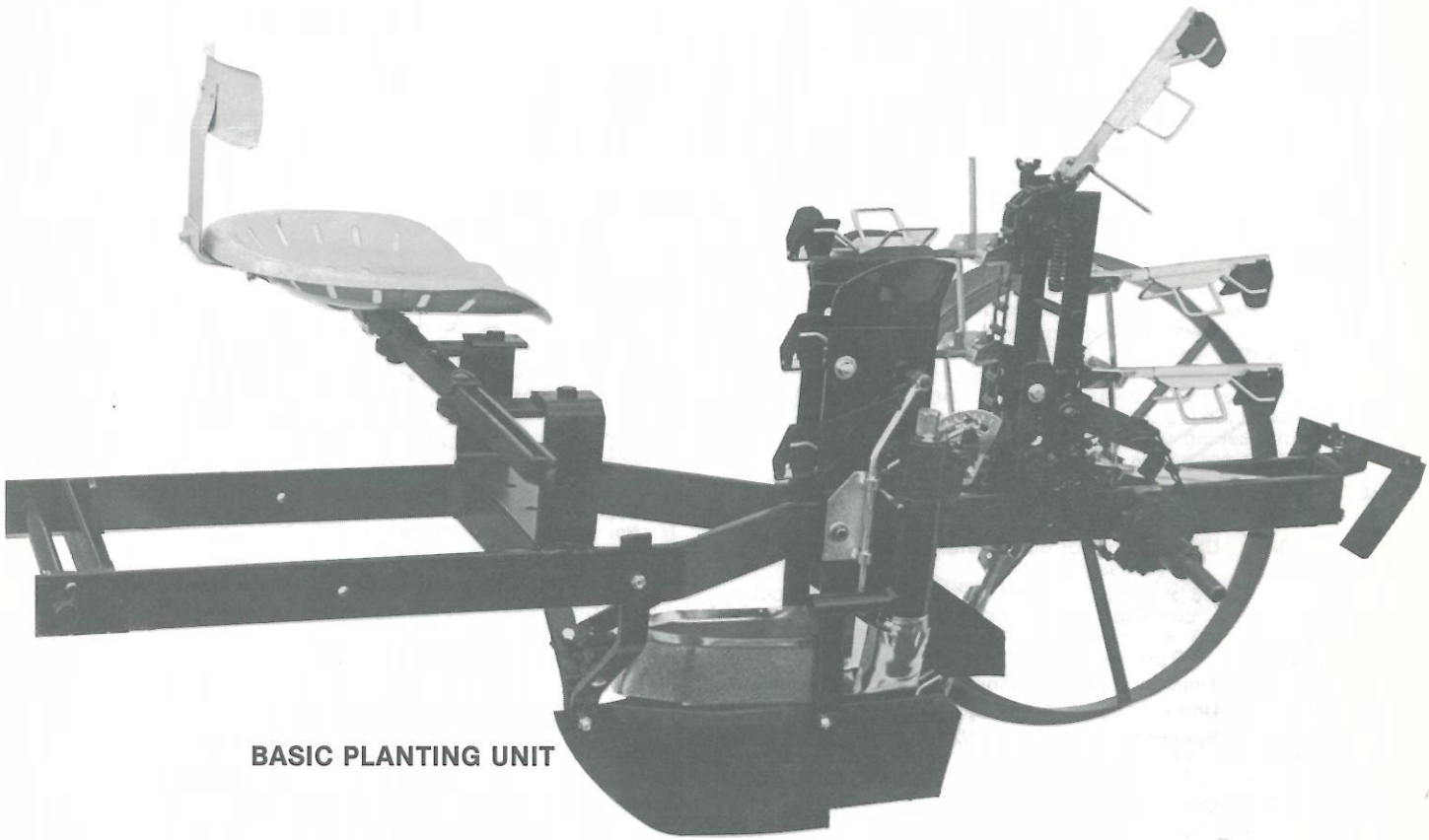
The Holland Transplanter
INSTRUCTION AND PARTS MANUAL

MODEL NO'S 900/1100/1301/1302/1303/1304/1400/1500/1600/1700/1800/1900



BASIC PLANTING UNIT

General operating instructions

The Holland Transplanter is designed to give years of trouble-free planting with very low maintenance cost. To keep the planter running smoothly we suggest you follow this program.

1. Grease daily to flush out foreign materials that cause abnormal wear.

Grease fittings are found at the following locations:

1 — Each packing wheel
1 — Each unit upright bearing for drive shaft
1 — Upper conveyor pulley
1 — Rocker arm assembly of water valve
1 — Each wheel hub of drawn transplanter with roller bearing wheel hubs
1 — Each wheel hub of transplanters with depth control gauge wheels
1 — Each hub of coulter blade IF so equipped
7 — On fertilizer attachment IF so equipped

2. Trip water valve by hand to determine if it is working properly.

3. REGULATING PLANT SETTING DEPTH:
Care should be taken that plants are properly placed in the pockets, so the plant is held firmly and does not fall out when traveling between the pocket guides. The depth for setting plants can be regulated by the distance the root extends out of the pocket. However, for plants with extremely long roots, the furrow opening shoe should be lowered to assure adequate depth; as explained in the following paragraph.

4. Shoe can be adjusted up or down, as well as forward and backward. When small plants are being planted, it is recommended that the shoe be raised. With large plants the shoe should be lowered. In dry, loose soil, position the shoe back toward the packing wheels. In heavy, wet soil the shoe should be moved ahead, away from the packing wheels. After adjusting shoe, be sure it is in the center of the opening between packing wheels so the pocket will travel through middle of shoe.

Be sure the furrow opening shoe is clean. If soil "builds-up" on outside of shoe, scrape off with putty knife at end of planting row. Also, remove any trash that may have accumulated on front of shoe. If either of these conditions exists, the shoe will make a wider furrow than needed and the packing wheels can not bring all the soil back around the plants to be properly packed.

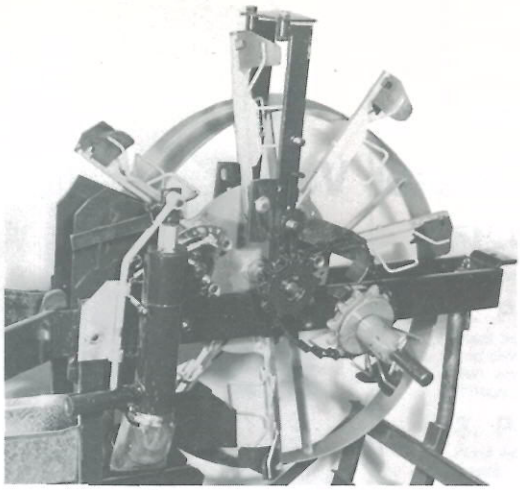
5. With the planting unit in the raised position, turn the packing wheels by hand. Turn both wheels together; they should turn easily. If any sticking or binding occurs, check unit over.

