



International
Harvester
Operator's Manual
686 &
Hydro 86

Operator's Manual

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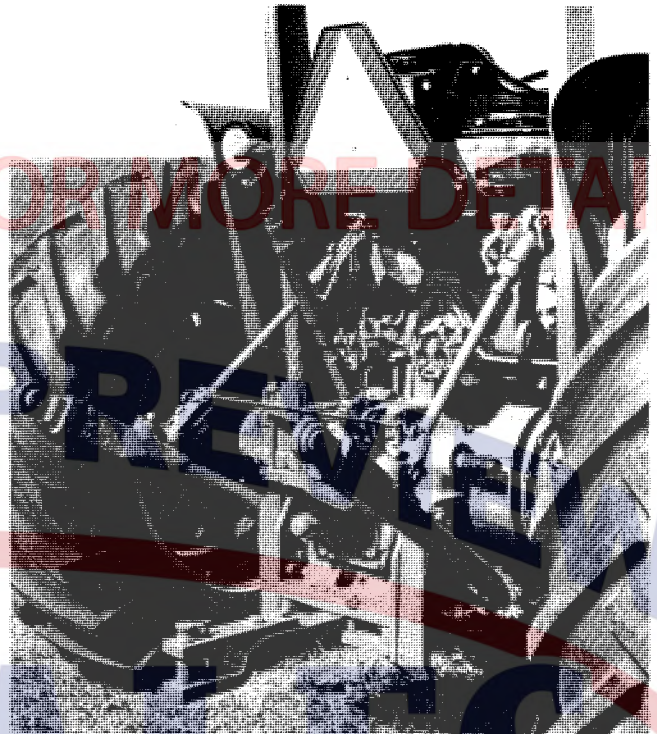
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IH-O-686 & H86



Be sure the PTO shield is free-turning before starting work and stay clear when the PTO is operating. Turn off the engine before unclogging, adjusting, or servicing PTO-driven machines. This PTO is fully enclosed for greater safety.



This modern tractor has a three-point hitch, SMV emblem, and PTO master and stub shields.

proverbial dime. When the tractor tows a heavy unbraked wagon(s), the added load might increase the stopping distance to an unsafe degree, especially on downgrades. Slow down early. Equip large wagons with brakes. Keep tractor brakes properly adjusted and equalized.

- Steer articulated four-wheel drive tractors with care at transport

speeds to assure straight-line tracking. Slow down if the tractor's rear section begins to "fish tail." Avoid steep sideslopes. Do not pull so far right on roads that right-side wheels are in the ditch. The rear section of the tractor could then slide into a jack-knife position resulting in loss of control or an overturn.

- Be sure that small bridges, floors, and flatbeds, will safely support a big tractor's weight.

arms of the raised loader onto the driver. Loader buckets of heavy manure, dirt, or rocks also cause tipping accidents if the tractor is driven too fast while the bucket is elevated. Safety precautions include rear ballasting, driving slowly—especially on slopes and while turning—and keeping the load low during transport. Equip front-end loaders with grapple forks for big bales. However, the bales are carried more safely by rear-mounted transport devices.



A rear-view mirror makes trips on public roads safer.

Mounted Equipment

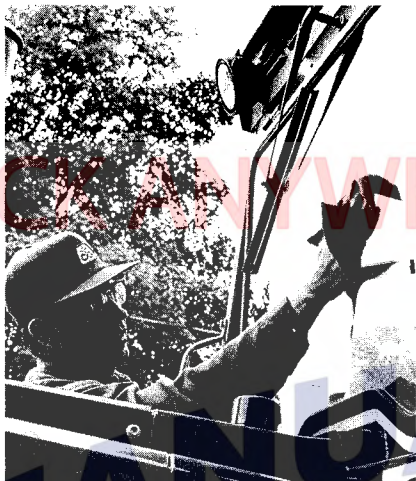
Properly adjusted, mounted or semi-mounted implements attached to the three-point hitch are made to work safely with the tractor. However, operators should check that all hydraulic lines are in good condition and connections secure and leak free. Never allow riders on implements. If needed, add weight to the tractor's front-end to maintain good steering control. Operating rear-mounted post-hole diggers are hazardous to anyone standing too near.

