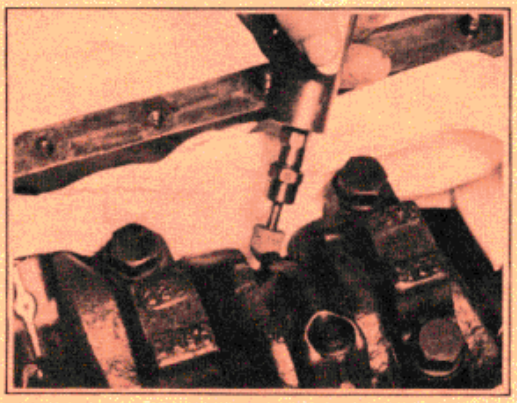

Fig. 5 Grinding Bolt Head

DUE TO CRANKCASE CASTING VARIATION, CHECK CLEARANCE BETWEEN EACH ROD BOLT HEAD AND SIDE OF BLOCK AS SHOWN IN FIGURE 4. THERE MUST BE AT LEAST 0.060 INCH CLEARANCE. IF THERE IS NOT, GRIND PORTION OF BOLT HEAD AWAY TO PROVIDE THIS CLEARANCE. (Fig. 5.)

3. Check all torque wrenches in your shop for accuracy. Connecting rod bolts should be oiled at installation, and tightened to 44-46 ft-lbs. DO NOT OVERTIGHTEN!

## REPAIR PARTS INFORMATION

NOTE: 30-322 6972 Rod Bolt is cancelled from repairs. Since it is also used in 1650, 1750, 1655, 1950T and 2-70 diesel engines, new 20-700 2212 12 Point Bolt and new 20-700 2213 Washer must be used in sets of two as replacements.

New short block assemblies and individual connecting rods will be furnished with 20-700 2212 Bolts, but WASHERS ARE NOT REQUIRED because of known satisfactory chamfer.

## DISPOSITION OF SUPERSEDED PARTS

Submit Return Request form to your Service Parts Distribution Center to obtain authorization to return new and unused 30-322 6972 Bolts in your repair parts inventory. This must be done before March 15, 1985 to obtain credit.

Service Department
ZK MCH/ms 430 1288