

# Installing Instructions

1014 468 R3  
[3964]

## Hydraulic Unit

(386 135 R92)

for

INTERNATIONAL<sup>®</sup>

CUB CADET<sup>®</sup>

and

INTERNATIONAL<sup>®</sup>

CUB CADET<sup>®</sup>

70, 71, 72 and 100

Tractors

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INTERNATIONAL HARVESTER COMPANY

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CHICAGO, ILLINOIS 60611, U.S.A.

1014 468 R3

# INSTALLING INSTRUCTIONS

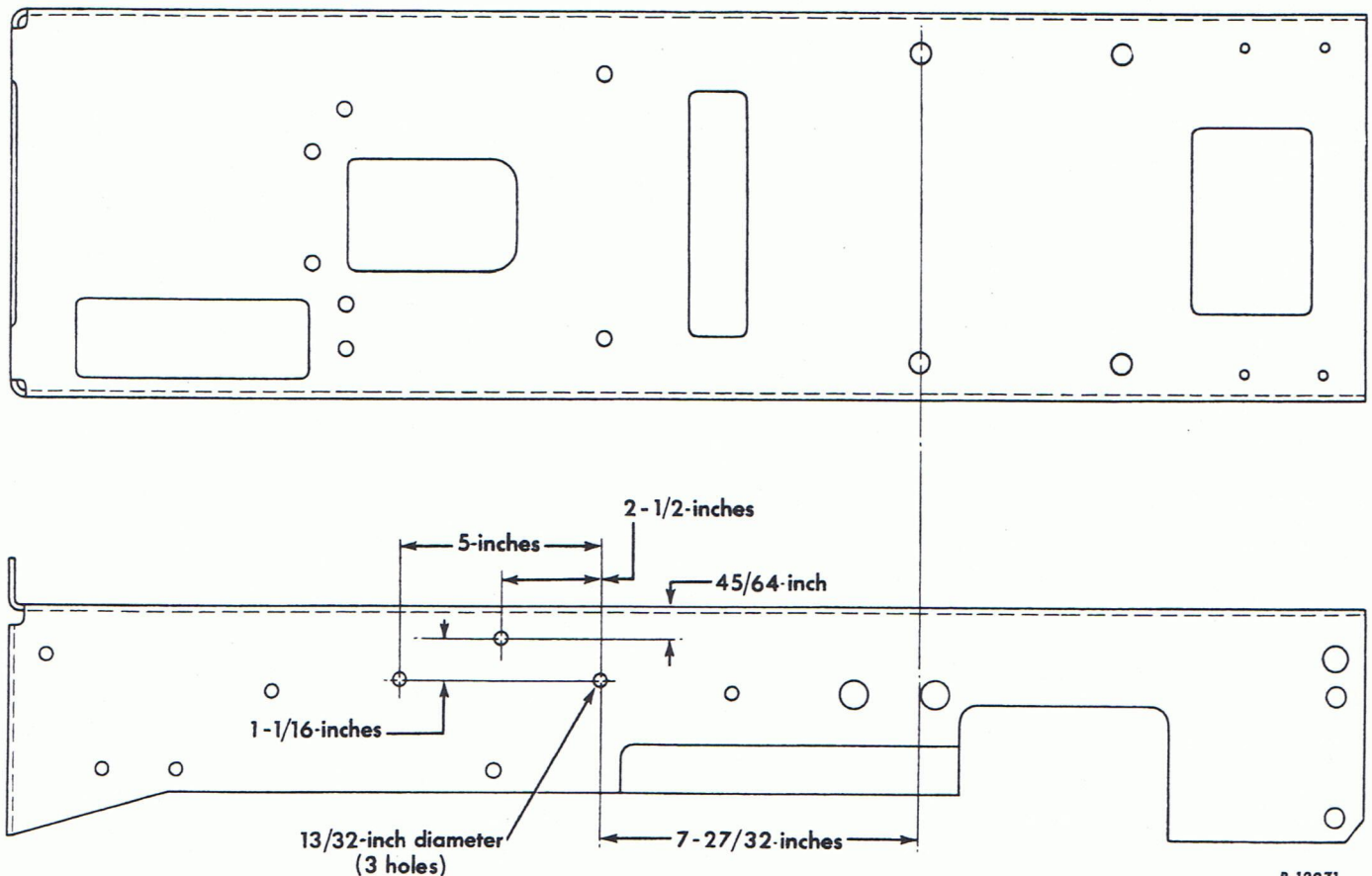
## PARTS TO BE REWORKED - Continued

On International Cub Cadet 70, 71, 72 and 100 Tractors, assemble the new lift arm (19) at the slotted portion of the reworked lift handle and shaft assembly, using two  $5/16 \times 7/8$ -inch cap screws, internal-tooth lock washers and plain washers. See Illust. 6.

On International Cub Cadet Tractors with serial numbers below 65 457, assemble the new lift arm (19) at the slotted portion of the reworked lift handle and shaft assembly, using the two  $5/16 \times 1-1/4$ -inch cap screws, internal-tooth lock washers, plain washers, and nuts.

Cut off a part of the clutch shield removed from the International Cub Cadet 70, 71, 72 and 100 Tractor and drill two  $9/32$ -inch holes as shown in reworking diagram. Illust. 5.

