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Waterville, Washington 98858

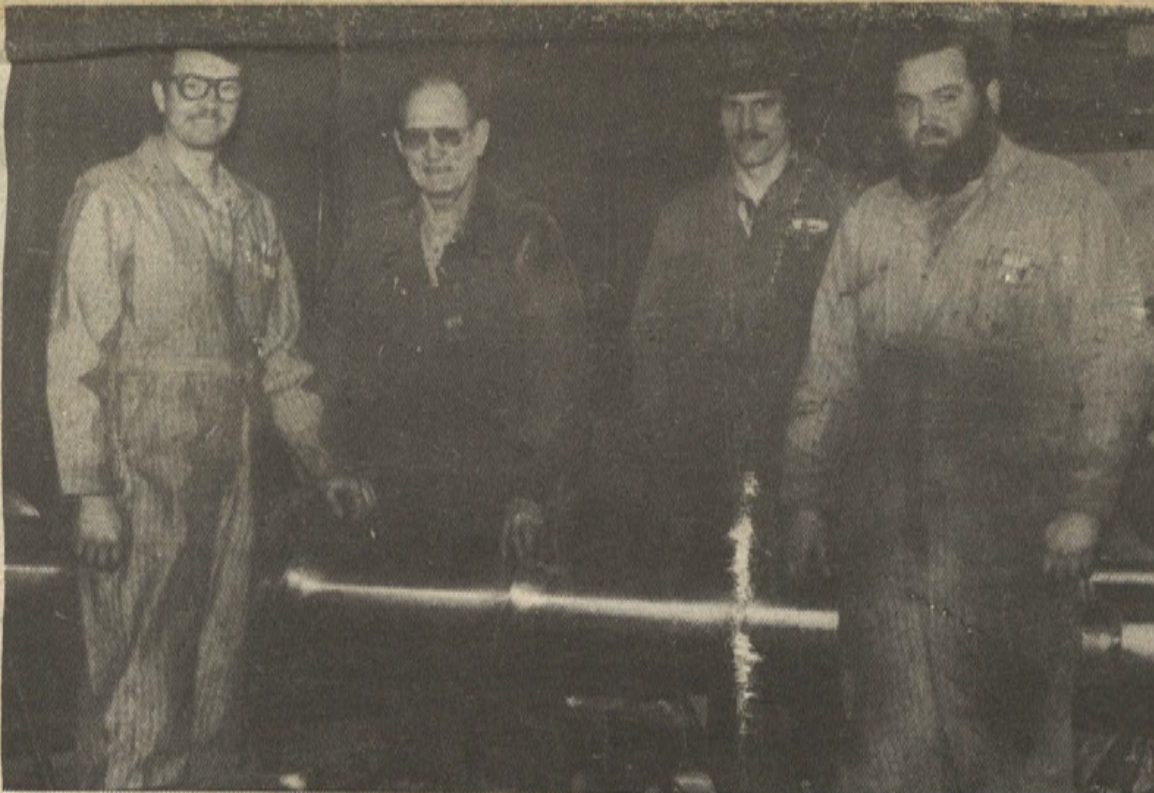
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A HALF CENTURY OF WORKING WITH METAL AND MACHINES



From left to right:
David Barnes (10 years experience), Weldon Barnes (45 years experience),
Dale Synder and Chris Wright.

THE HISTORY OF BARNES WELDING & MACHINE

Weldon Barnes grew up repairing farm equipment on the family farm near Waterville. Even as a young man he had the belief that anything

made by man should be fixable by man.

By 1971 Weldon's neighbors knew of his knack at fixing things and soon his welding hobby grew into a welding and machine business.

David Barnes,

Weldon's son, was always interested in his father's work. He hung around the shop and eagerly helped whenever he could. It became a family joke between the two of them that they weren't smart enough to consider the possibility that something couldn't (continued on page 3)

NEW INVENTION MAKES WELDING SAFETY EASIER

It is still possible to purchase gas cutting equipment from a retailer with an important safety feature missing. The missing feature is a reverse flow coupling--without it the reverse flow of gas can mix with oxygen and create a potential explosion. If you've ever seen gas cutting equipment with the valves burned out, then you've seen what can happen when the gas reverses its flow.

In the past this reverse flow valve had to be changed with a wrench when moving from one torch to the next. This inconvenience is no longer necessary because of a new type of reverse flow coupling--this new coupling is called a Safety Z coupling.