Front-end loaders are often involved in tractor accidents. Recently, serious accidents have occurred while handling large round hay bales. Usually bale accidents involve a tip-over or the bale rolling down the

Hitching Cautions

Tractors are designed to tow loads only from the rear hitch. Use three-point hitches for pulling heavy loads only when they are level with the regular stationary drawbar. Raising the hitch point or attaching a tow line to any tractor part above the drawbar may cause the tractor to rotate around the rear axle, ending in a backwards overturn.

Tow ropes or cables that store energy by stretching under load can generate special hazards. Making a running start to move a heavy stationary load can stress a nylon tow rope or steel cable to the breaking point. Connectors have failed and have been slung toward the towing tractor with fatal consequences.



Clean windows help drivers see the hazards and avoid trouble.



Before moving out, buckle your safety (seat) belt.

meet or exceed the performance requirements set by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA).

Shielding

New farm tractors come with power-take-off (PTO) master shields and stub shaft caps. Most PTO-driven equipment has free-turning integral shields, and the latest versions may even have fully enclosed universal joints. Always leave the master shield in place when the implement is unhitched.

Unfortunately, on older equipment the PTO shielding often has been damaged or completely removed. Uncovered PTO shafts and knuckles can quickly wrap clothing—even when turning slowly. Without proper shielding PTO operation is dangerous. Replace missing or damaged shields.

Manufacturers also may shield protruding exhaust-system components (usually on V-type engines) to reduce the risk of user burns and field fires. The sheet metal at the radiator's side and a fan shroud offer some protection from the cooling fan.

Operator Station and Controls[®]

Control location and motion standardization is important so any tractor can be operated safely with

Freeing a Mired Tractor

One invites a rear overturn when an object such as a block, chain, or post is attached to the wheels of a mired tractor to boost traction. If a tractor cannot be driven or backed out of the mud, tow it out with another properly hitched tractor. To make the job easier, detach any towed implements and pull them out separately.

Tractor Safety Equipment

Many features on today's tractors enhance operator safety and comfort. Many are standard equipment—others optional. Much of this equipment can be added onto tractors now in use.

Roll-Over Protective System (ROPS)

Each year tractor overturns result in many deaths and injuries. Most involve tractors without roll protection. This major farm accident fatality problem could be reduced to relative insignificance through the universal use of protective equipment. The majority of new tractors have ROPS cabs or frames. They also can be mounted on many tractor models now in use. However, do not add ROPS if the manufacturer does not approve its use. Because a tractor overturn involves tremendous force, a home-made ROPS is not recommended.

The ROPS frame is a steel structure that protects the operator in case of overturn. A sun and rain canopy can be added. The ROPS cab resists crushing in an overturn. Both come with safety (seat) belts, that when used, will hold the operator

within the zone of protection provided by the strong structure.

The ROPS cab is a very popular option due to its comfort, health, and safety benefits. The cab provides weather protection and can be heated and air-conditioned. Filters remove dust and insects. The latest cabs are relatively quiet when the windows are closed. The operator is protected from low branches, and flying parts, and from being sprayed by chemicals or hydraulic fluid if lines rupture.

ROPS cabs and frames should



Mount or carry a fire extinguisher on your tractor. A tri-class unit with at least a 2-A, 10-B:C rating is a good choice.

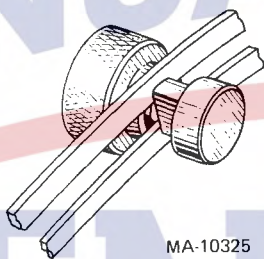


Be sure all hydraulic lines are in good condition and fit snugly. Sudden failure could cause loss of control of an implement or attachment or someone could be sprayed with hot fluid.

HYDRAULIC CONTROLS FOR THREE-POINT HITCH

An adjustable stop is provided for use whenever it is desirable to return the inside control lever to the same operating position.

If the operator wishes to go deeper temporarily, the lever can be deflected past the stop or the stop can be moved all the way forward, beyond the operating range.



Adjustable stop in position to prevent lever from passing set position.

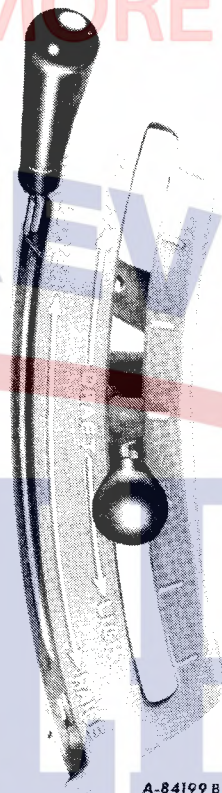
The adjustable stop may also be used as a means of locking the raised equipment in the raised position.