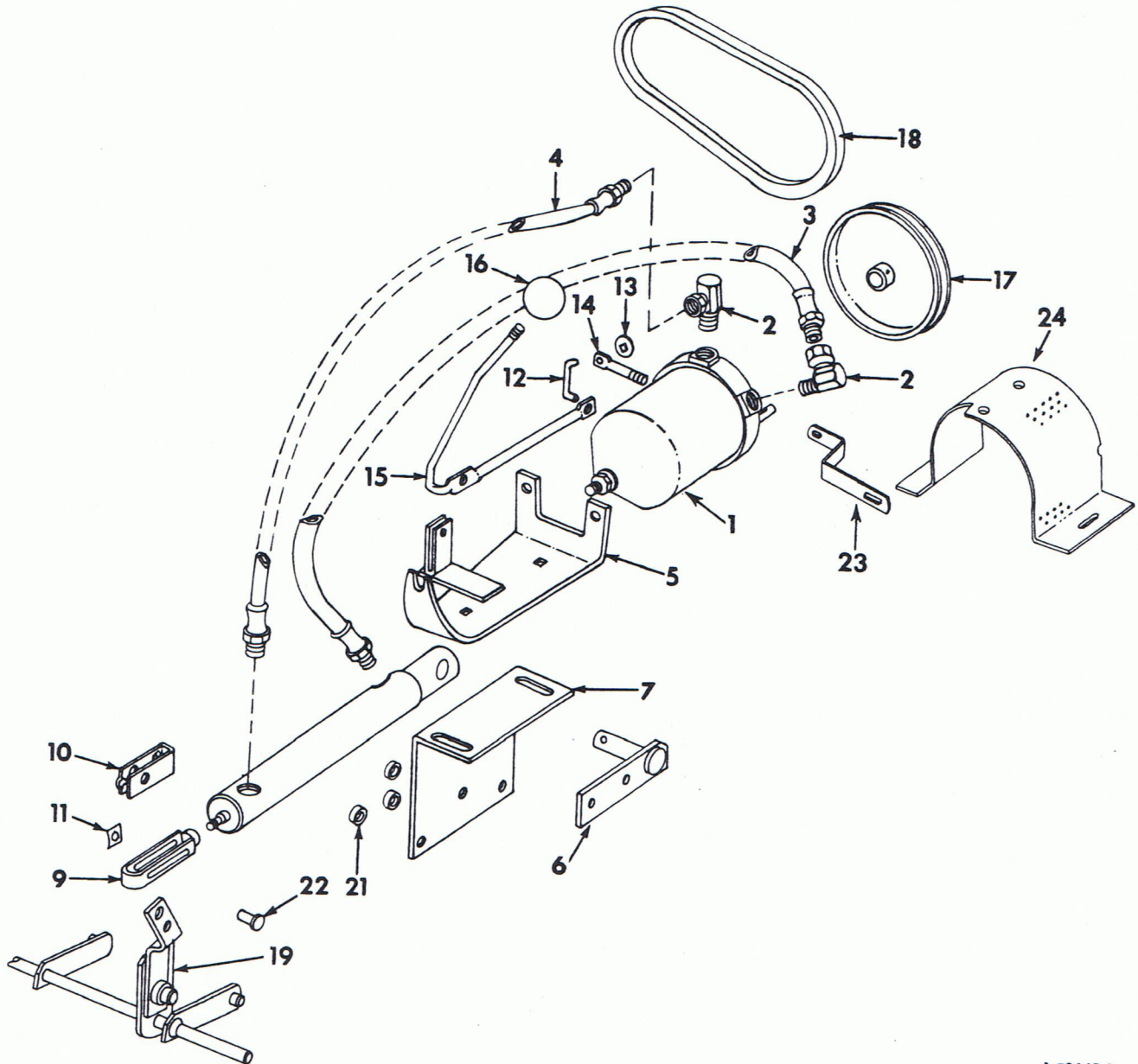
Drill three  $13/32$ -inch holes in the right side of the frame as shown in reworking diagram Illust. 7 or Illust. 8. Drill two additional  $9/32$ -inch holes at the top of the left side of the frame on International Cub Cadet 70, 71, and 100 Tractors as shown in Illust. 8. Note: The International Cub Cadet 72 Tractor does not require drilling of the frame.



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Illust. 7  
Frame reworking diagram.  
(International Cub Cadet Tractors with serial  
numbers below 65457).

# DESCRIPTION



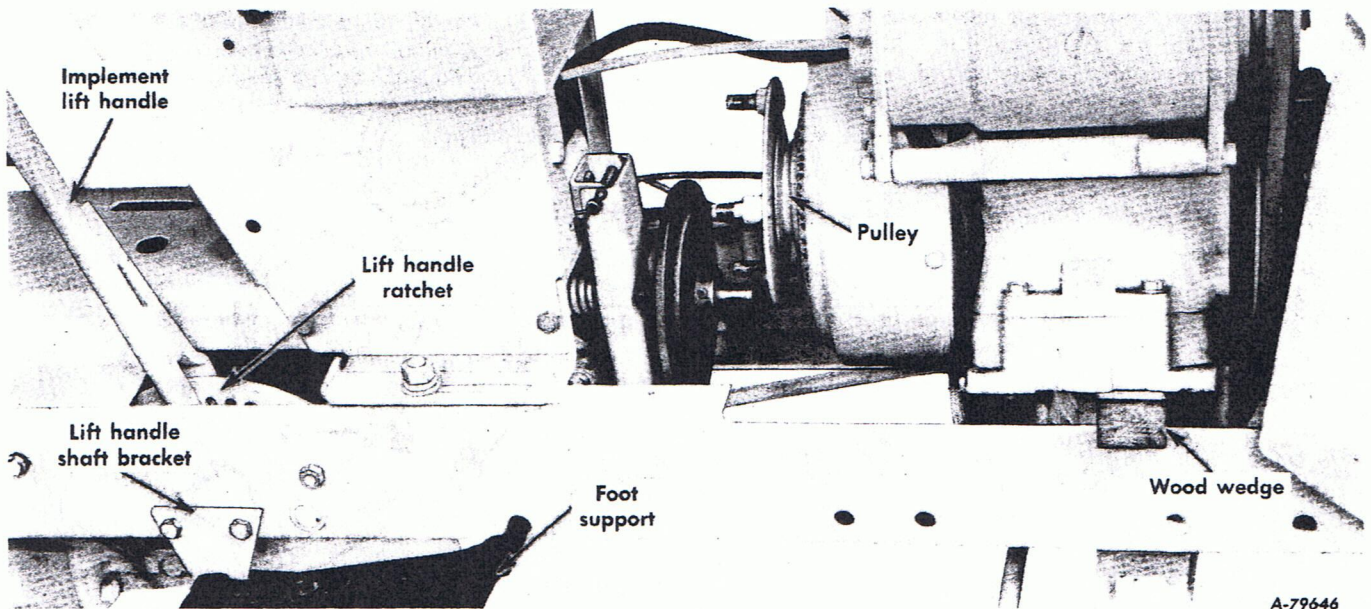
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Illust. 1  
Exploded view of Hydraulic Unit and  
Adapter Package parts.

