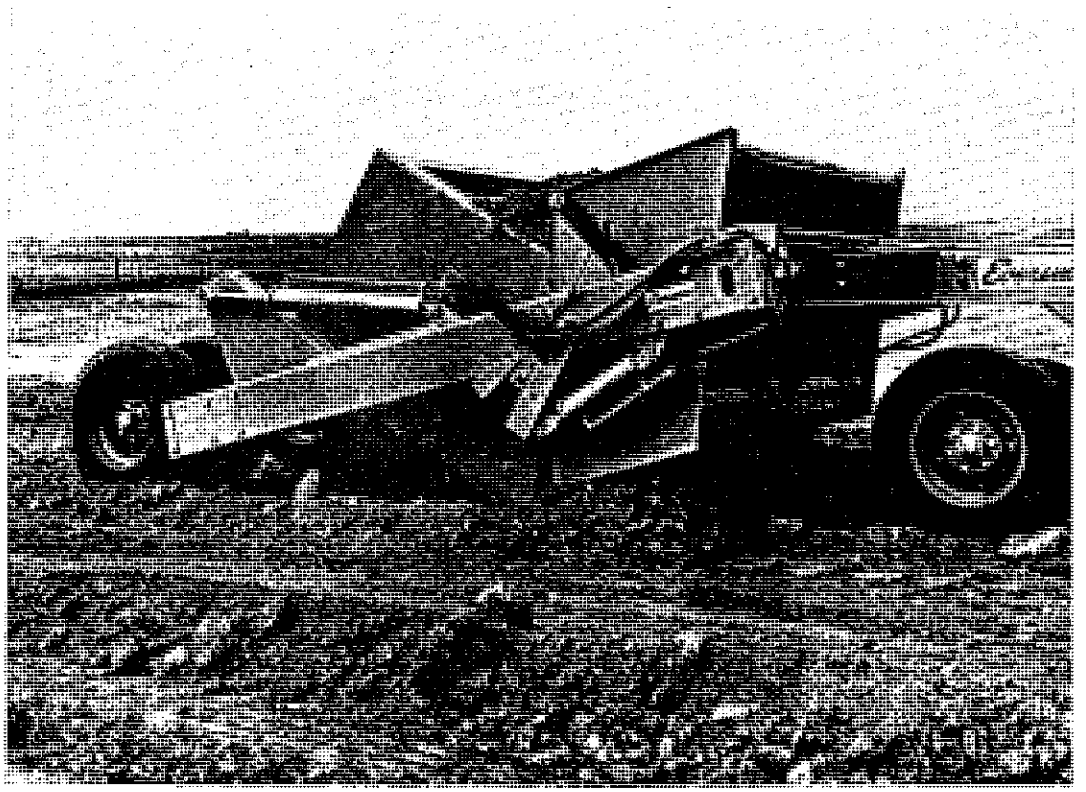
# ASSEMBLY AND OPERATION INSTRUCTIONS

# *Eversman* SCRAPER

MODELS

650-D ---- 650-SS ---- 650-DT ---- 650-SST



**THE EVERSMAN MANUFACTURING COMPANY**
FIFTH STREET AT CURTIS • P. O. BOX 4345 • (303) 629-1234
DENVER, COLORADO 80204

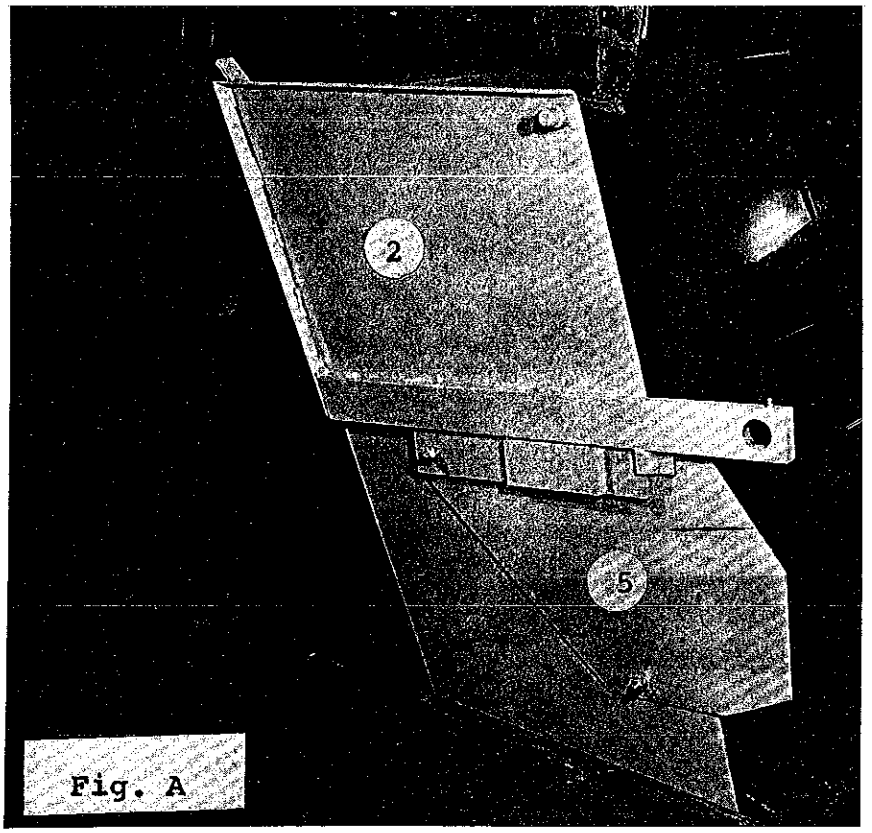



Fig. A

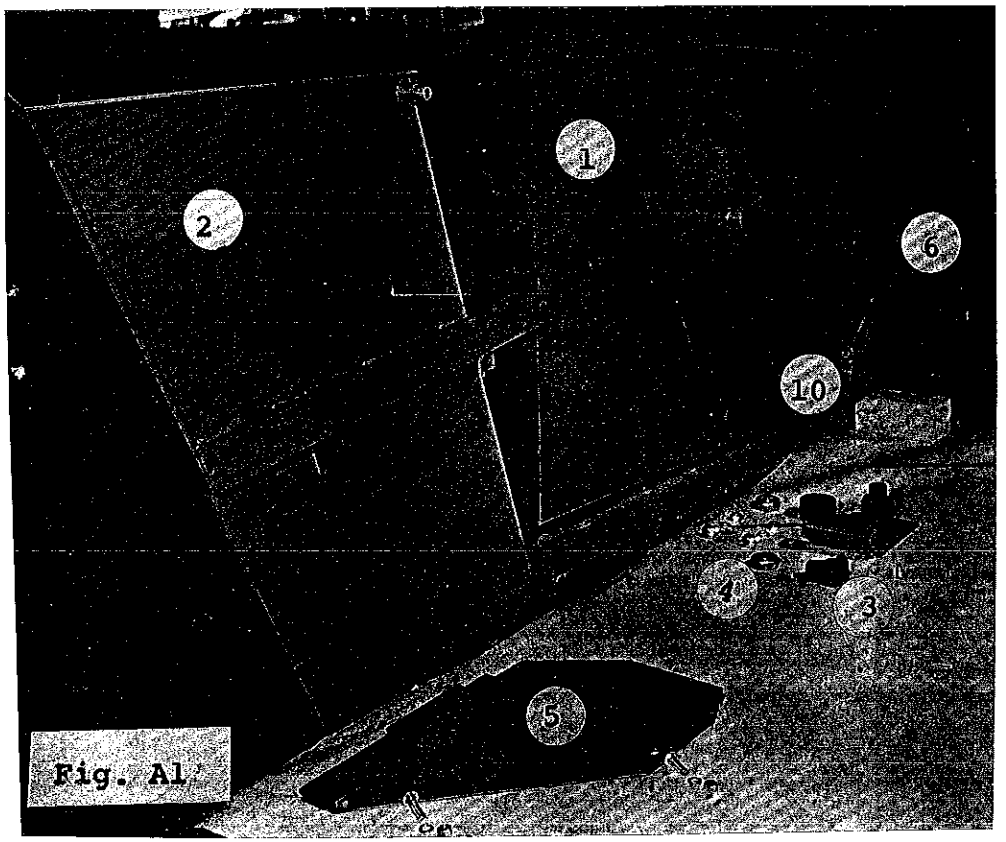



Fig. A1

Figures A, A-1 and A-2

1. Set bucket (1) on wood blocks before starting assembly.
2. Before assembling gate (2) to bucket (1), first attach wear plate weldments (5) to gate with 1" X 1½" carriage bolts. (For earlier model 650 scrapers, discard the short block, and replace it with a second gate spacer (042809). It can be bolted directly to the skirt and need not be welded.)
3. Assemble gate (2) to bucket with gate pivot pins (3) and locknuts (4) on inside of bucket.