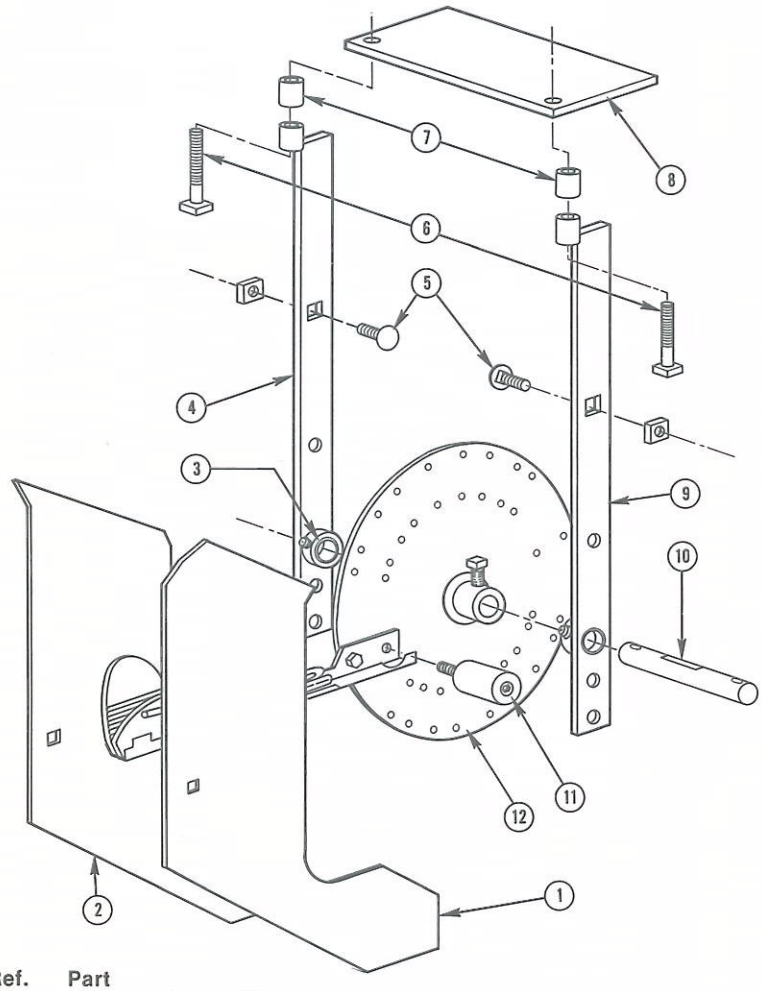
6. DO NOT RUN TRANSPLANTER BACKWARDS. This can CAUSE DAMAGE to pockets and plug up heel of shoe with soil.

7. STORING TRANSPLANTER: (a) Be sure the water valve is cleaned thoroughly, especially if starter solution has been used in planting. (b) Remove the rubber grippers from the plant holders and store indoors in an open position for longer life. (c) When done planting for season, hose off machine; scrape soil off shoe; grease outside of shoe and spray unit with light oil to prevent rust from starting.

Disc pocket arrangement

For plant spacing
3" or more





Ref. No.	Part No.	Description
1	P-76LD	Pocket closing guide—left—for disc pocket arrangement
2	P-76RD	Pocket closing guide—right—for disc pocket arrangement
3	363A	Upright bearing
4	363	Right side upright brace for disc arrangement
5		7/16 x 1-1/4 carriage bolt for plant stands For all models except 1700, 1900 and 1100
6		3/8 x 1-1/4 Machine bolts for top plate
7	396-S	Spacer tubes—needed with P-54S-2, P-54S and P-54P pockets
8	396-P	Top plate for uprights
9	364	Left side upright brace for disc
10	347	3/4" shaft for pocket disc
11	407	Metal roller water valve trip
12		Steel disc for pockets—less pockets
	396	For 4, 5, 6, 8, 10 pockets
	396-16	For 12—16 pockets
	396-20	For 20 pockets

Instructions for changing from Chain to Disc.

Necessary parts per unit:

One Disc
Two Guides, P-76LD and P-76RD
One top plate
Two 3/8 × 1-1/4" machine bolts
Two 7/16 × 1-1/4" carriage bolts
One water valve roller trip (#407)
and one 1/4 × 5/8" bolt per plant holder
(Two 1/4 × 5/8 bolts per plant holder if water attachment is NOT used)

Instructions for assembling:

Remove plant holder pockets from conveyor chain. Next remove the upper conveyor pulley assembly. Also remove the spacing sprockets located at the bottom of the uprights 363 and 364. In order to do this it will be necessary to loosen the drive chains. Take out the lower shaft, conveyor sprocket, conveyor chain, spacer between the uprights, and finally the closing guides.

Bolt the pockets and water roller trips on the disc with 1/4 × 5/8" bolts. Place the disc between the uprights and insert the same lower drive shaft that was used with the conveyor chain sprocket. Place spacer washer between disc and uprights so pockets will be centered in frame. Bolt the disc guides in same hole as used by chain conveyor guides. The top plate can now be bolted at the top of the uprights. Replace spacing sprockets and drive chain. Put the 7/16 × 1-1/4" machining bolts half-way up the uprights and bolt the plant stands to the upright.

Check all bolts for tightness and turn the machine slowly by hand checking for clearance.