DRAFT CONTROL (Outside Lever)

CAUTION! Never park the equipment in the raised position. Moving the control lever will lower the equipment even though the engine is not running. If it is necessary to service the equipment in the raised position, use jacks-stands to safely block the equipment in place.

Draft control is the ability of the hitch to quickly respond to variations in load (or draft) so as to maintain a virtually constant load on the tractor. As the load on the hitch increases, due to pulling equipment such as a plow, the hitch responds to shallow the equipment. During the shallowing process, weight is transferred to the rear wheels of the tractor, thus increasing traction.

The outside control lever established the operating depth of below-ground-working tools.

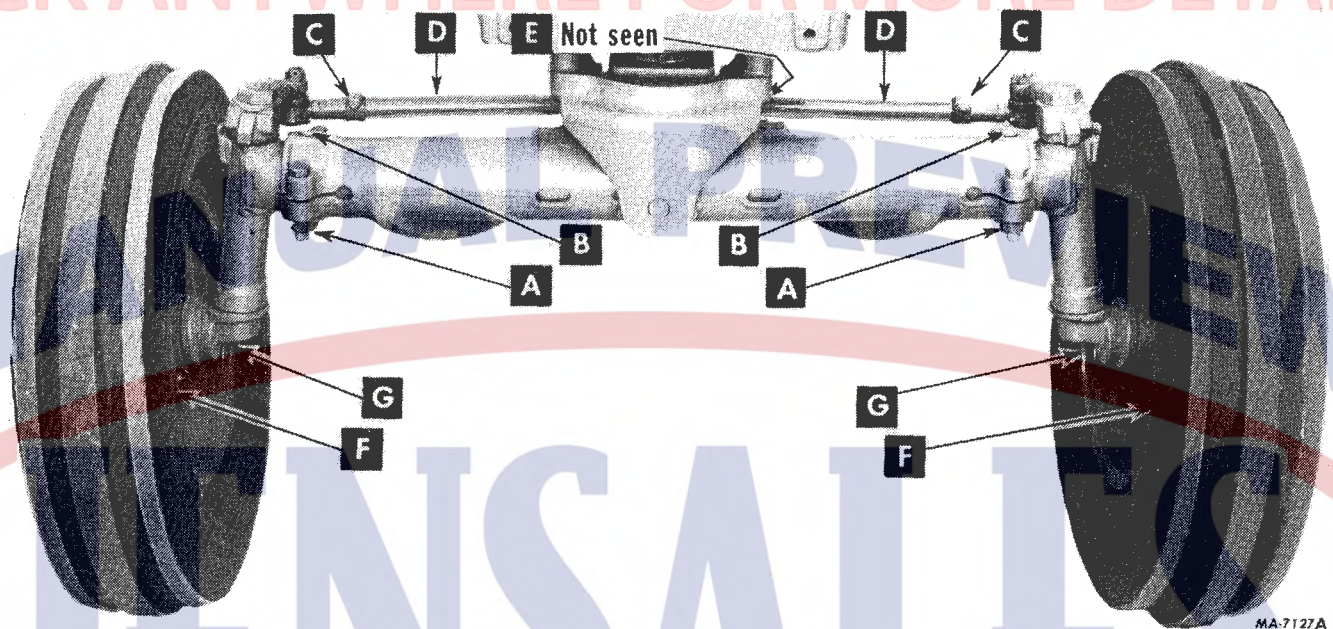


Starting below-ground-working equipment in the ground. Draft control lever position governs depth of operation.

For example, when starting a plow or other below-ground-working equipment, the inside control lever is placed at the offset near the forward end of the quadrant. This results in fast response draft sensing. The draft control lever is then placed near the center of the quadrant and the plow enters the ground. If the plow goes too deep, move the load control lever rearward. If it is too shallow, move the lever forward. After the desired depth has been established, it will not be necessary to change this setting, except when encountering extreme soil or terrain conditions. Then it may be necessary momentarily to move the draft control lever a slight amount, either forward or rearward, for maintaining even furrow depth.

FRONT WHEELS

ADJUSTING WIDE-TREAD FRONT AXLE FOR TREAD WIDTHS



Front view showing points of adjustment.