4. Prior to assembling lift pipe (6) to bucket, note that the pin to make this attachment is welded to the bucket pin plate (8) Fig. A-2. First slip the bearing insert (7) over the pin and attach with locknut (9) on inside of bucket, however, do not install the two 1/2 X 1-1/4" carriage bolts which secure the pin plate to the bucket.
5. Then slide the lift pipe over the bearing inserts and attach with bearing caps (10) which are shipped bolted in place on the lift pipe. The bearing cap bolts can be tightened by slightly rotating the pin plate. Then install and tighten the two 1/2 X 1-1/4" carriage bolts.

NOTE: The locknuts on the inside of the bucket are frequently found to be loose during field operation. It is recommended that these be carefully checked and thoroughly tightened with a long-handled wrench, preferably by someone working on the inside of the bucket.

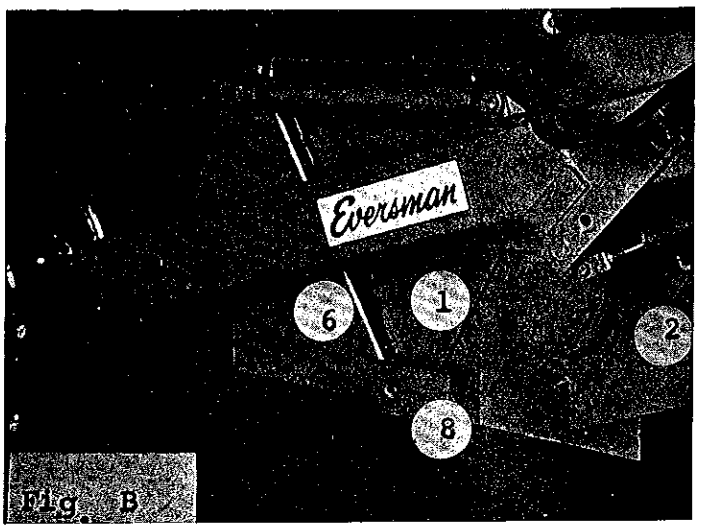



Figure B

This photo shows the final assembly of the lift pipe and pin plate to the bucket

MODEL 650-D AND 650-SS SCRAPER PARTS LIST

| Fig. No. | Ref. No. | Part No. | Description | Will Fit | No. Req. |
|---|---|---|---|---|---|
| A | 1 | 042901 | Bucket | All | 1 |
| " | 2 | 042801 | Gate | " | 1 |
| " | 3 | 042808 | Gate Pivot Pin | " | 2 |
| " | 4 | 064596 | Locknut | " | 2 |
| " | 5 | 042825 | L.H. Wear Plate Weldment | " | 1 |
| " | 5 | 042826 | R.H. Wear Plate Weldment | " | 1 |
| " | | 042809 | Bar Gate Spacer (For older models) | | |
| A1,2 | 6 | 041236 | Lift Pipe | " | 1 |
| " | 7 | 022050 | Bucket Bearing Insert | " | 2 |
| " | 8 | 041219 | Bucket Pin Plate | " | 2 |
| " | 9 | 064596 | Locknut | " | 2 |
| " | 10 | 041217 | Bearing Cap | " | 2 |