The Safety Z has an easy click-in click-out design so now changes can be made in seconds.

If you almost never change torches it is still less expensive to purchase a standard reverse flow check valve.

Each type of Safety Z coupling has a different function: regulator-hose, hose-hose, and hose-cutter couplings. Also, each is specifically designed for oxygen or fuel gas, removing the possibility of error as an incorrect connection will not allow gas flow.

HOW TO REPAIR

PACKER WHEELS

...see page 2

"WHERE QUALITY COUNTS"



Waterville Airport

745-3281

HOW TO REPAIR YOUR PACKER WHEELS WE CAN REBUILD YOUR USED, CRACKED PACKER

Good news for the do-it-yourselfer:

1) You can purchase the rings needed for packer wheel repair from Barnes Welding and Machine--cost: \$17/ring
Welding Supplies: \$6/wheel
Labor Time: 1½ to 2½ hours depending on extent of damage and welding experience

Words of caution for the do-it-yourselfer:

1) When you do it yourself there is no guarantee--Barnes Welding and Machine guarantees their work for six years

2) You have no assurance that the wheels are true on the axle. If the wheels are NOT true, there will be an increased strain on the bearings and they will wear out sooner--this creates a greater cost in the long run.
Barnes Welding and Machine has a device to make sure that the wheels are true on the axle.

3) If the rings are improperly installed they may re-split the first time they hit a rock.

When installing the rings the welds must have good penetration. You can't leave blobs of weld or pin holes without reducing efficiency of the packer wheel. Also, you lose strength when you leave a blob or pin hole and since the whole weight of the drill is on the packer wheel edge you increase the wear on the

(Continued on page 4, Column 1, top)

Comments from ranchers who hired Barnes Welding to rebuild their packer wheels:

"I'M GLAD I DIDN'T DO THE WORK, BECAUSE I DIDN'T HAVE HALF THE NECESSARY EQUIPMENT. EVEN THE BLACKSMITH IN TOWN SAID THE JOB WAS GOOD."

Miles Adkins, Coulee City

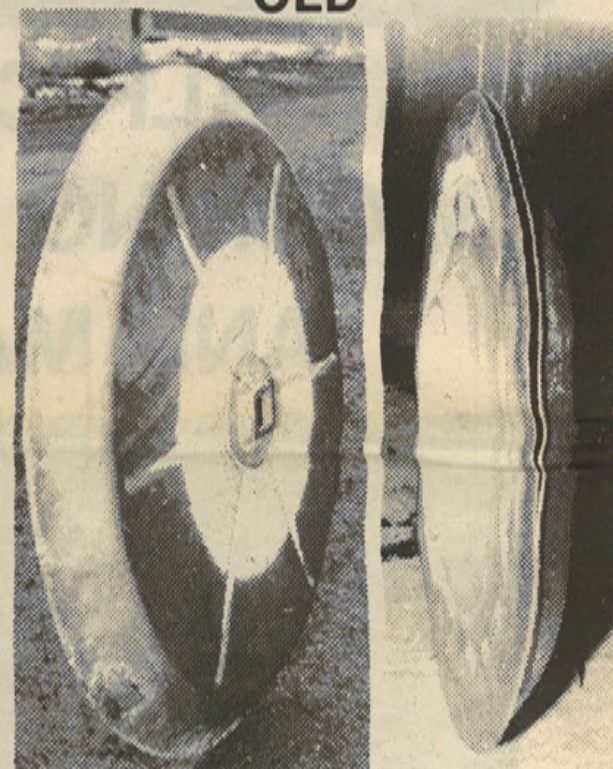
"IT'LL SAVE MONEY DOWN THE ROAD, BECAUSE THE PACKER WHEELS WILL LAST LONGER AND THERE WILL BE LESS DOWNTIME DUE TO REPAIRS."

Neil Nelson, Waterville

"I'M VERY PLEASED WITH THE JOB YOU DID ON MY PACKER WHEELS. I'M ESPECIALLY IMPRESSED WITH THE WAY YOU STRENGTHENED THE AXLE."

Richard Wainscott, Mansfield

OLD



We are able to do John Deere split packers and 150 International split and single packers.

Rebuilt and reinforced hubs included in the price.

Guaranteed under normal farming and working conditions and original owner.

All prices F.O.B. Waterville.

Sales tax not included.