Ref. No.	Description	Ref. No.	Description
1	Hydraulic pump.	15	Control lever rod.
2	90-degree union fitting (2).	16	Control lever rod knob.
3	Hydraulic hose - 9-inches long.	17	Driven pulley.
4	Hydraulic hose - 14-inches long.	18	Drive pulley belt.
5	Hydraulic pump mounting bracket.	19	Lift arm.
6	Hydraulic cylinder support bracket.	20	Dowel pin.
7	Frame mounting bracket.	21	Frame mounting bracket spacer (3).
8	Hydraulic cylinder.	22	Flat head rivet.
9	Hydraulic cylinder end clevis.	23	Support arm.
10	Cylinder end clevis rivet locking clip.	24	Clutch shield.
11	Locking clip push-on type nut.	25	Drive pulley (not illustrated) (for tractors with serial numbers below 65457).
12	Hydraulic pump actuator control rod.		
13	Actuator control rod push-on type nut (2).		
14	Pump spool extension.		



## DESCRIPTION



A-79646

Illust. 2

Showing parts to be removed and engine dislodged for installing drive belt. (International Cub Cadet 100 Tractor shown).

The hydraulic unit system is designed to give you hydraulic power with fingertip control for raising and lowering front or rear mounted equipment, eliminating the need for the manually operated implement lift handle.

This unit is a completely self-contained hydraulic gear pump with delivery of approximately 2-1/2-gallons per minute at pressures

up to 400 PSI, directional control valve, and oil reservoir; with a companion hydraulic cylinder and hoses connecting the power unit to the cylinder. The unit has a built in safety valve to eliminate overloading of the hydraulic system and tractor attachments.

**Note:** Reference numbers in parenthesis following installing instructions are for identification purposes. See Illust. 1.

## OPERATING INSTRUCTIONS

To familiarize yourself with the operation of the hydraulic unit, start the tractor engine and adjust the throttle to fast idle.

To raise the front or rear mounted equipment move the control lever rearward until the desired height is reached, then release the lever and it will return to the center or neutral position. The equipment will "hold" in whatever position you desire depending upon when you release the control lever. To lower the equipment move the control lever forward. The lever will again return to the neutral position when you release it.

**Note:** A slightly sluggish action of the control lever returning to neutral may exist during the break-in period. A few hours of running will eliminate this. No adjustments are necessary.

To raise or lower front or rear mounted equipment and to operate in "rigid" position, the end clevis locking clip must be in the locked position as shown in Illust. 12.

To operate equipment such as a mower in "float" position, lift the end clevis locking clip up, in the unlocked position.

## TROUBLE SHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
Slow action with tractor engine at operating speed.	Belt Slipping	Tighten belt to proper tension.
	Improper type of oil	Replace oil. *
	Low oil supply	Fill to proper oil level. *
Attachment not holding in raised position.	Oil leak in system	Check all hose connections.
	Improper oil	Fill system with correct oil viscosity. *
Excessive noise or chattering.	Insufficient oil	Fill with oil to its proper level. *
	Unit run at too high an r. p. m.	Reduce shaft speed to recommended speed as originally equipped.
	Improper oil	Drain and refill system with correct oil. *
Excessive Heating	Restrictions in the system, such as kinked or pinched lines	Replace defective hoses. Straighten kinked hoses and check fittings for obstructions.
	Insufficient oil	Fill to proper oil level. *

\*Refer to "FILLING THE HYDRAULIC SYSTEM" on page 11.

## INSTALLING INSTRUCTIONS

### PARTS TO BE REMOVED

Remove and discard the lift ratchet and spacer assembly. See Illust. 2.

If the tractor is equipped with a Three-Point Hitch, disconnect the lift link or lift bar from the lower end of the implement lift handle.

Remove the left and right foot support assemblies.