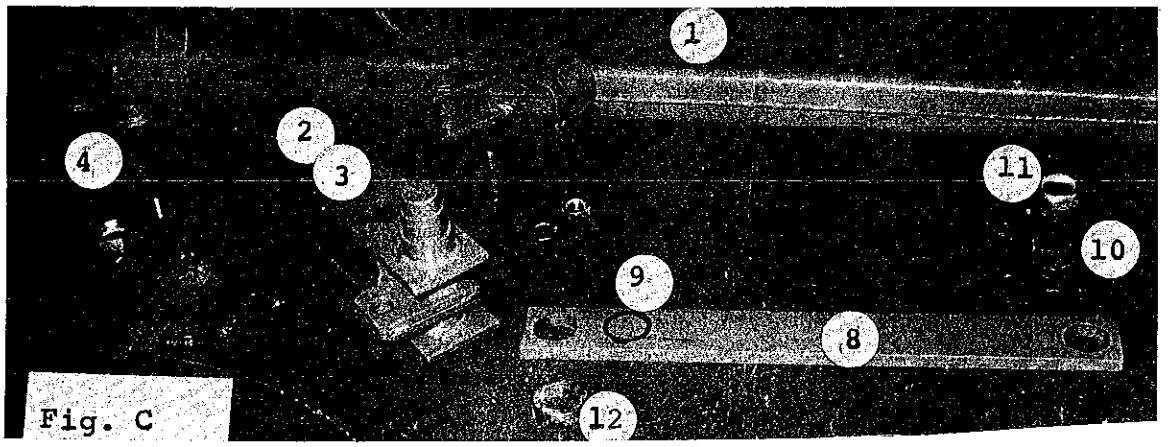


Fig. C

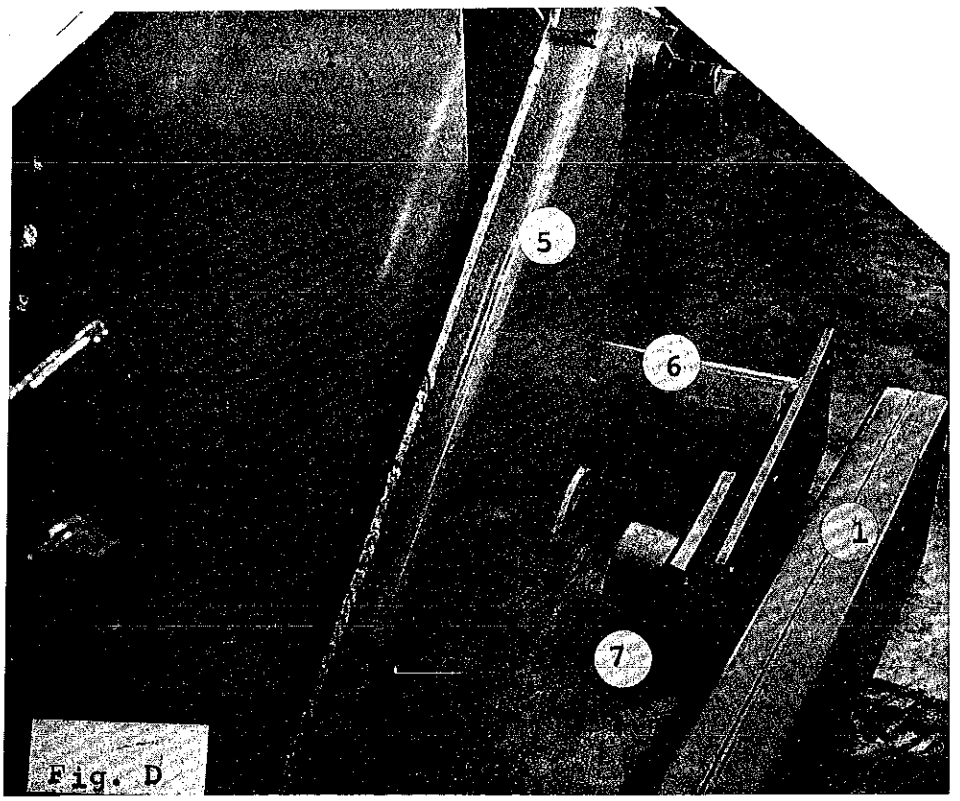


Fig. D

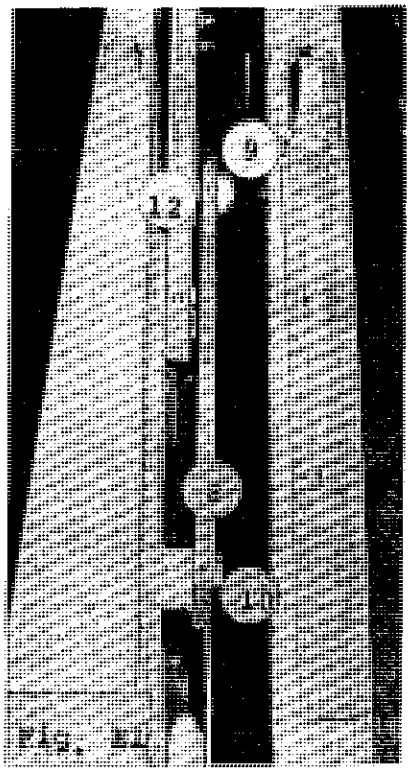


Fig. E

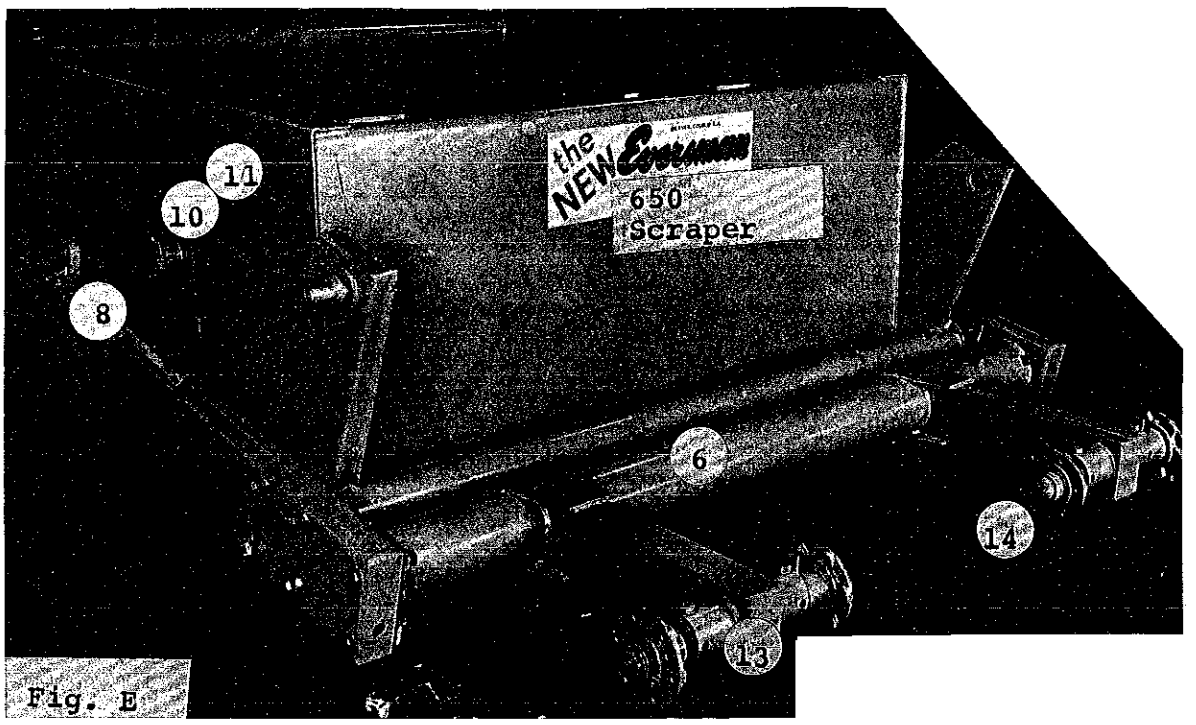


Fig. E

Figures C, D, E, E-1 and E-2

1. Before starting this assembly, note from Fig. E that the welded arms on the rear frame (Fig. E,6) are tilted upward. If the rear frame is turned over and these arms are slanted down, it will be impossible to lower the cutting bit enough to make a cut.