Raise the front end of the tractor.

Loosen the bolts holding axle extension clamps "A" and remove pin "B" on each side.

Remove the bolts from the rod clamps "C".

Farmall Hi-Clear Tractors

Remove the bolts from the auxiliary stay rod clamps "H" which hold the slotted rod ends.

Move the axle extensions an equal distance on both sides to the desired tread position and move the tie rods to correspond.

Farmall Hi-Clear Tractors

Also move the auxiliary stay rods to correspond.

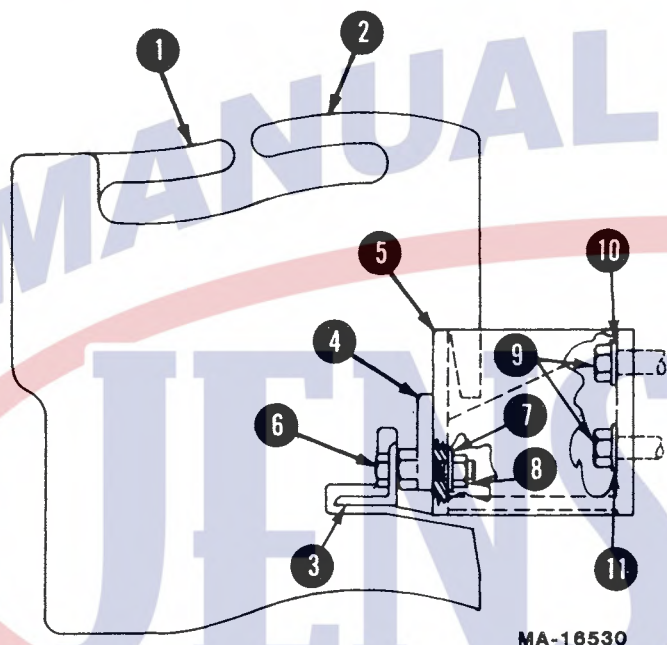
Reinstall pin "B" on each side in the holes selected and tighten the clamping bolts to 400 foot-pounds (542 N-m) torque. Reinstall and tighten the bolts in the tie rod clamps "C".

Farmall Hi-Clear Tractors

Reinstall and tighten the bolts in the auxiliary stay rod clamps "H".

WEIGHTS

Secure one end of the angle iron bar, using a wrench on the hex. portion of the locking cam. Turn so the cam presses firmly against the side of the weight, then tighten the end bolt nut to hold the cam in place.



- 1 - Front grip weight
- 2 - Rear grip weight
- 3 - Weight retaining bar
- 4 - Locking cam -2-
- 5 - Weight bracket
- 6 - Type 5 bolt, 5/8 x 2-3/4 -2-
- 7 - Flat washer -2-
- 8 - Hex. nut -2-
- 9 - Type 4 bolt, 3/4 x 2 -4-
- 10 - Lock washer -2-
- 11 - Flat washer -2-

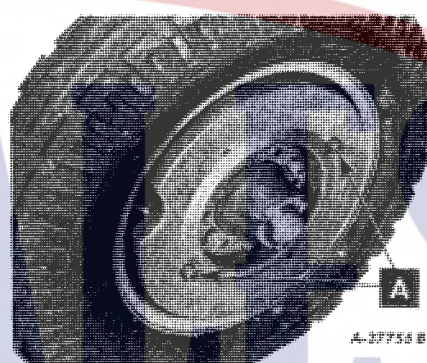
Front end weights.

To secure the other end of the bar, tighten the end bolt nut to remove all slack between the weight bracket, locking cam, and angle iron bar. Using another wrench on the hex. portion of the locking cam, turn the cam 100 foot-pounds (136 N·m) maximum torque so pressure is applied to the side of the weight, exerting enough force so all the weights are pressed together very firmly. Tighten the end bolt nut sufficiently to secure the weights against weight bracket.

The angle iron bar has a series of 6 holes (3 holes on each side). These holes are provided for the two end bolts in attaching bar to the weight bracket. When ten weights are used, the end bolts are assembled in the outer holes; for eight weights, use the center two holes; and for four weights use the inner two holes.

NOTE: Periodically check the torque on the end bolt nuts and locking cam to make sure the weights are secure.

FRONT WHEEL WEIGHTS



First front wheel weight assembled on the tractor.