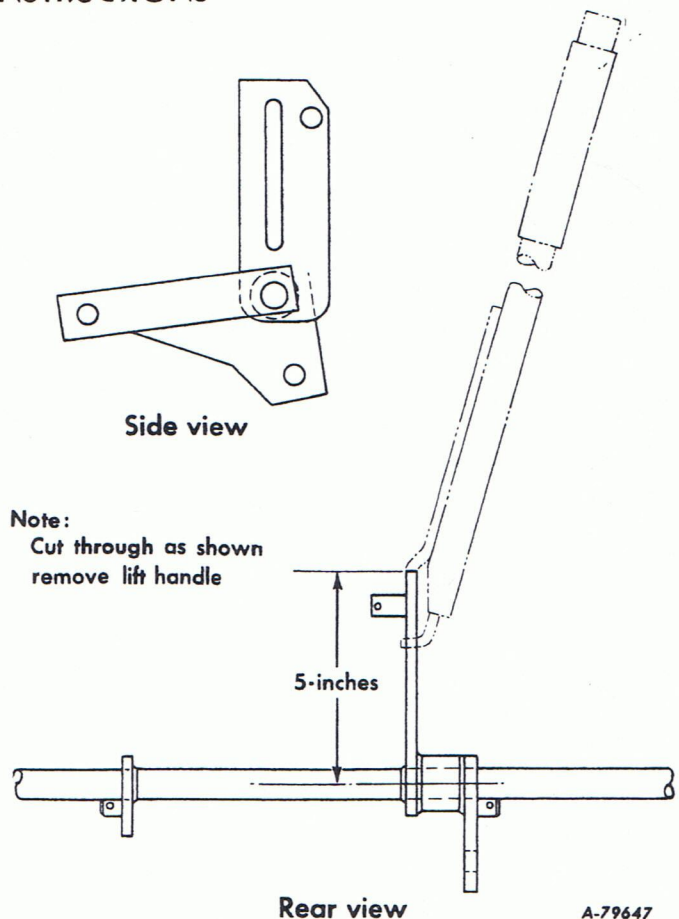
Remove the cap screws holding the lift handle shaft brackets on each side of the tractor frame (Illust. 2) and remove the lift handle and shaft assembly.

Remove the clutch shield on International Cub Cadet 70, 71, 72 and 100 Tractors.

### PARTS TO BE REWORKED

Cut off the upper part of the lift handle as shown in reworking diagram, Illust. 3 or Illust. 4.

On International Cub Cadet 70, 71, 72 and 100 Tractors, drill two 7/64-inch holes in the lift handle shaft as shown in Illust. 4.

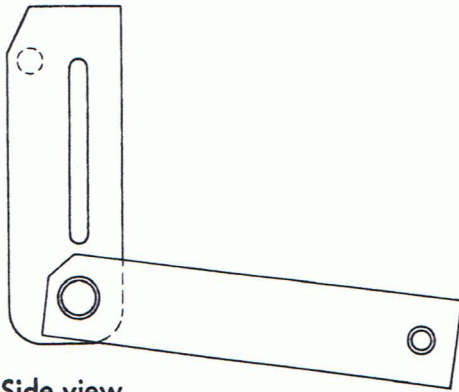


Illust. 3  
Reworking diagram for lift handle assembly.  
(International Cub Cadet Tractors with  
serial numbers below 65457).