SPACING for Disc arrangement

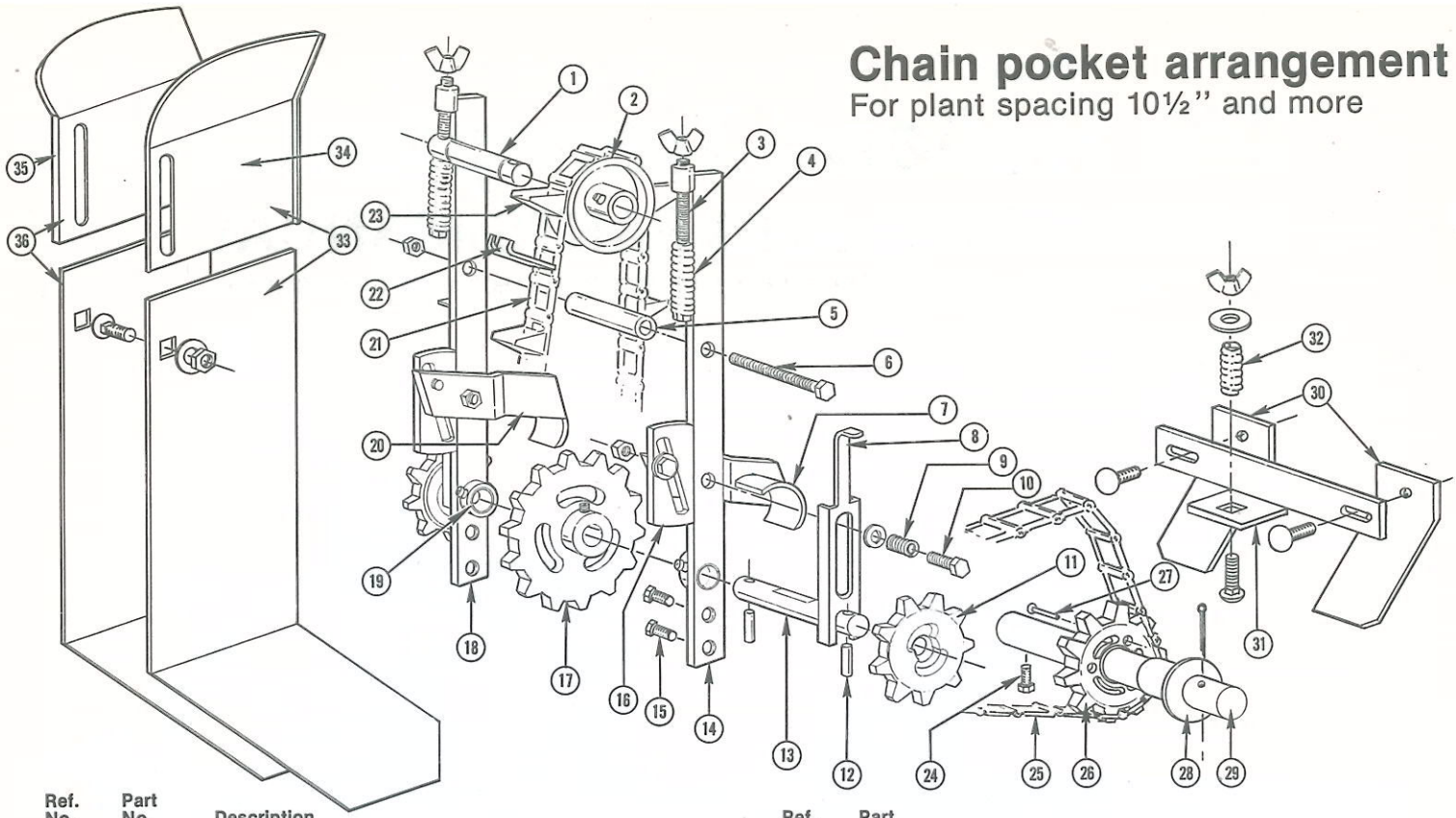
Disc Pocket Chart

No. of Pockets on Disc	Number of teeth on spacing spocket on drive shaft					
	**6	7	8	9	10	11
4	12" 31cm	14" 36cm	16" 41cm	18" 46cm	20" 56cm	22" 56cm
5	11 28cm	12 31cm	13 33cm	14 36cm	16 41cm	18 46cm
6	10 25cm	11 28cm	12 31cm	13½ 34cm	15 38cm	16½ 42cm
8	6 15cm	7 18cm	8 20cm	9 23cm	10 25cm	11 28cm
10	5½ 14cm	6 15cm	6½ 17cm	7 18cm	8 20cm	9 23cm
*12		5½ 14cm	6 15cm	6¾ 18cm	7½ 19cm	8¼ 21cm
*16		3½ 9cm	4 10cm	4½ 11cm	5 13cm	5½ 14cm
*20		3 8cm	3¼ 8cm	3½ 9cm	4 10cm	4½ 11cm

* Special order for Discs to accommodate 12, 16 and 20 pockets. ** 6 tooth sprocket available

Chain pocket arrangement

For plant spacing 10½" and more



Ref. No.	Part No.	Description
1 & 2	379A	Upper conveyor pulley shaft and pulley (cpte. ass'y.)
3	376A	3/8 × 5 machine bolt and wing nut for 8 pocket conveyor chain (2 needed)
	376B	3/8 × 6 machine bolt and wing nut for 5, 6, and 10 pocket chain (2 needed)
4	376	Tension spring for conveyor chain (2 needed)
5	P-134	Unit—uprights—tube spacer
6	P-134A	Spacer bolt—7/16 × 5-1/2 for all models except 1700, 1900 and 1100
	P-134B	7/16 × 4 for models 1700, 1900 and 1100
7	P-176	Chain tightener—left side
8	P-176B	Channel spacer for spacing sprocket
9	P-81	Pressure spring for spacer
10	P-176C	Pressure spring bolt
11	381A	Spacing sprocket — 6 tooth (2 needed)
	381	— 7 tooth (2 needed)
	382	— 8 tooth (2 needed)
	383	— 9 tooth (2 needed)
	384	— 10 tooth (2 needed)
	385	— 11 tooth (2 needed)
12	385A	Drive pin for spacing sprockets (2 needed)
13	347	3/4" shaft for drive sprocket
14	364	Left side upright brace for unit
15	364A	Cap screws for upright (2 needed/upright)
16	P-176A	Chain tightener slide adjustment bar
17	355	Conveyor chain drive sprocket

Ref. No.	Part No.	Description
18	363	Right side upright brace for unit
19	363A	Upright bearing (1 needed/upright)
20	P-175	Chain tightener — right side
21	377-8	Steel conveyor chain for 8 pockets
	377-10	—10 pockets
	377-5	— 5 pockets
	377-6	— 6 pockets
22	P-75	Metal water valve trip
23	374S	Steel conveyor chain pocket attachment link
24	356A	Locking set screw for packing wheel axle
25	365S	#32 drive chain (2' coil)
26	344S	Packing wheel drive sprocket
27	344SR	Rivets for drive sprocket (3 needed/sprocket)
28	P-138	Bearing for packing wheel (2 needed/wheel)
29	356	Packing wheel axle
	P82	Complete packing wheel scraper assembly (30, 31 & 32)
30	P-82B	Packing wheel scraper blades (pair)
31	P-82C	Packing wheel scraper cross bar
32	P-82A	Packing wheel scraper adjustment bolt and spring
33	P-76L	Pocket closing guide cpte. with extension (left)
34	P-76LX	Guide extension only—left
35	P-76RX	Guide extension only —right
36	P-76R	Pocket closing guide cpte. with extension (right)
	P-127	Steel packing wheel with sprocket (not shown)
	P-127G	4:00 × 15 rubber tire packing wheel with hub and sprocket (not shown)

Plant Spacing

Chain Pocket Chart

No. of Pockets on Chain	Number of teeth on spacing spocket on drive shaft					
	**6	7	8	9	10	11
2	56" 142cm	64" 163cm	72" 183cm	80" 203cm	88" 224cm	96" 244cm
3	36 91cm	40 102cm	44 112cm	48 122cm	52 132cm	56 142cm
4	28 71cm	32 81cm	36 91cm	40 102cm	44 112cm	48 122cm
5	20 51cm	24 61cm	28 71cm	32 81cm	36 91cm	40 102cm
6	18 46cm	20 51cm	22 56cm	24 61cm	26 66cm	28 71cm
8	14 36cm	16 41cm	18 46cm	20 51cm	22 56cm	24 61cm
10	10½ 27cm	12 31cm	14 36cm	16 41cm	18 46cm	20 51cm

** 6 tooth sprocket available

Instruction for correct chain
Spacing of 4, 5, 6, 8 and 10 pockets.