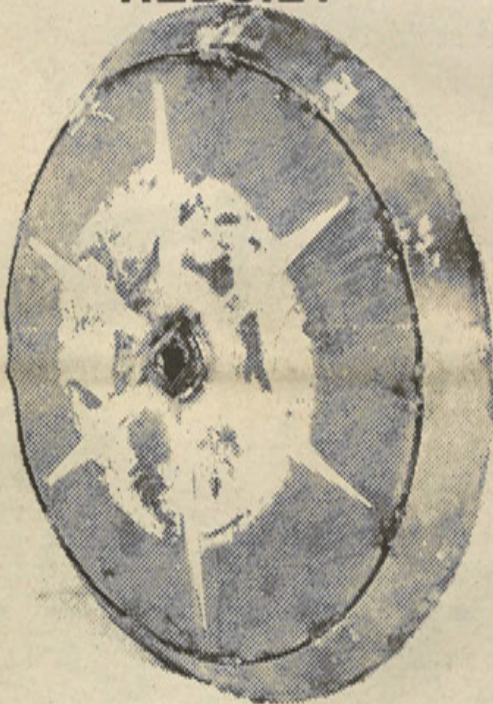
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"WHERE QUALITY COUNTS"

WORN, DENTED, SPLIT, OR WHEELS!

REBUILT



HARDFACING: \$7.50/wheel

Slight additional charge
if wear has separated
packer wheels

COMPARE PRICES

REPLACE WITH NEW PACKER WHEELS:

\$100 - \$166 each

No Quantity Discount or Winter Special

REBUILT BY BARNES WELDING:

\$54.95 each

Quantity Discount:

Over 41 Wheels: \$45.95 each

Quantity Discount WINTER SPECIAL

(Good thru April 1, 1983)

10% OFF

COMPARE GUARANTEES

NEW PACKER WHEELS:

1 Year

REBUILT PACKER WHEELS--

BARNES WELDING GUARANTEE: 6 Years

(continued from page 1)

A Half Century of Working with

Metal & Machines

be fixed.

After high school David went to Wenatchee Valley College and later graduated from Central Washington University. He majored in industrial education and spent all his spare time working with his father in the Barnes Welding & Machine shop.

After college graduation David joined Weldon and together they devoted themselves to the growth of Barnes Welding and Machine.

To expand their services the Barneses purchased a 36 inch by 12 foot metal lathe. This enabled them to machine bearing surfaces on semi-axles, four-wheel drive tractor housings, combine axles and many other agricultural implements.

A year or so later the Barneses acquired a universal power shear which enabled them to cut and fill iron orders in half the time; it also sped up fabrication of trailers, header modifications, orchard mowers and structural support members.

Later Barnes Welding and Machine purchased horizontal and vertical mills. These are used for making intricate and true surfaces on any stock material. These tools cut key ways on various combine and tractor shafts.

High yield wheat ranchers constantly fight drill breakdowns during seeding. One of their biggest problems is the splitting of packer wheels when moisture conditions are perfect for

(continued on page 5)

"WHERE QUALITY COUNTS"



(Continued from page 2)

HOW TO REPAIR YOUR PACKER WHEELS

weld.

How can Barnes Welding & Machine guarantee their work for six years if these edge welds are so tricky?

Weldon and David Barnes can give you their "better than new guarantee" because their welds are precisely done--the edge welds are 2 or 3 times stronger than new. They also have the right equipment--they have precise jigs so the rings can be installed very snugly around the original packers. They also have equipment that allows them to make sure that all perimeter welds are completely joined.

Weldon and David also have the advantage that they've done the job over and over again--experience helps!

4) The axle must be properly strengthened. The outside tube of the axle mushrooms with wear under normal circumstances; if you don't have the exact mandrel for the axle, reinforcing the tube at the point of stress is time wasted--the packer wheel will still wobble and it will still wear out the tube on the inside.

What about packer wheel repair without a ring?

It is tempting, in this day of high costs and low wheat prices, to make a quick fix on a cracked packer wheel.

The problem with welding the cracks in your packer wheels is that it may break again at any

(Continued on page 6, Column 1, top)

COMMENTS BY WHEAT RANCHERS:

"I'D NEVER WANT TO
FIX AN AUGER...IT'S
WAY TOO TOUGH. I'M
VERY HAPPY WITH
THE JOB DONE BY
BARNES WELDING."