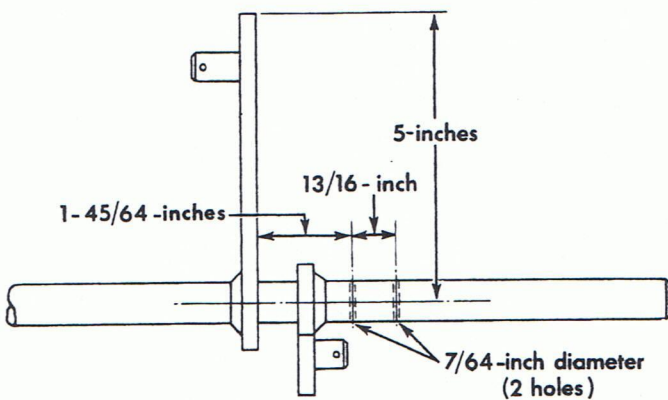


## INSTALLING INSTRUCTIONS

### PARTS TO BE REWORKED - Continued



Side view

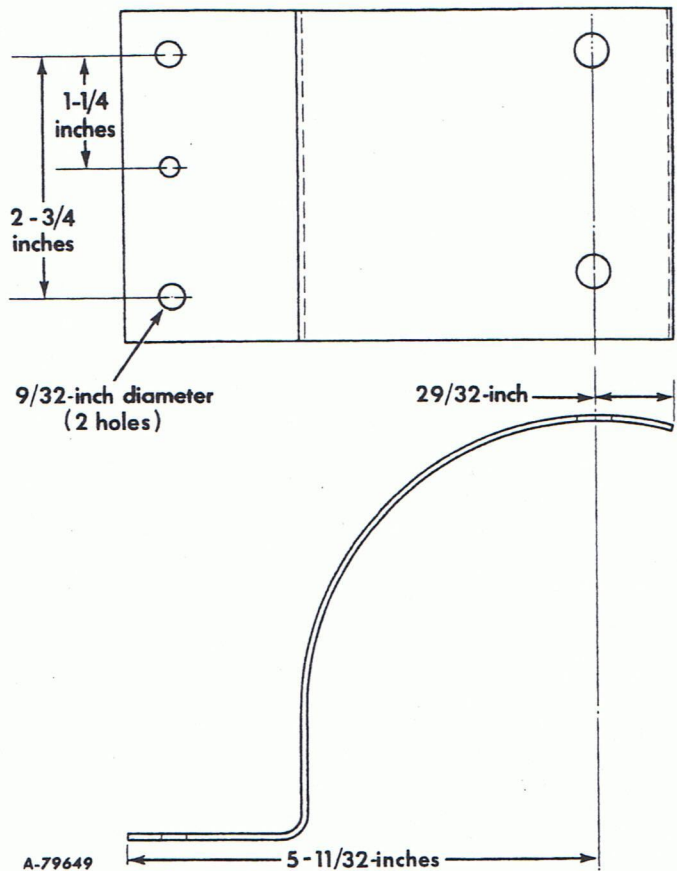


Rear view

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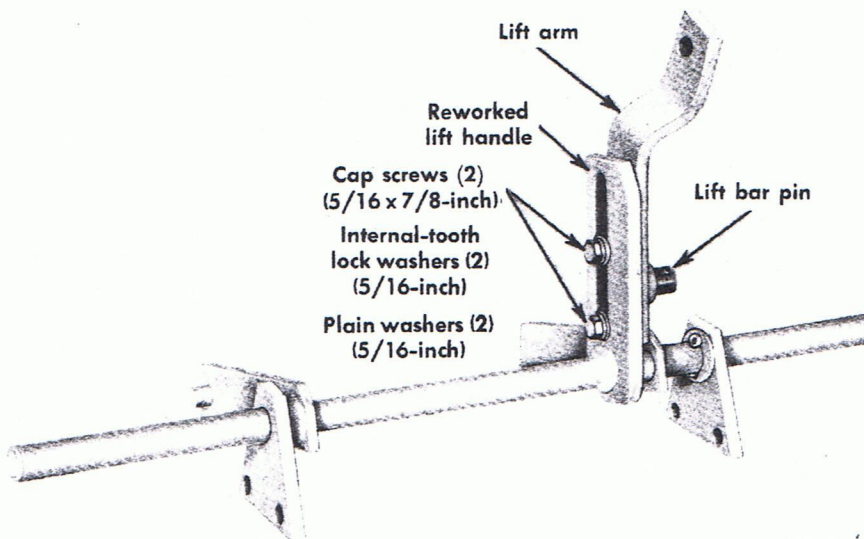
Illust. 4

Reworking diagram for lift handle assembly  
(International Cub Cadet 70, 71, 72 and 100 Tractors).



Illust. 5

Clutch shield reworking diagram  
(International Cub Cadet 70, 71, 72 and 100 Tractors).



A-79650 B

Illust. 6

Reworked lift handle and shaft assembly with  
new lift arm, (As assembled on International  
Cub Cadet 70, 71, 72 and 100 Tractors).

It is the policy of International Harvester Company to improve its products whenever it is possible and practical to do so. We reserve the right to make changes or add improvements at any time without incurring any obligation to make such changes on products sold previously.

All illustrations and descriptive matter in this publication apply to International Harvester products sold under the International, McCormick, or McCormick - International trade name.

When the Hydraulic Unit is applied on a tractor, one of the Hydraulic Unit Adapter Packages listed below must also be ordered and installed on the tractor.

### ORDERING NUMBERS

386 135 R91 - Hydraulic Unit for International Cub Cadet and International Cub Cadet 70, 71, 72 and 100 Tractors (Consists of reference numbers 1 through 16 and 22 on page 3).

386 154 R91 - Hydraulic Unit Adapter Package for International Cub Cadet Tractors with serial numbers below 65457 (Consists of reference numbers 17 through 21 and 23 on page 3).

386 155 R91 - Hydraulic Unit Adapter Package for International Cub Cadet 70, 71, 72 and 100 Tractors (Consists of reference numbers 17 through 21 on page 3).

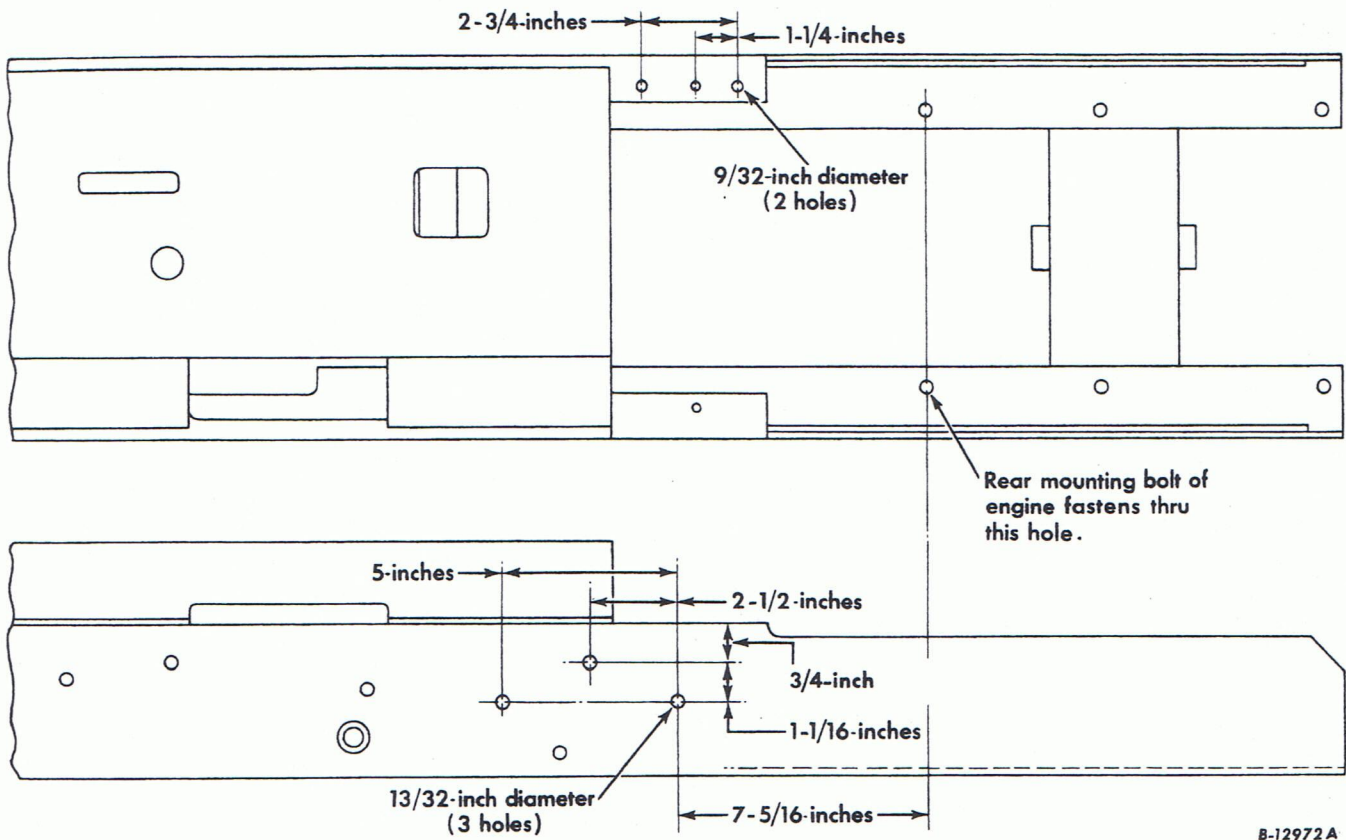
**Note:** When one of the above Hydraulic Unit Adapter packages is used in conjunction with the 42-inch Blade Attachment, the following parts must be ordered from parts stock.