The front wheel weights weigh approximately 50 pounds (22.7 Kg) each, and either one or two can be attached to each front wheel. To increase steerability, front wheel weights may be used as a front end counterbalance.

The first set of front wheel weights includes a set of two weights and four type 5 bolts 1/2 x 2-inch, flatwashers, lock washers, and nuts for attaching the weights to the front wheels at "A".



First and second front wheel weights assembled on the tractor.

SPECIFICATIONS

	TRACTOR MODEL	
	686	Hydro 86
CLUTCH Single-Plate dry-disc Spring loaded (Maintain 1-3/4-inch (44 mm) free pedal movement)	11 in. (279.4 mm)	
FOOT BRAKES Mechanical disc-type, operated either indi- vidually or interlocked (diameter)	6.0 in. (152.4 mm)	
TIRE SIZES, STANDARD (Other sizes available)		
Front	7.50-16 F2	
Rear	15.5-38 R1	
Rear, Hi-Clear	15.5-38 R2	
GENERAL DIMENSIONS (With three-points hitch, swinging drawbar, fenders, wide front axle and stan- dard tires)	FARMALL TRACTORS	FARMALL HI-CLEAR TRACTORS
Wheelbase	103 in. (2.62 m)	104 in. (2.64 m)
Length over-all	161 in. (4.09 m)	162 in. (4.11 m)
Width over-all minimum (to outside edge of rear axle)	87 in. (2.21 m)	89 in. (2.26 m)
Height over-all to top of ROPS	104 in. (2.64 m)	116 in. (2.95 m)
Tread, front	52 to 76 in. or 58 to 82 in. (1.32 to 1.93 m or 1.47 to 2.08 m)	64 to 84 in. (1.63 to 2.13 m)
Tread, rear Regular axle	56 to 76 in. (1.42 to 1.93 m)	66 to 74 in. (1.68 to 1.88 m)
Concave turned in		
Concave turned out	66 to 96 in. (1.68 to 2.44 m)	

SPECIFICATIONS

	FARMALL TRACTORS		FARMALL HI-CLEAR TRACTORS	
	686	Hydro 86	686	Hydro 86
Ground clearance under Front Axle	21 in. (533 mm)		34 in. (864 mm)	
Rear frame (drawbar removed)	14 in. (356 mm)		24 in. (610 mm)	
Drawbar height above ground	16 in. (406 mm)		27 in. (686 mm)	
Power take-off shaft above ground	19 in. (483 mm)		26 in. (660 mm)	
Minimum turning radius (Wheels in minimum tread w/brake applied) Wide axle	11.5 ft. (3.51 m)			
Shipping weights (approx.) *With diesel engine	7570 lbs. (3434 kg)	8130 lbs. (3688 kg)	8370 lbs. (3797 kg)	8570 lbs. (3887 kg)
ELECTRICAL SYSTEM				
System voltage	12 Volt Negative Ground			
Battery Size	Two 12-Volt, 430-Amp. ea., Maintenance Free (Wired in Parallel)			
Diesel engine				
Alternator-Generator Delco-Remy	37 Amperes			
Cranking Motor Delco-Remy	Positive Engagement, Push-Button Control			
Light switch	4 Position			
Fuse, Cartridge Type Starting system	SFE-30			
Fuel gauge	AGC-1			
Turn signals	AGC-10			
Sealed beam (all 12-Volt)	Bulb No.	IH Part No. for Bulb		Assembly No.
Headlights	4411	373 662 R91		
Floodlights	4406	390 756 R91		388 946 R91
Rear light (combination rear & taillight) Bulbs	4603-X	371 461 R92		387 729 R92
Taillight (Combination rear and taillight)	1003	455 490		387 729 R92
Flashing warning light	1156	9 417 866		67 538 C92
Hydrostatic transmission control light	1155	9 417 865		399 232 R91
Tellites	257	9 412 348		
Oil	257	9 412 348		
Amp	1416	27 269 R1		
Tachometer and gauge cluster	1895	9 417 863		
Hydrostatic trans. temp. warning.	1815	200 257 H1		109 369 C91

*With standard tires as indicated above, adjustable wide front axle, three-point hitch, swinging drawbar, power take-off, torque amplifier (Gear Drive), two auxiliary valves, liquid in cooling system, but without fuel, front or rear weights, or ballast in tires.

Specifications are subject to change without notice.