**John Danielson Jr.,
Waterville**

"IF I EVER WANTED
A HEADER OR AUGER
STRAIGHTENED OR
REBUILT I'D NEVER
DO IT MYSELF...IT'S
TOO BIG A JOB. I'D
TAKE IT TO BARNES
WELDING."

Evan Nordby, Mansfield

DON'T LET A DAMAGED COST YOU AN

DAMAGED F



REBUILT



E QUALITY
NTS"



DON'T LET A DAMAGED FINGER COST YOU AN ARM AND A LEG

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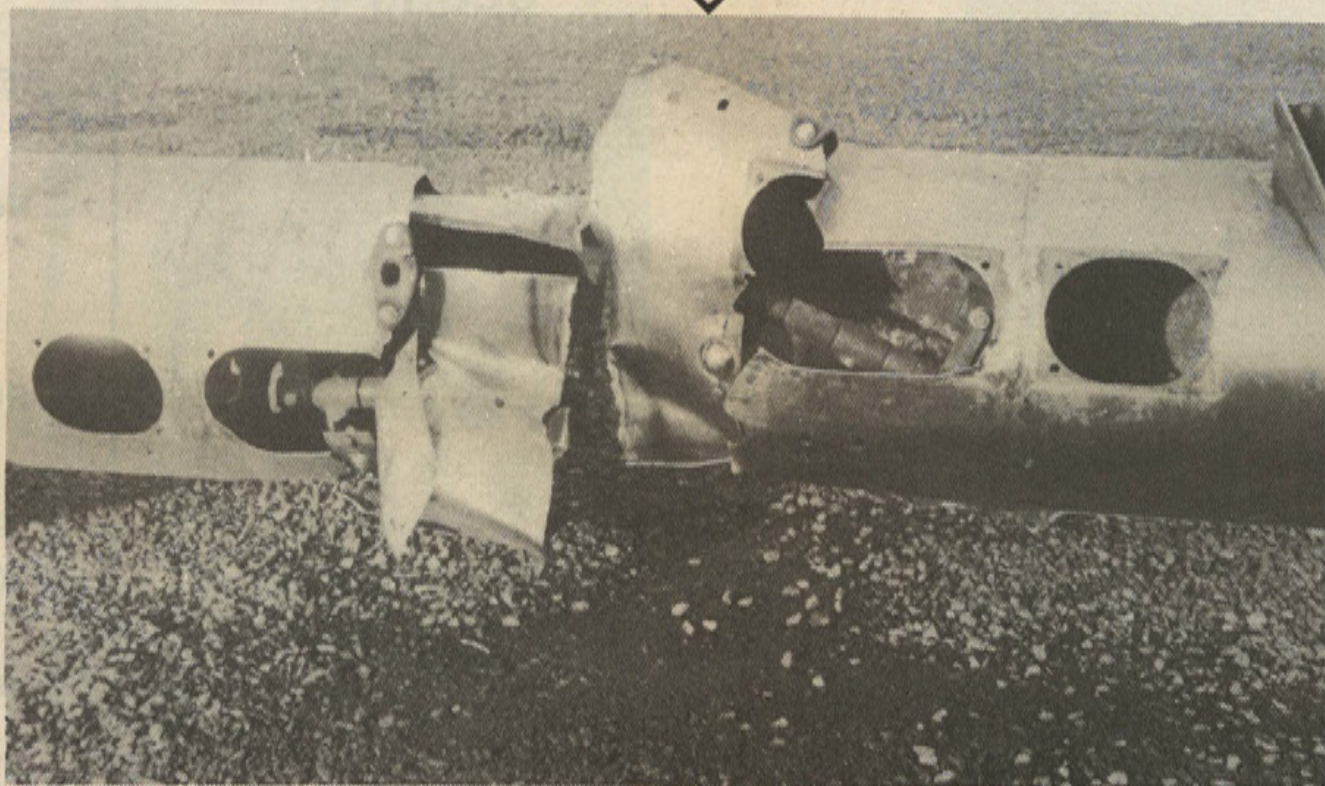
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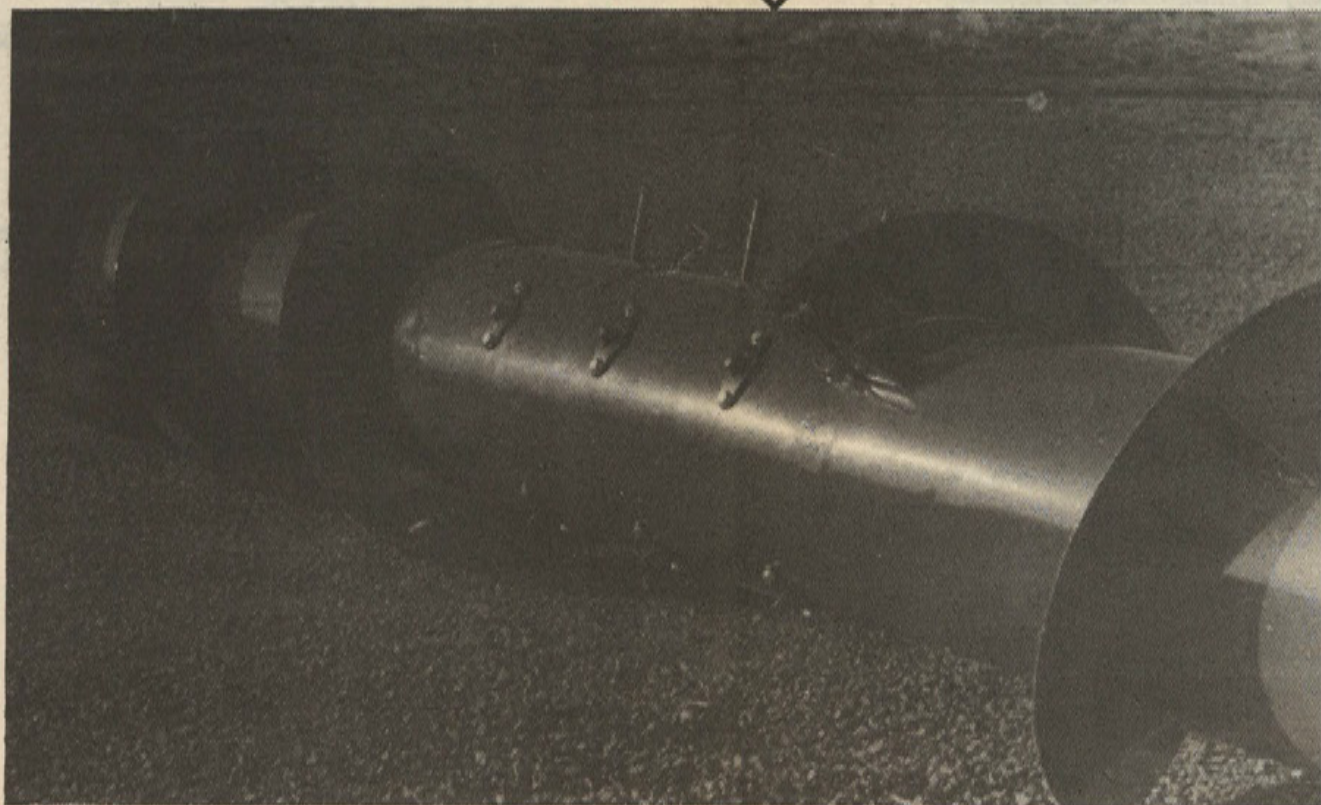
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DAMAGED FINGER SECTION