For use with package 386 154 R91 order, one 10 735 F - spacer (3/4 x 1-11/16-inch pipe); one 179 893 - 1/2-13 x 3-inch hex. hd. cap screw; one 102 637 - 1/2-13 hex. nut; one 103 321 lock washer.

For use with package 386 155 R91 order, one 364 410 R1 - spacer (3/4 x 1-7/16-inch pipe); one 179 890 - 1/2-13 x 2-3/4-inch hex. hd. cap screw.

# INSTALLING INSTRUCTIONS

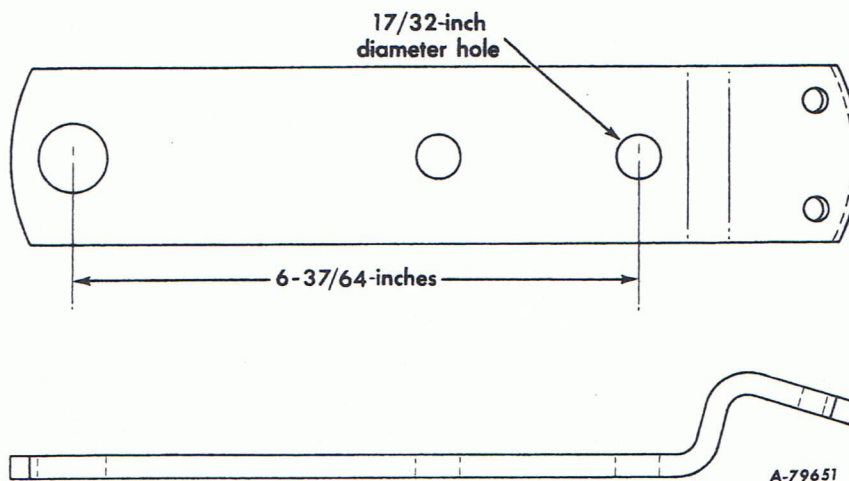
## PARTS TO BE REWORKED - Continued



Illustr. 8  
Frame reworking diagram.  
(International Cub Cadet 70, 71, and 100 Tractors).

**Note:** When the 42-inch blade with spring trip is used, it may be necessary to drill an additional 17/32-inch hole in the blade lift arm as shown in reworking diagram, Illustr. 9.

The blade lift arm can then be fastened to the hydraulic lift arm (19) with a pipe spacer between the two arms.



Illustr. 9  
Reworking diagram for blade lift arm.



# INSTALLING INSTRUCTIONS

## INSTALLATION

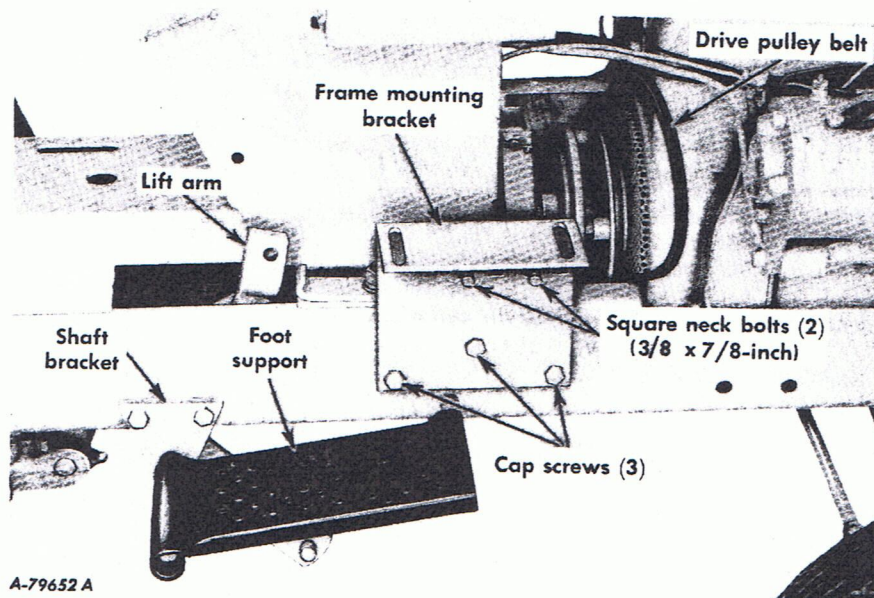
Install the reworked implement shaft and new lift arm assembly, the shaft brackets and the left and right foot support assemblies.