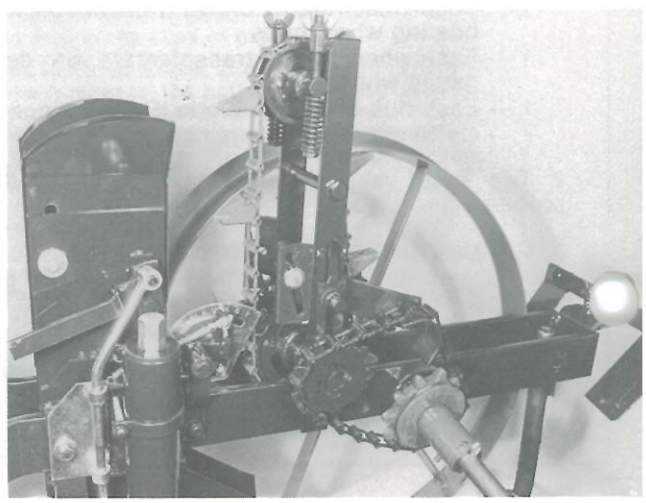
10 Pocket conveyor chain: 10 pockets bolted to attachment links spaced every third link—chain length 30 links. Upper conveyor pulley using 3/8 × 6 bolts. Pocket spacers P-60S-3½" long—bolted in top of pocket.

8 Pocket conveyor chain: 8 pockets bolted to attachment links spaced every fourth link—chain length 32 links. Upper conveyor pulley using 3/8 × 5 bolts. Pocket spacers P-60L-4½" long—bolted in top of pocket.

6 Pocket conveyor chain: 6 pockets bolted to attachment links spaced every fifth link —chain length 30 links. Upper conveyor pulley using 3/8 × 6 bolts. Pocket spacers P-60-6—bolted to bottom pocket against conveyor chain.

5 Pocket conveyor chain: 5 pockets bolted to attachment links spaced every sixth link—chain length 30 links. Upper conveyor pulley using 3/8 × 6 bolts. Pocket spacers P-60-6—bolted to bottom of pocket against conveyor chain.

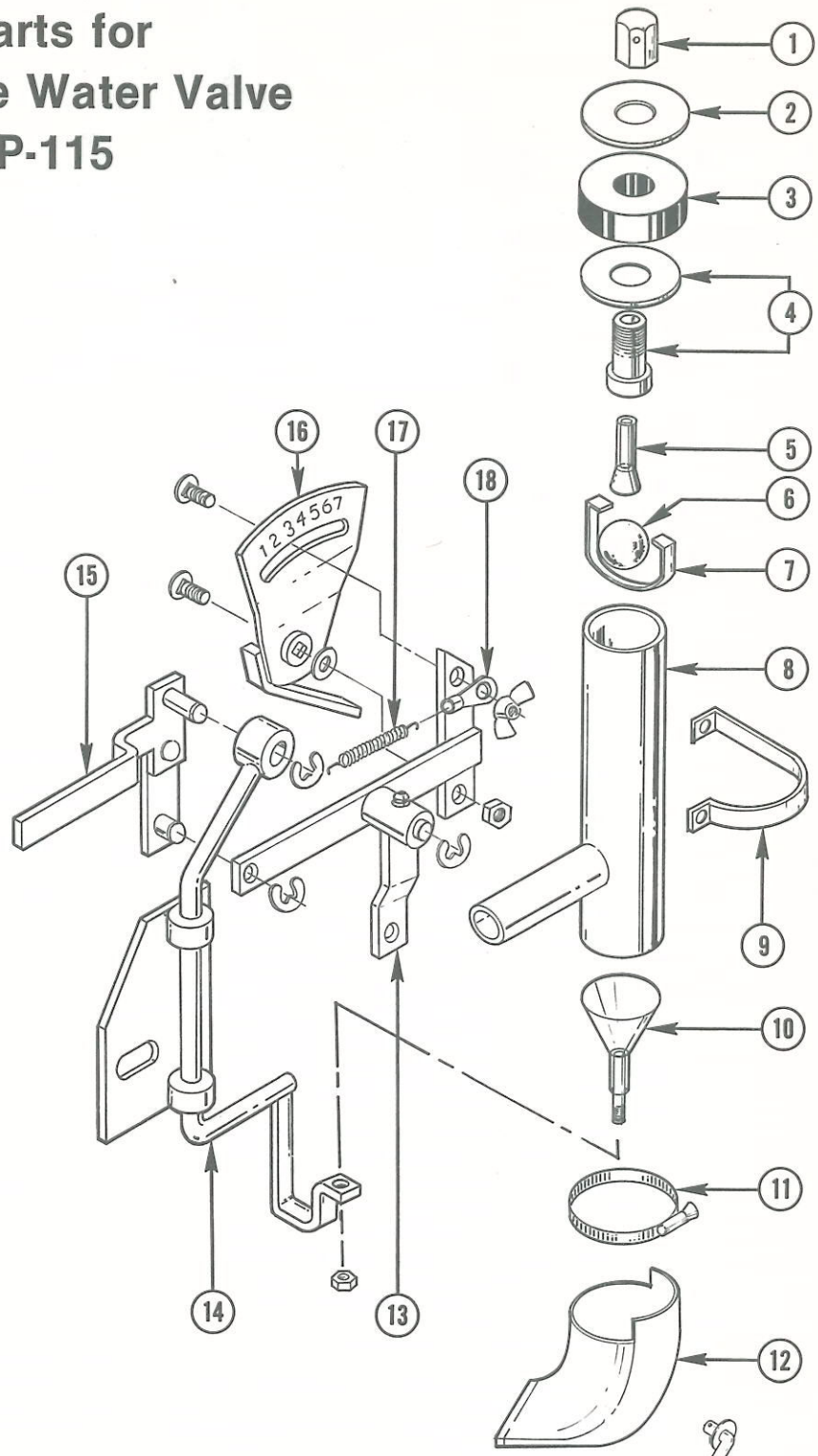
4 Pocket conveyor chain: Same as 8 pocket—remove every other pocket.