REBUILT FINGER SECTION





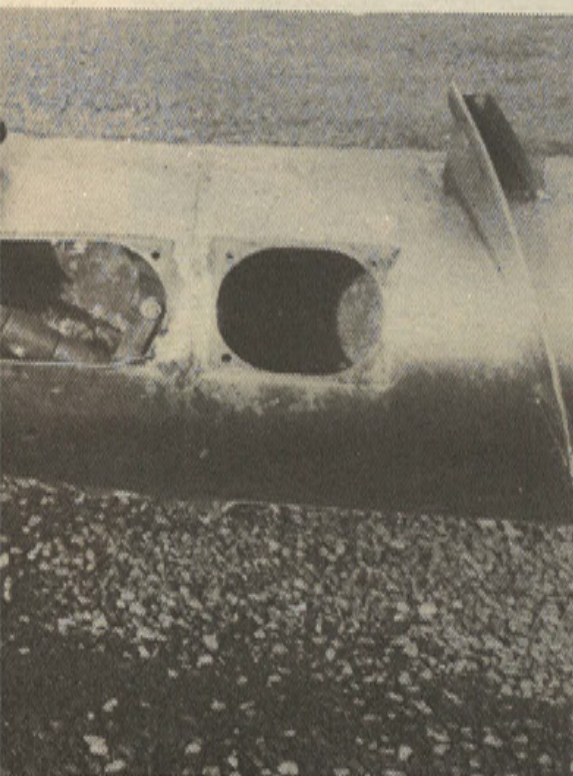
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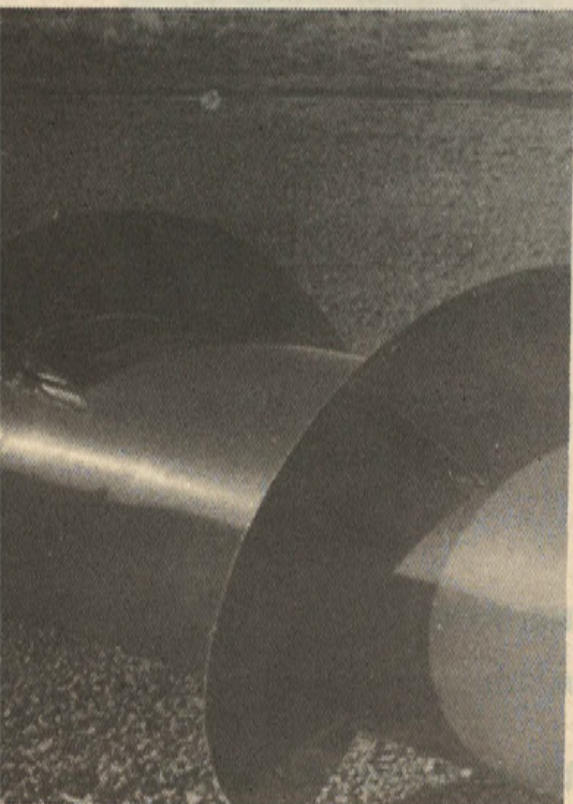
"WHERE QUALITY COUNTS"

ED FINGER SECTION RM AND A LEG

SECTION



ER SECTION



NEW AUGER COST:

\$1,500 - \$2,000

REBUILT AUGER COST:

\$475 - \$900

Barnes Welding

& Machine

is the only

place to go

for

auger rebuilds!

**Workmanship
Guaranteed**

(continued from page 3)

A Half Century of

Working with

Metal & Machines

planting--time wasted on repair can ultimately lower yields.

As former wheat ranchers the Barneses are familiar with this problem. For that reason, when packer wheel rebuilds were invented, Barnes Welding and Machine purchased a Lincoln 600 intershield wire welder so downtime during seeding could be eliminated.

The Lincoln 600 also enables Barnes Welding & Machine to weld continuously structural iron from $\frac{1}{4}$ inch thick to 2 inches thick; these welds are structurally sound which means that they could be X-rayed and no flaws could be found.

AUGER REBUILDS--

Straightening Metal

is a Barnes Welding

Specialty

Why can't I rebuild my own auger?

Wheat ranchers are a hearty lot and they're used to doing things on their own, but this is one job that just can't be done by the do-it-yourselfer.

Every time you put a torch to metal you distort the metal. If you cut out and replaced your own finger section, you wouldn't have any way to straighten the tube. Even a distortion of $\frac{1}{4}$ an inch would create a wobble in your auger that would make it inoperable.

Here's where a half

"WHERE QUALITY COUNTS"



(Continued from page 4)

HOW TO REPAIR YOUR PACKER WHEELS

time--thus you may lose precious planting time when moisture is right.

An even greater problem with welding a cracked packer wheel is that this creates greater friction just beyond the weld. Eventually your packer wheel will crack again, but this time it will be even more costly to fix--in some cases this can make the wheel unfixable. At the very best it will add \$10 to \$15 to the repair bill for each packer wheel.

Are you planning to buy a used drill?

If you are, contact David Barnes--you may want to hire him to inspect the used drill you are considering. He can evaluate the condition of the packer wheels with an expert eye and give you a realistic assessment of the life of the packer wheels.

CERTIFIED WELDERS

When you bring a job to Barnes Welding and Machine you know it will be done correctly because both Weldon and David Barnes have been certified by the American Welding Society.