**Note:** When installing the implement shaft bracket on the right side of the tractor (Illust. 10), assemble a  $13/16 \times 1-1/2$ -inch flat washer and a  $3/32 \times 1-1/4$ -inch cotter pin on each side of the bracket at the newly drilled holes in the lift handle shaft. See Illusts. 4 and 6.

If the tractor is equipped with a Three-Point Hitch, reinstall the lift link in the reverse order of removal on International Cub Cadet Tractors with serial numbers below 65457. On International Cub Cadet 70, 71, and 100 Tractors, reinstall the lift bar on the lift bar pin on the new lift arm (19). See Illust. 6.

On International Cub Cadet 70, 71, and 100 Tractors, insert the two  $3/8 \times 7/8$ -inch square neck bolts through the second and fourth square holes at the rear of the hydraulic unit frame mounting bracket. See Illust. 10. Then fasten the bracket to the tractor frame at the three newly drilled holes, using the three  $3/8 \times 1-1/4$ -inch cap screws, lock washers, and nuts. Use the three spacers (21) between the frame and the bracket and tighten the cap screws securely.

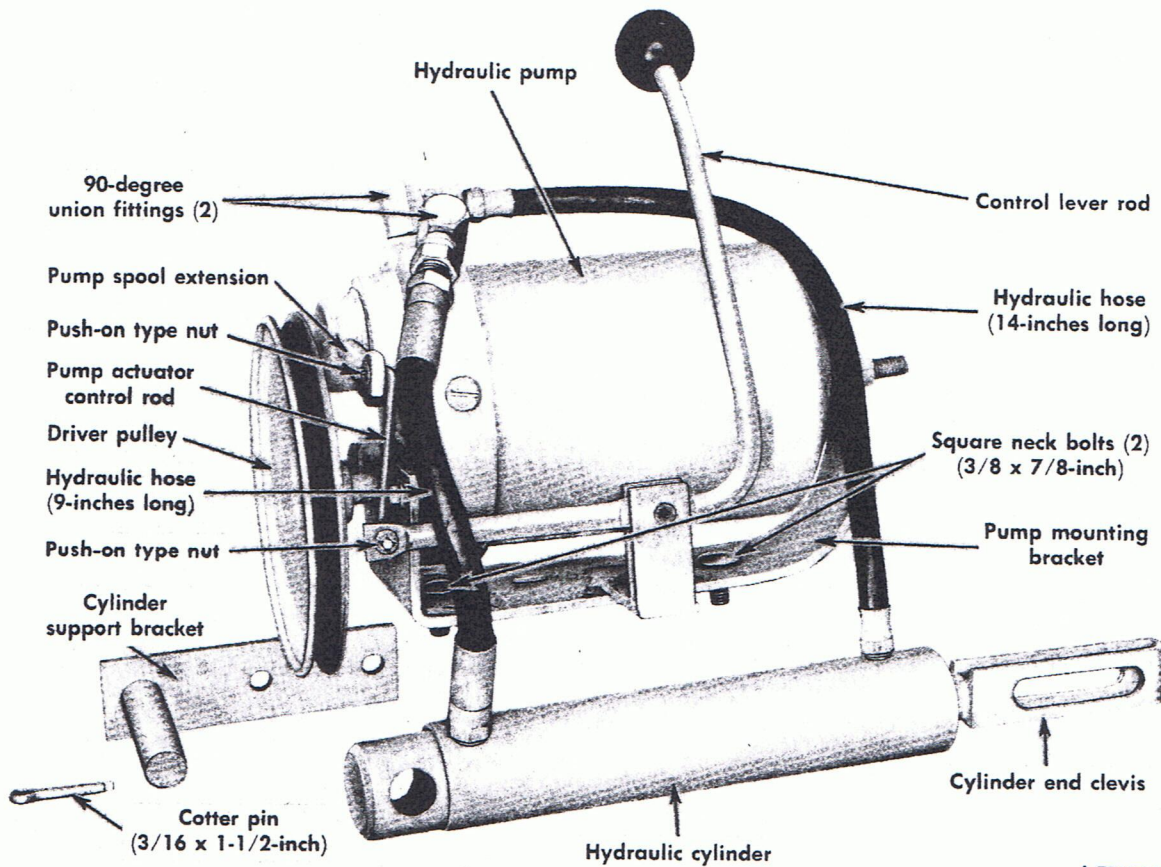
On International Cub Cadet Tractors with serial numbers below 65 457, insert the two  $3/8 \times 7/8$ -inch square neck bolts through the first and third square holes at the rear of the hydraulic unit frame mounting bracket. Then fasten the bracket to the tractor frame at the three newly drilled holes, using the three  $3/8 \times 3/4$ -inch cap screws, lock washers, and nuts. Tighten the cap screws securely.



Illust. 10  
New lift arm frame mounting bracket and drive pulley belt installed on the tractor.  
(International Cub Cadet 100 Tractor shown).

## INSTALLING INSTRUCTIONS

### INSTALLATION - Continued



Illustr. 11  
Hydraulic unit assembly.

Insert the two  $3/8 \times 7/8$ -inch square neck bolts (Illustr. 11) through the two square holes in the bottom of the hydraulic pump mounting bracket (5). Then assemble the hydraulic pump (1), driven pulley (17), control lever rod (15), pump spool extension (14), actuator control rod (12), 90-degree unions (2), hydraulic hoses (3 and 4), hydraulic cylinder (8), and cylinder end clevis assembly (9). See Illustr. 11.