Parts for Start-rite Water Valve P-115

Ref. No.	Part No.	Description
1	P-151	Hex air vent cap
2	P-151W	Special cap washer
3	P-93A	Air valve rubber washer only
4	P-93	Air valve seat with both metal and rubber washer (P-93A)
5	P-92	Male brass air valve
6	P-96	Ball float
7	P-95	Brass ball support
8	P-84	Water valve reservoir for all models except 1700, 1900, 1100 & 900
	P-84D	Water valve reservoir Model Nos. 900, 1100, 1700, 1900
9	P-63	Valve reservoir clamp
10	P-94	Lower rubber valve
11	P-87	Clamp for spout
12	P-86	Water valve outlet spout
15	P-155-3	Manual shutoff control
16	P-147-3	Dial indicator panel
17	P-152-3	Valve spring
18	P-152A	Spring anchor

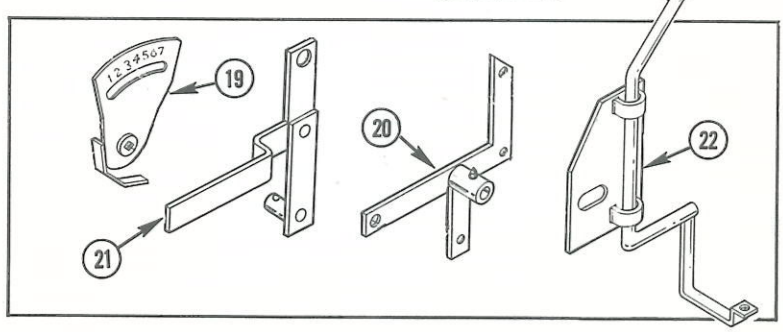
P-150 Dial kit—includes
P-147-3, P-148-3, P-152-3, P-153-3, P-155-3

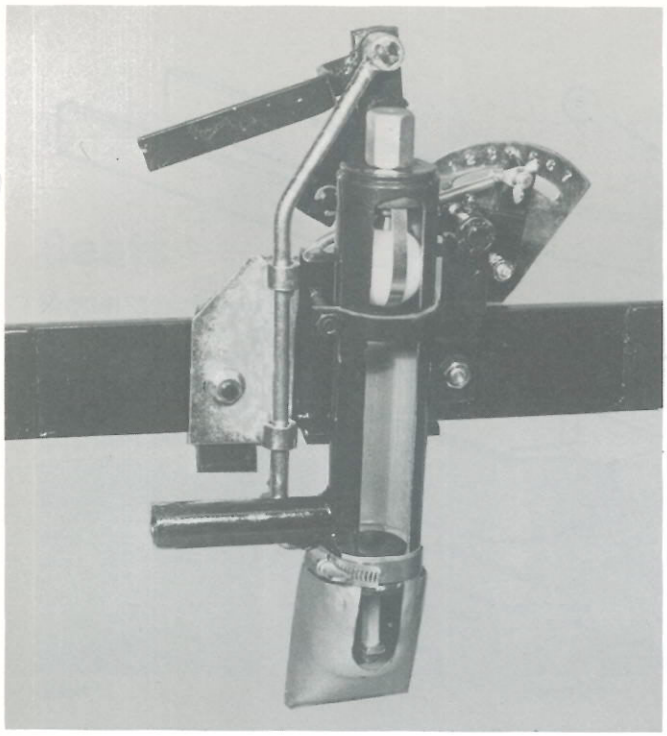


P-150
Dial kit—includes
P-147-3, P-148-3, P-152-3,
P-153-3, P-155-3

1982 or Serial No. 267601 or lower

Ref. No.	Part No.	Description
19	P-147	Dial indicator panel
20	P-148	Rocker arm assembly
21	P-155	Manual shutoff control
22	P-153	Control rod—guide assembly





Construction

The valve is so designed as to give an ample supply of water for any plant spacing. The inside, or working part of the valve, is simply constructed with only one stationary and three movable parts. The brass upper air valve (5), ball float (6) and ball retainer (7), provide automatic air venting. The lower water valve (10) is made of tapered rubber to insure proper sealing.

Removal of parts

The valve is designed so all parts can be removed without taking it off the unit frame. The upper air valve (P-92) and ball float (P-96) can be removed by turning the hex head air vent (P-151) counterclockwise three turns, then lift upward. The lower rubber valve (P-94) can be taken out by removing the spout and pushing valve up through the top of valve reservoir. To remove rubber valve it is necessary to push the valve down from the top and loosen the lock nut from the control rod-guide assembly (P-153-3). This can be done by holding a hammer by the head, insert hammer "handle" inside valve and push down, applying pressure on rubber valve. Maintain pressure and loosen bottom lock nut.

Operation

The upper air valve (P-92) seats into the valve seat (P-93). The valve reservoir fills with water, the ball float below the air valve forces the air valve up into the valve seat. When the lower valve (P-94) opens and lets water out around the plant roots, the water level drops in the reservoir and the ball float immediately drops down to its brass retainer. This allows the brass air valve to drop from the valve seat and let free air into the top of the reservoir. This simple positive operation gives the plants a large volume of water in a very short period of time. This amount is a "free fall" of water, as the air valve does not let a vacuum build up in the top of the reservoir.

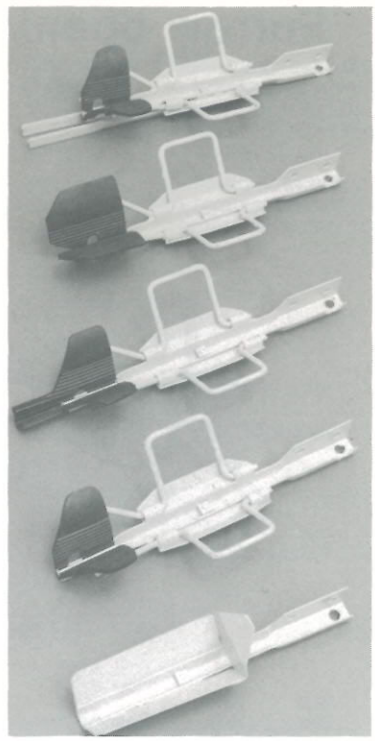
Adjusting the amount of water

The dial is set at the factory to give ample supply of water for most plants. Should more water be desired the operator merely moves the lever to a higher number. Moving the lever to a lower number cuts down the amount of water.

Helpful suggestions

Air valve (P-92) can be checked by removing the top of valve. After planting, remove top and flush with water to clean the air valve. It is strongly recommended that this be done if starter solution is used.

Complete Plant Holders



1. P-54P

Standard plant holder for most planting such as tomatoes, peppers, tobacco, cabbage, cauliflower, flowers and other plants with holdable top or foliage and normal bare root section.

2. P-54S-2

Plant holders used with strawberries and other plants with large root section and with small crown or top foliage.

3. P-54S

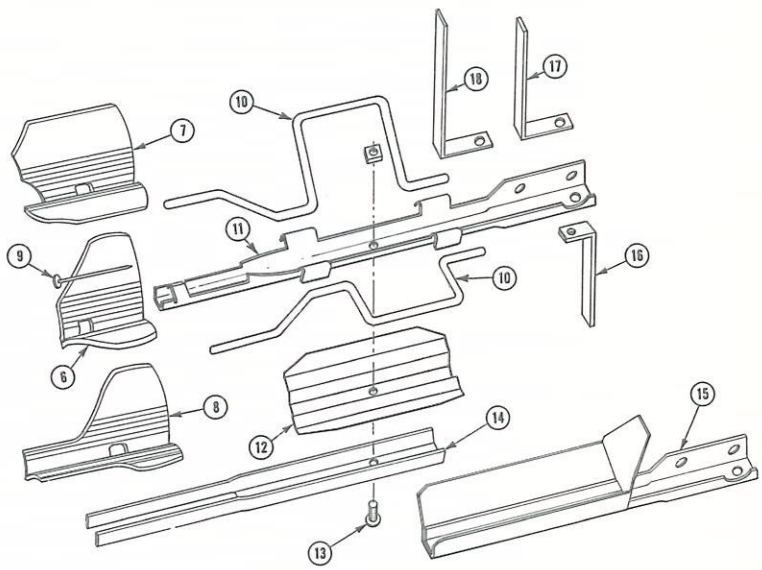
Plant holder used with small potted plants, cell packs and seedlings where top can be held by rubber gripper and rubber extension supports potted root section of plant.