IN STOCK: OVER 20 TONS OF METAL



OVER 20 TONS OF STOCK INCLUDES: Mild Steel, Stainless Steel and Aluminum
All major shapes and sizes: square, round, flat, tubular

IN STOCK:

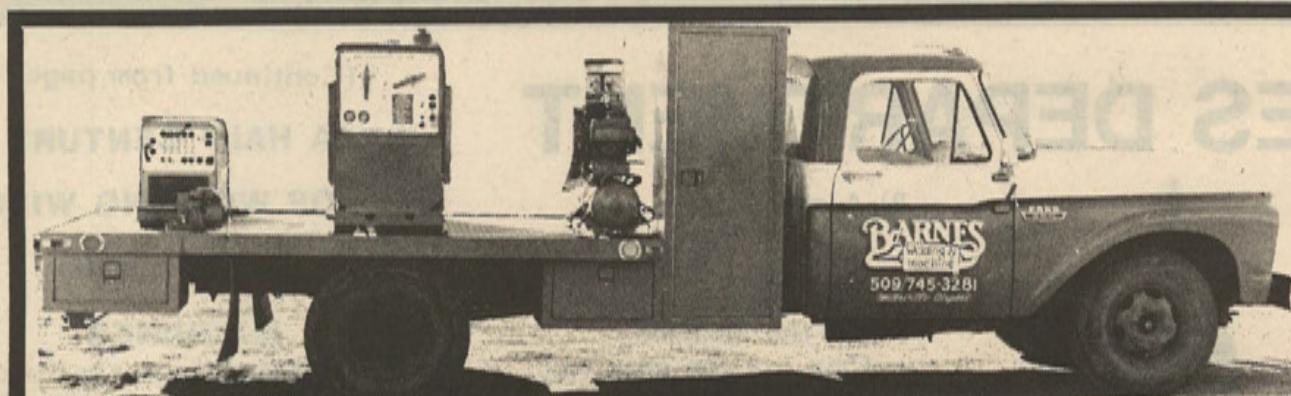
OVER 1,000 POUNDS OF WELDING ROD

FROM CAST IRON ROD TO ALUMINUM ROD

OVER 30 SIZES OF LEFT AND RIGHT HAND FLIGHTING



"WHERE QUALITY COUNTS"



THE PORTABLE SHOP

ALL YOUR MACHINE NEEDS,
WHENEVER AND WHERE EVER YOU NEED THEM

for the Waterville and Almira lagoons. They've also done ornamental iron work for numerous residents, the Dodge House Restaurant, and a Cashmere dentist.

Portable Shop

It is impractical to bring many jobs to the Barnes Welding & Machine shop--therefore, they bring the shop to you.

They can weld aluminum, stainless steel, copper, bronze, mild steel, T-1, hardfacing and cast iron.

They've been called upon to thaw pipes, repair fireplace inserts and stoves as well as repair and/or rebuild all types of farm equipment, road graders, irrigation equipment, orchard mowers, and Cheney reels. They've also welded pipelines and put hardfacing on rock crusher rolls.

Front & Rear Wheel Alignment

Most commercial repair shops that do wheel alignments just check the relationship between the front tires and call it good.

In an area where pot holes are as common as as combines, these quickie toe-in checks are neither safe nor satisfactory.

When Barnes Welding & Machine does an alignment they check the caster, camber and toe-in. They also check the relationship between the rear tires.

Camber

As you look at the front of the car you can see the angle at which the tires touch the road. Each manufacturer has specs on the tires (continued on page 8)

(Continued from page 5)

A HALF CENTURY OF WORKING WITH METAL AND MACHINES

AUGER REBUILDS

century of experience comes in handy. Weldon Barnes specializes in straightening and strengthening metal. He uses a heat method that dates back many years and is not available anywhere else in this area. Barnes Welding and Machine can repair a 30 foot auger and get it within $\frac{3}{32}$ of an inch of being perfectly straight.

Even if you could straighten your auger you'd still need a special jig and fixture to hold it while you make repairs. You'd also need a high degree of expertise to make the type of structurally sound welds needed on this job.

A common harvest headache for rocky land wheat farmers is running a rock through the finger section of the auger.

In the old days you had no choice, but to

spend \$1,500 to \$2,000 on a new auger--plus the additional cost of hardfacing the new fighting. Unless you were willing to spend a couple days on the road to pick up your new auger you could wait 3 days to 2 weeks for your new auger.

Now Barnes Welding and Machine can save you about \$1,000 and a great deal of lost time. (The amount of savings depends on the extent of damage to your finger section.)

