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PARTS IDENTIFICATION
NOTE: Collet will expand maximum .039" (.999 mm) nut and expand pilot until snug. While holding insert pilot into collet pin in pilot hole. Turn below valve guide.

Pilots should be about 1/8" (.33 mm) be inside valve guide.

1. Select a pilot same diameter (fractional or metric) as valve stem.

2. Insert pilot into valve guide.

3. Select a pilot same diameter (fractional or metric) as valve stem.

4. Insert pilot into valve guide, twisting slightly.

5. Cut below by bottom narrowing until snug.

6. Check condition of valve guides. (See Man.

NOTE: Follow recommended safety procedures when using.

1. Clean valve guides.

2. Remove all deposits with wire brush.

3. Remove all carbon and combustion deposits.


PREPARATION FOR CUTTING VALVE SEATS


C. SHARPEN DELIRED CLEAN SEATS

D. TWO WAYS of achieving this tight fit are:

1. Measure the better the valve seats and the valve faces.

2. The better the valve seats, and the valve seats give more compression and are important.

WHY GOOD VALVE SEATS ARE IMPORTANT

A cooler running engine.

B. The better the valve seats, and the valve faces.

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WHY GOOD VALVE SEATS ARE IMPORTANT

A cooler running engine.
1. Remove pilot. Using pilot end burin, remove material that must be removed with the blow burs. Note: Determine the amount of material to be removed. The size of the pits, burn outs, and Gudgeon cuts.*

2. Insert valve in valve guide.

3. Banish valve slightly up and down in the valve guide. (Getting it with fingers and lot.

4. Valve face surface.

5. Loosen until "ring mark" shows on the valve. Only below and below the cylinder head.

6. Remove valve face from Guide.

E. INSPECT SEAT.

NOTE: Only 3% to 5% of valves take a full seat. This should take 2 cuts seat to proper width. Seat lightly, with seat cutter.

D. FINAL SEAT CUT.

NOTE: Some narrowing cutters have move-

B. BOTTOM NARROWING CUT.

C. TOP NARROWING CUT.

A. TOP EDGE OF SEAT.

NOTE: This operation lowers the

2 cuts until seal width is slightly less than

1. Cut lightly with narrowing cutter.

NOTE: Some narrowing cutters have move-

2 cuts until a line continuous line is formed.

A. BOTTOM EDGE OF THE SEAT.

NOTE: Shoulder the cutter away from the guide.

NOTE: Moving blades outward will increase cut.

GENERAL INSTRUCTIONS

B. HEAD DIAMETER.

NOTE: Before using cutters adjust blades to required head dimensions. Then tighten all screws that hold.

HEAD DIAMETER.

NOTE: Pointed ends must always point toward hub of valve seat.

SELECTION AND USE OF PROPER VALVE SEAT CUTTERS.

A. INITIAL INSPECTION OF SEAT.

B. PLACE CUTTER ON PILOT AND SLOWLY LOWER CUTTER.

C. PLACE HANDLE OR POWDER UNIT OVER HEX OF CLEAT. DO NOT DROP CUTTER.

D. TURN COUNTERCLOCKWISE, APPLY LIGHT PRESSURE.

E. INSPECT SEAT.

NOTE: Material to be removed with the blow burs will determine the amount of material to be removed. The size of the pits, burn outs, and

Gudgeon cuts.*

1. Look at seat.
PRESSURE

Holding the handle, apply only LIGHT pressure to the valve seat, as previously described.

6. Using tool switch (1800), start motor and proceed.

5. Place socket on cutler, be sure the transmision is in the 'open' or pilot position.

4. Place cutler on pilot and slowly lower cutler.

3. Adjust cylinder head in 'Y' or head stand. Change pilot to vertical (it should line up with transmission).

2. Insert pilot, using previous installation.

1. Pull cylinder head onto head stand.

FOR POWER UNIT

OPERATING INSTRUCTIONS

MORE ACCURATE THAN EVER BEFORE

USING A NEW XIV POWER UNIT WILL MAKE THE JOB

section.

The transmission unit is removed from the motor to the out.

The valve seat being cut.

The socket should be positioned directly over the cutler.

CAUTION: Higher RPM's may damage cutler.

The drive unit rolls freely over the track for pos.

POWER UNIT

NOTE: Use a properly retained valve, occasionally a new

the first few seconds of cutting operation.

5. If line has any shorter Intermittent open

set 1 or 2 revolutions with the hydro's

in an open 'pilot' and blade to blade.

3. Turn valve back and forth in the seat

2. Remove pilot and insert valve into guide.

1. Paint the valve face with Prussian blue.

B. CLOSURE: PRUSSIAN BLUE METHOD.

use valve seat dial indicator. closed

tight should be within 002" (.5mm) (total

4. CONCENTRICITY:

NOTE: if more than 1 radious blade is used,

4. Hemispheres to top narrowing cut.

5. Adjust Radious blades to blind.

F. TOP NARROWING CUT.

NOTE: Use a properly retained valve, occasionally a new
RE MUCH IMPROVED OVER GROUND SEATS.
CUTTERS. ENGINEERING TESTS SHOW THAT SUCH
TEXTURED SEATS RESULT FROM PROPER USE AND

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
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<tbody>
<tr>
<td>Onset seat</td>
<td>Cutter dropped</td>
<td>Rough handling</td>
</tr>
<tr>
<td>Right handline</td>
<td></td>
<td></td>
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<tr>
<td>Be protected toward hub.</td>
<td>Properly end cuts when blades must</td>
<td>Too much pressure</td>
</tr>
<tr>
<td></td>
<td>Apply only light pressure.</td>
<td></td>
</tr>
<tr>
<td>Clean surface.</td>
<td>Apply only light pressure.</td>
<td>Too much pressure</td>
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<tr>
<td>Replace valve guide.</td>
<td>Excessive valve</td>
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<td></td>
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<tr>
<td>Select new fitting for pilot or re.</td>
<td>Loose pilot</td>
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<tr>
<td>Apply pressure over centerline.</td>
<td>Side load pressure</td>
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<tr>
<td>Fluid.</td>
<td>Not the same used.</td>
<td>Very soft seats</td>
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<tr>
<td></td>
<td>New Cutting Fluid on seats.</td>
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<td></td>
<td>Apply with fluid.</td>
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<tr>
<td>Add only light pressure.</td>
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<td>Too much pressure</td>
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Occasionally problems are encountered. Here are

Simple solutions.