4. P-54

Plant holder used to plant larger potted plants with root section up to 2" round or square. Rubber gripper holds top of plant; dual fork supports root section.

5. P-54HP

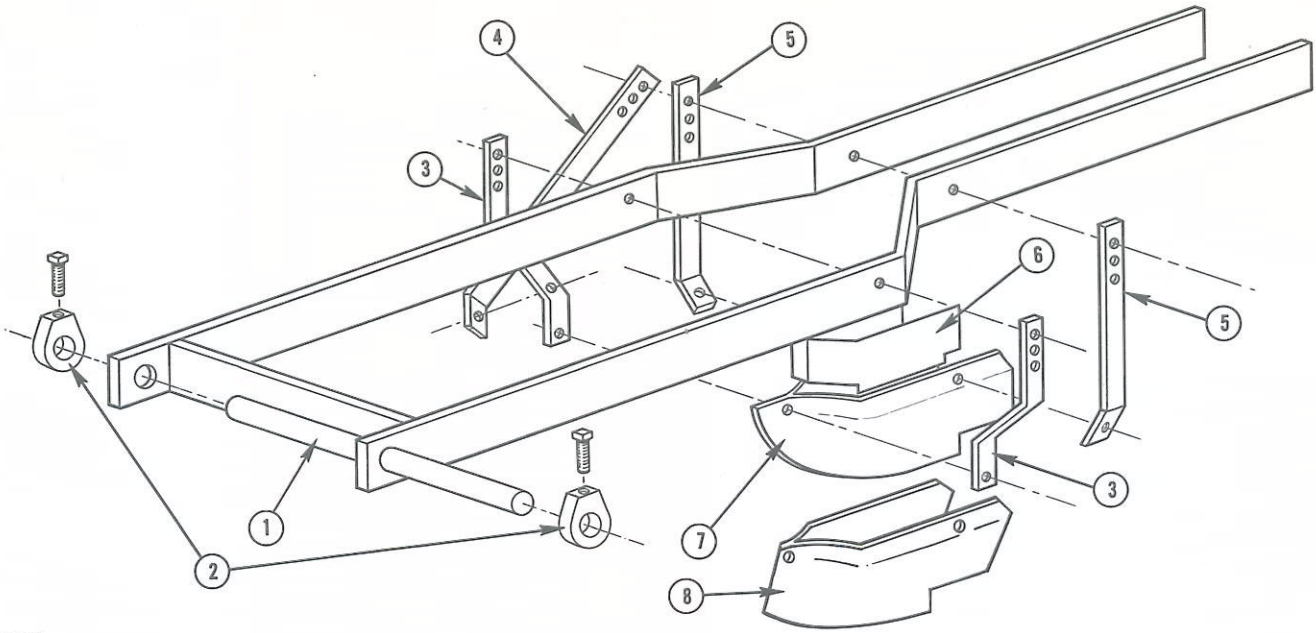
Holder used to plant bulbs, potatoes and similar plants. Must be used with front guide—available in conveyor chain and disc pocket spacing.



Ref. No.	Part No.	Description
6	P-55	Rubber gripper—used on P-54 and P-54P plant holders
7	P-55S-2	Rubber gripper—used on P-54S-2 plant holder
8	P-55S	Rubber gripper—used on P-54S plant holder
9	P-56	6 common nail used on all plant holders
10	P-57	Pair closing rods
11	P-58	Plant holding pocket frame
12	P-59	Bottom clamp for holding closing rods
13		Bolt for plant holder 3/16 × 3/8 MS.
14	P-59P	Pot pocket extension
15	P-54HP	Potato-bulb holder
16	P-60-6	Pocket spacer for 6 pocket chain Bolt below attachment link
17	P-60S	Pocket spacer for 10 pocket chain
18	P-60L	Pocket spacer for 8 pocket chain
*19	P-76HPC	Potato-bulb holder front guide for chain conveyor spacing
*20	P-76HPD	Potato-bulb holder front guide for disc spacing

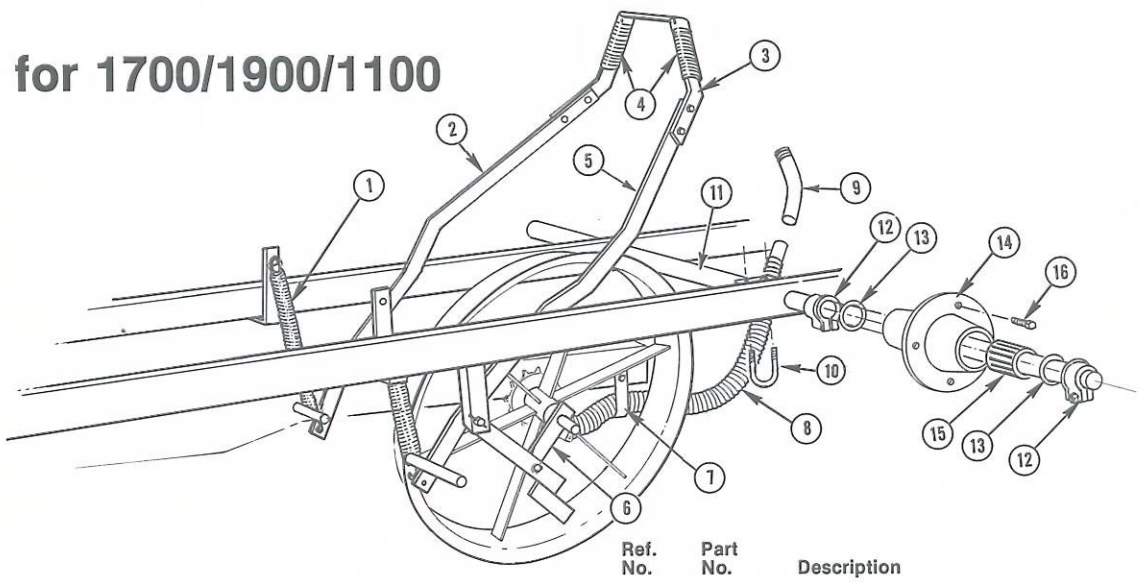
*Not shown

Furrow opening shoes



Ref. No.	Part No.	Description
1	386-15	7/8 unit drawbar shaft 7/8 × 15-1/4 for Model 1500
	386-19	7/8 × 19 for Model 1301 and 1302
	386-20	7/8 × 20-1/4 for Model 1700, 1900, 1100, 1303, 1304
	386-5	7/8 × 5-1/4 for Model 1600
2	414	7/8 cast iron collar
	414-S	7/8 steel collar
3	416	Front shoe brace for all models except 1600
	416-6	Front shoe brace for 1600
4	418	Diagonal shoe brace for all models except 1600
	418-6	Diagonal shoe brace for 1600
5	417	Rear shoe brace for all models
6	408	Galvanized shield for top of furrow opening shoe
7	395R	Round point furrow opening shoe—7" deep
8	395	Blunt point furrow opening shoe—7" deep
	395D	Blunt point furrow opening shoe—10" deep