This sounds too good to be true so read carefully.

The Barneses can now cut out the finger section of your auger and repair the damage. Then they replace the finger section tube with one that is 15% stronger.

Normal turn around time is about 2 days and the cost is usually about \$475 for a 12 inch diameter

auger and about \$900 for an auger that is 16 inches in diameter. (The exact cost depends on the extent of damage to the finger section.)

In addition to repairing the auger tube, Barnes Welding and Machine is set up to repair bent and worn fighting. Just a $\frac{1}{4}$ inch of wear on the fighting can create a loss in efficiency. The Barneses can cut a worn 4 inch fighting down to 3 inches and then weld on an inch. After hardfacing, the fighting is 7 to 8 times stronger than it was originally.

Barnes Welding and Machine also has header repair available--they can straighten, shorten or lengthen your header.

ADDITIONAL SERVICES

Barnes Welding & Machine did the iron work

**Our Prices Match
Those Found in Wenatchee**



RETAIL SALES DEPARTMENT

- 1) Reconditioned Welders
- 2) Reconditioned metal and woodworking tools

- 3) Welding Equipment from the following manufacturers:
 - a. AIRCO
 - b. Lincoln
 - c. Miller

- 4) A complete line of Vise-Grips by Petersen Mfg

- 5) A complete line of "C" clamps by Jorgensen--from inexpensive to high quality (including "C" clamps with over 2½ tons of holding power)

Wood and metal clamps available

Shielded clamps are also available--you can hold the piece you are welding without damaging the clamp screw

- 6) Drill bits tough enough to drill a grade 8 bolt--made from M-10 steel, a high alloyed steel, stronger than a high speed bit

Also, taps and dies, made from the same tough steel, are available

7) FASTNERS

Nuts and bolts that exceed 140,000 lbs. of tensile strength. If normal bolts break, replace them with these--they are machined, rolled and stamped from high alloyed steel

8) Safety Products

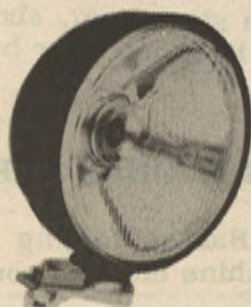
For eye safety: Products made by American Optical
For hearing safety: Willson Hearing Protectors



VICE-GRIP® Locking Pliers
Curved Jaw Models
without Wire Cutter



Model 9501B KIT
Lightweight • Compact
Versatile • High Speed
Double Insulated



- 9) A complete line of files by Nicolson--"The best files in the world." They cut the cleanest; they are the sharpest; and they have the widest selection.

- 10) Precision Measuring equipment from 1 inch micrometers to depth gauges. Product lines include:
 - a) J.T. Slocomb Co
 - b) Fowler
 - c) Starret Tools

- 11) Gas Welding and cutting outfits by AIRCO and Victor

- 12) Hardfacing Torches The M.W. Powder Torch company makes the best torch in the world--it'll pay for itself after 1 hardfacing job on your combine

- 13) Leather gloves for working with high temperatures

- 14) A complete line of Merit abrasives

- 15) Electronic Speed Controls--instead of buying new tools with variable speeds, get an Electronic Motor Control made by International Electronics Co. and give every power tool variable speed capacity

- 16) Portable electric power tools by Makita--complete service and parts are also available

- 17) Automotive lighting by CIBIE--all shapes and sizes of fog and headlights available

(Continued from page 7)

A HALF CENTURY OF WORKING WITH METAL AND MACHINES

relationship to the road. If the camber is off, the tires will wear much faster than they should. They'll wear on either side, depending on which side they are leaning.

Caster

You know how hard it is to push a grocery cart if the wheels aren't pointed straight ahead. This is an easy way to think about "caster" in your automobile tires. Most places don't check caster, but if it is off by even as much as a ½° it can affect handling and safety.

Common ways for caster and camber to get out of alignment

They can be set wrong at the factory.

Running into the curb will affect them.

Bouncing through a pothole is an excellent way to get your camber or caster out of alignment.

Overloading your vehicle can also affect alignment.

According to David Barnes, "90% of all vehicles we check have rear wheels that are out of alignment--the rear wheels should be exactly parallel to each other. We can get the rear wheels within 1/16th of an inch to each other."

Snowplow sales & service

Oxygen & acetylene service:
Exchange and refill tanks
Medical oxygen available