Install the complete assembly on the frame mounting bracket (on tractor) by using the two square neck bolts through the two slotted holes and fasten loosely with two  $3/8$ -inch hex. nuts and flat washers.

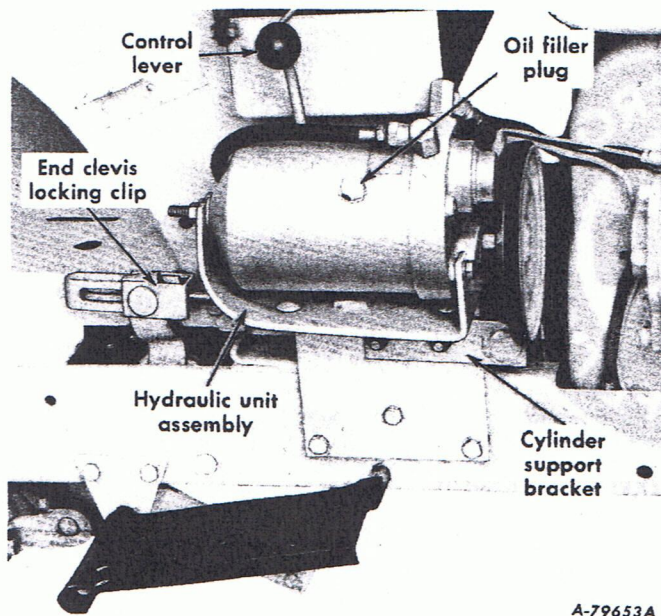
Simultaneously assemble the hydraulic cylinder support bracket (6) on the two square neck bolts on the hydraulic unit frame mounting bracket (7) and assemble the hydraulic cylinder (8) on the pin on the bracket. See Illustrs. 11 and 12. Secure the bracket on the two square neck bolts with two  $3/8$ -inch hex. nuts and lock washers and secure the hydraulic cylinder on the pin on the bracket with the  $3/16 \times 1-1/2$ -inch cotter pin.

Assemble the cylinder end clevis rivet locking clip (10) to the cylinder end clevis (9) and the lift arm assembly (19), using the rivet (22) and the push-on type locking nut (11). See Illustr. 12.



## INSTALLING INSTRUCTIONS

### INSTALLATION - Continued



Illust. 12  
Hydraulic Unit assembled on the Tractor.  
(International Cub Cadet 100 Tractor shown).

International Cub Cadet Tractors with serial numbers below 65457.

Remove the tractor drive belt as instructed in the tractor Operator's Manual. Then remove the drive pulley and replace it with the new double-grooved pulley. Replace the 7/16-inch internal-external lock washer with a new one and tighten the nut securely. Install the tractor drive belt on the inner groove of the pulley and adjust the belt as instructed in the tractor Operator's Manual. Install the hydraulic unit drive belt on the outer groove of the pulley and on the hydraulic pump driven pulley. Pull the hydraulic pump (1) and mounting bracket (5) away from the tractor until the belt is tight enough to drive the pump driven pulley without slipping. Then secure the pump bracket at this position by tightening the two 3/8-inch hex. nuts on the square neck bolts securely.

#### International Cub Cadet 70, 71, 72 and 100 Tractors

Remove the four engine mounting cap screws. Then lift the engine forward being careful not to damage any of the wiring harness or kink the choke and throttle cables.

**Note:** On International Cub Cadet 100 Tractors equipped with a front power take-off clutch, the grille must be removed to provide clearance. Install the hydraulic unit pump drive pulley belt on the pulley at the rear of the engine. Then reposition the engine and fasten in place with the previously removed engine mounting cap screws.

**Note:** To provide clearance between the drive belt and the cable harness on the International Cub Cadet 100 Tractor, assemble the new cable clip provided, under the head of the 1/4-inch bolt on the right side of the engine. Then route the cable harness over the drive belt and through the new clip.

Assemble the support arm (Illust. 1) to the hydraulic pump and secure with a 3/8 x 1-inch capscrew, 13/32 x 3/4" x 16 ga. plain washer, 3/8-inch lockwasher and nut.

Now install the belt on the hydraulic pump driven pulley and pull the hydraulic pump (1) and mounting bracket (5) away from the tractor until the belt is tight enough to drive the pump driven pulley without slipping. Then secure the pump bracket at this position by tightening the two 3/8-inch hex. nuts on the square neck bolts securely.

Install the reworked clutch shield on the left side of the tractor using two 1/4 x 1/2-inch capscrews, lockwashers and nuts for the International Cub Cadet 70, 71, and 100 Tractors, and for the International Cub Cadet 72 Tractors using two 12-24 x 1/2-inch hex. hd. tapping capscrews and two external tooth lockwashers.

### FILLING THE HYDRAULIC SYSTEM

Use IH Hy-Tran® Fluid or a good quality SAE-10W engine oil.

Remove the oil filler plug from the hydraulic pump and fill to the level of the filler plug opening then replace the plug. Capacity - approximately 3 pints.

Start the engine, adjust the throttle to fast idle and test the hydraulic system. Check for oil leaks at hose connections.

After the unit has been checked for operation, stop the engine, remove the oil filler plug and add more fluid if necessary to bring it up to the filler plug opening. Then replace the plug.

**Note:** Never run the hydraulic unit without hydraulic fluid. WARRANTY WILL BE VOID IF RUN WITHOUT FLUID.