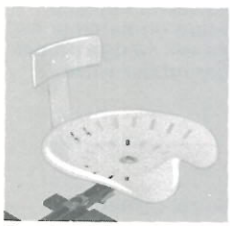
Parts for 1700/1900/1100



Ref. No.	Part No.	Description
1	333	Raising lever lift spring
2	P-131-R	Right side raising lever
3	P-131-A	Raising lever top cross link
4	P-131-C	Rubber hand grips for top cross link
5	P-131L	Left side raising lever
6	P-131-B	Raising lever locking link
7	412	Water hose guard
8	394	Flexible rubber water valve hose for Model 1700
	394-A	4' flexible rubber water valve hose for Model 1100
9	393	3/4" barrel nipple for 55 gallon barrel
	393-1	1" barrel nipple for 90, 275 and 300 gallon barrel
10	388	Rear axle U-bolt
11	1761	Rear axle—1-1/2" × 52" for Model 1700
	1965	Rear axle—1-1/2" × 102" for Model 1900
	1965-6	Rear axle—1-1/2" × 126" for Model 1910
	1965-3	Rear axle—1-1/2" × 28" for Model 1100 with dual wheels 36" to 42" rows
	1965-4	Rear axle—1-1/2" × 42" for Model 1100 with dual wheels 42" to 48" rows
12	348A	1-1/2" collar for wheel hub (cast iron—1700 & 1900)
	348B	1-1/2" collar for wheel hub (steel—1302-3-4)
13	1383	Wheel hub 1-1/2" washer (2 needed/hub)
14	1382	Hub for 15" D.C. rim, (4 hole)
	1381	15" D.C. rim (4 hole) (not shown)
15	P-130	1-1/2" roller bearing with sleeve for above hub
16	1384	Cap screw for wheel hub (4 needed/hub)

Seats

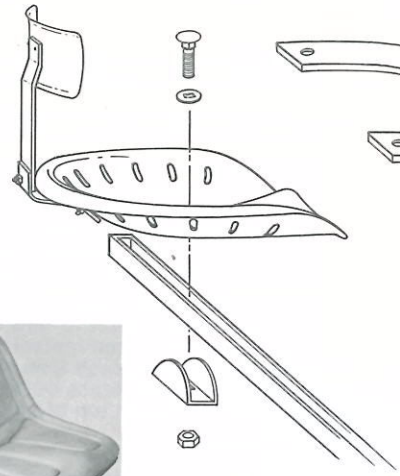
Proper assembly for attaching seat to seat brace.
Note: Steel seat with back-rest is standard.
Optional—Fiber glass or padded cushion seat.


Steel


Fiber glass


Cushion

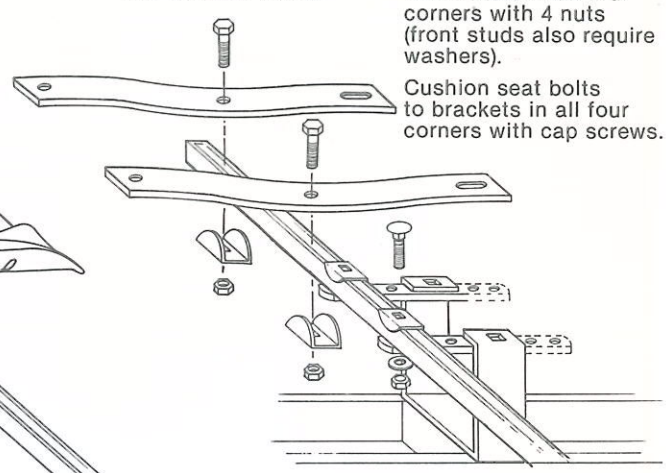
Mounting for Steel Seat.



Mounting for Fiber glass and Cushion seats.

Fiber glass seat fastens to brackets in all four corners with 4 nuts (front studs also require washers).

Cushion seat bolts to brackets in all four corners with cap screws.



Parts not listed on drawings

Part No.	Description
P-125	Markers, complete with two pipes, two blades and two chains (for 1500, 1700, 1301)
387	Marker blade
393-1	1" Nipple for 90, 275 and 300 gallon tanks
393	3/4" Nipple for 55 gallon barrel
331	Barrel cover—55 gallon steel
331-P5	Barrel cover—55 gallon poly
331-F	Barrel cover—275 gallon steel
331-P3	Barrel cover—300 gallon poly
P-126	Barrel hoops—55 gallon steel and 55 gallon poly
P-126-90	Barrel straps—90 gallons
P-126-275	Tank straps/pair—275 gallon (2 pr. needed/tank)
P-126-300	Tank straps—300 gallon poly (2 needed/tank)
P-126-300S	Tank saddle—300 gallon poly
P-126-55S	Tank saddle—55 gallon poly
P-129	Steel seat
P-129B	Steel seat back rest
P-129D	Mounting brackets for fiber glass or cushion seat (2 needed/seat)
P-133	Plastic water hose for all other models (specify length)
P-136	Plant box stand for 40" row or wider for models 1500, 1600, 1301, 1302, 1303, 1304 with steel packing wheels (specify right or left—direction of travel from behind transplanter)
P-136-A	Same as above with 4:00 × 15 packing wheels
P-136-B	Adjustable plant box stand for rows 38" or less with steel packing wheels
P-136-C	Same as above with 4:00 × 15 packing wheels
P-142	Plant box
P-142C	Adjustable plant box

Parts not shown for 1600

P-125-16	Markers complete with two pipes, two blades and two chains (for 1600 when used as a two row machine).
1653	Tool bar hitch mounting bracket for 1600 complete
1654	Top clamp only
1655	Bottom bracket only
386-5	7/8 × 5-1/4" drawbar shaft
1658	Adjustable plant box stand for row 38" or less
1659	Footrest stand for use with above

Parts not shown for 1301/1302/1303/1304

P-125-02	Markers complete with two pipes, two blades and two chains (for 1302)
P-125-03	Markers complete with two pipes, two blades and two chains (for 1303 and 1304)
1378	Unit drawbar mounting bracket for 1301 and 1302
1378-4	Unit drawbar mounting bracket for 1303 and 1304
1377-1	3" square drawbar for 1301
1377	3" square drawbar for 1302
1377-5	3" square drawbar for 1302 for 5' rows
1376	3" square drawbar for 1303 and 1304
1759	Hitch stand for 1301
1976	Jack for 1302, 1303 and 1304
1971	Hitch-tongue slip-in for 1302, 1303 and 1304
1761	1-1/2" axle for 1301
1379	1-1/2" axle for 1302
1380	1-1/2" axle for 1303 and 1304 (dual wheels)
388	Axle U-bolt for 1-1/2" axle
1396-A	Tapered bearing axle for 1303 and 1304 (flotation wheels)
1396-B	Set of tapered bearings for above axle
1396	Hub used with tapered bearing (specify 5 or 6 bolt).
1381	15 × 5 D.C. rim—4 hole
1381-5F	15 × 8 D.C. rim—5 hole flotation
1381-6	15 × 5 D.C. rim—6 hole
1381-6F	15 × 8 D.C. rim—6 hole flotation

Parts not shown for 1700/1900/1100

P-125-19	Markers complete with two pipes, two blades and two chains (for 1900)
P-125-11	Markers complete with two pipes, two extension pipes and two chains (for 1100)
1760	Front hitch for 1700
1759	Front hitch stand for 1700
1762	Main frame for 1700 (Specify for 55 or 90 gallon barrels)
1972	Hitch tongue for 1900
1976	Tongue jack for 1900 and 1100
1974	Front channel iron drawbar for 1900 (specify row widths)
1971	Front hitch slip-in for hitch tongue
1969	Rear truss tube for 1900
1970	Rear truss tube slip-in for 1900
1975	U-bolts for truss tube slip-in (specify—bed planting or level ground)
1964	Main frame for 1900 (specify 55 or 90 gallon barrels)
1973	Rear U-bolt with plate for hitch tongue—1900
P-137	Plant box stand for 1700, 1900, 1100 (specify right or left—direction of travel from behind transplanter)
P-137C	Center plant box stand for 1900 and 1100

Trouble Shooting Chart

Problem	Cause	Remedy
No Water by plants.	Dirt in barrel or supply line to valve.	Check bottom of water barrel for trash or dirt. Remove hose and check for dirt.
	Valve not operating.	Check vertical control rod for dirt, mud or soil wedged between rod and closing guide for pockets, thus preventing movement of control rod. Remove any foreign material.
		Check the lower end of control rod for clearance along outside of valve reservoir. Rod should not rub side of reservoir during upward stroke.
		If intake pipe of water valve is against control rod, it will cause drag preventing smooth operation of valve or even stop valve from operating. Loosen nut on clamp holding valve to frame, then pull on intake pipe of valve and turn it out away from rod for clearance. (Not applicable in Models 1700, 1900, 900 & 1100.) This condition can occur if clamp around valve was not properly tightened. Valve could have been bumped in shipment or by operator's shoe.
		Check lower rubber valve (P-94). Some chemicals have caused this valve to swell in size, preventing water to flow and/or restrict free movement of this valve. Replace with new valve. When replacing this valve do not use excess pressure on hammer as described in paragraph 2 on page 5. Too much downward pressure will wedge rubber valve down inside brass orifice. This will lock up water valve. Lower rubber valve need only to lay on top of brass orifice for proper operation.
	Barrel empty.	Refill barrel.
Water flow in valve not uniform.	Dirt in valve.	Remove top of valve (see valve operations) and remove dirt.
	Dirt floating on water in barrel.	The suction of water going to valve through nipple in bottom of barrel sometimes sucks floating dirt into nipple. Remove dirt and clean nipple.
	Air valve sticking	Remove top of valve and wash gummy starter solution off parts.
Water leakage.	Broken ball float.	Replace with new float.
	Water leaking from bottom of water valve.	The lower rubber valve is not seated in the brass orifice. Rubber valve must not be rigid to "fish hook end" of control rod. Loosen nut on rubber valve until it is flush with the stem. There should be 1/16" to 1/8" clearance between the top of "fish hook" and bottom of the plastic tube on stem of rubber valve. This play in the valve will allow the valve to seat itself when the control rod is in the down closed position.
	Air valve not properly seated	Remove top of valve (see valve operations), and with thumb, turn male seat (P-92) in female seat (P-93) and "grind" new seat.
Broken plants.	Shoe not in line.	Check shoe and shoe braces as well as all bolts for tightness and braces for same hole adjustment. Sight shoe to determine if it lines up in center of opening between packing wheels.
	Plants hitting inside	Check alignment of shoe.
	Plants hitting side of water spout.	Remove and flatten spout and check to see if shoe may have hit a rock in soil, thereby bending it out of line and also causing spout to move out of line.
	Wheels out of line, riding on plants.	Turn wheel by hand to see if it is bent. Straighten by laying wheel on flat surface and truing.
	Pockets too rigid at release point.	Check conveyor chain. Loosen upright bolts to allow chain a little side play.
Plants not packed tightly in soil.	Furrow too wide	Remove caked dirt from side of shoe. Check front of shoe for corn stalks or other trash that might be caught, thereby pushing soil out too far for packing wheels to pack soil around plants.
	Transplanter unit riding on shoe.	Check soil to see if it is "worked" to depth shoe is penetrating. This can easily be done by inserting hand down into furrow just planted. If hand does not go in beyond depth of shoe, machine is riding on shoe therby not allowing wheel weight to properly pack soil around plants. Rework soil deeper. If planting small plants, raise shoe so weight of machine will ride on wheels instead of shoe.
	Unit not floating.	Check drawbar of unit for clearance below frame or slack in lifting chain so unit can float over soil contour.
Plants leaning.	Soil getting in shoe before plant.	Move shoe closer to packing wheels. Lower shoe to avoid soil flowing under shoe.
	Root system of plant just below surface—not vertical in ground.	Decrease amount of water being applied. Too much water causes root system to "float" on top of water, not allowing root to go to bottom of furrow. You should not be able to see water above ground around the stem of plant.
	Both sides of pocket not opening at same time.	Loosen bolts holding pocket guides to frame. Check to see that both guides are parallel and straight across from each other on the bottom where the plant is released. If the closing rods (P-57) of pocket do not open at the same time, one side may hold plant momentarily or jerk plant, causing it to lean or be loose in the ground. Sometimes these pocket guides are accidently moved during shipment.
	Soil too loose.	If soil is rototilled or very loose, the packing wheels cannot get enough traction to propel the transplanter. When the packing wheels slip, the pockets in turn do not move and will drag the plants in the direction the machine is going. DO NOT ROTOTILL the ground unless the transplanter is equipped with a positive spacing mechanism. It is recommended to work ground deep but leave some "body" to soil so packing wheels can get traction. If soil is too loose, firm up soil with packer.

HOLLAND TRANSPLANTER CO.

510 East 16th St. / P.O. Box 1527, Holland, MI 49422-1527 U.S.A. / Phone 616-392-3579

3 miles West of I-196 Exit 52 / 2 blocks West of U.S. 31 **FAX 616-392-7996**