2. Connect control links (8, Fig. C and Fig. E-1) to the bucket with pivot pins (10) and locknuts (11).

3. Place pivot bearings (7) in ends of lift pipe (5). The holes in these bearings are tapped so nuts are not required.

4. Since three pieces - siderail, bearing and rear frame - must all be perfectly aligned at this connection, it has been found that several steps of partial assembly will save time and reduce the difficulty of alignment.

   a) First be sure the bucket and rear frame are on blocks and level. Then bolt rear frame to bearings on both sides without siderails. You will have less trouble aligning the holes by leaving the siderails off.

   b) Use 057422, 3/4 X 5 hi-strength, plated bolts and run them just barely through bearings.

   c) Then remove the four bolts from one side only, and attach siderail (1) to frame and bearing. Do not tighten these bolts at this stage.

   d) Then remove the four bolts from the other side and attach the other siderail to frame and bearing. Also do not tighten these bolts thoroughly.

   e) Use 3/4 X 5 plated hex head machine bolts (055442) nuts and lockwashers to attach rear of siderails to frame. These bolts also attach siderail cover plates. Also leave these bolts loose.

5. Attach control links (8) to siderails (1) with zerk fittings up, using snaprings (9), (refer Fig. E-1). When the siderail attachment is made to the rear frame, slide bucket roller (12) on the pin brackets (2 & 3). There are no snaprings used for the rollers since the gate will keep them in place (Fig. E-1).

6. The rear spindles (13) and the hubs (14), Fig. E, are factory assembled on the rear frame. The spindles can be adjusted at 3/8" intervals to level up the bucket if necessary.

7. Install wheels and tires (7 and 8), Fig. J. Be certain the same size tires are mounted on all hubs and that they all carry the same pressure.

# MODEL 650-D AND 650-SS SCRAPER PARTS LIST

| Fig. No. | Ref. No. | Part No. | Description | Will Fit | No. Req. |
|---|---|---|---|---|---|
| C | 1 | 040509 | L.H. Siderail | All | 1 |
| " | 1A | 040508 | R.H. Siderail | " | 1 |
| " | 2 | 044615 | L.H. Pin Bracket (#4078 & Up) | " | 1 |
| " | 3 | 044616 | R.H. Pin Bracket (#4078 & Up) | " | 1 |
| " | 4 | 044609 | Pivot Pin | " | 2 |
| D | 5 | 041236 | Lift Pipe | " | 1 |
| " | 6 | 040415 | Rear Frame | " | 1 |
| " | 7 | 041223 | Lift Pipe Bearing | " | 2 |
| E,E1 | 8* | 041234 | Control Link - 24" (To Serial No. 4077) | " | 2 |
| " | 9 | 021510 | Snapring | " | 2 |
| " | 10 | 041222 | Link Rear Pivot Pin | " | 2 |
| " | 11 | 064596 | Locknut | " | 2 |
| " | 12 | 030560 | Bucket Roller | " | 2 |
| " | 13 | 040815 | Rear Spindle | " | 2 |
| " | 14 | 044115 | Hub Assembly (Q817 Casting) | " | 6 |
| | *8 | 041218 | Control Link - 30" (Serial #4078 & Up) | " | 2 |
| | | 044014 | High Dump Conversion Kit (To Serial #4077) | | |
| | | 044616 | R.H. Pin Bracket | | 1 |
| | | 044615 | L.H. Pin Bracket | | 1 |
| | | 041218 | 30" Control Link | | 2 |

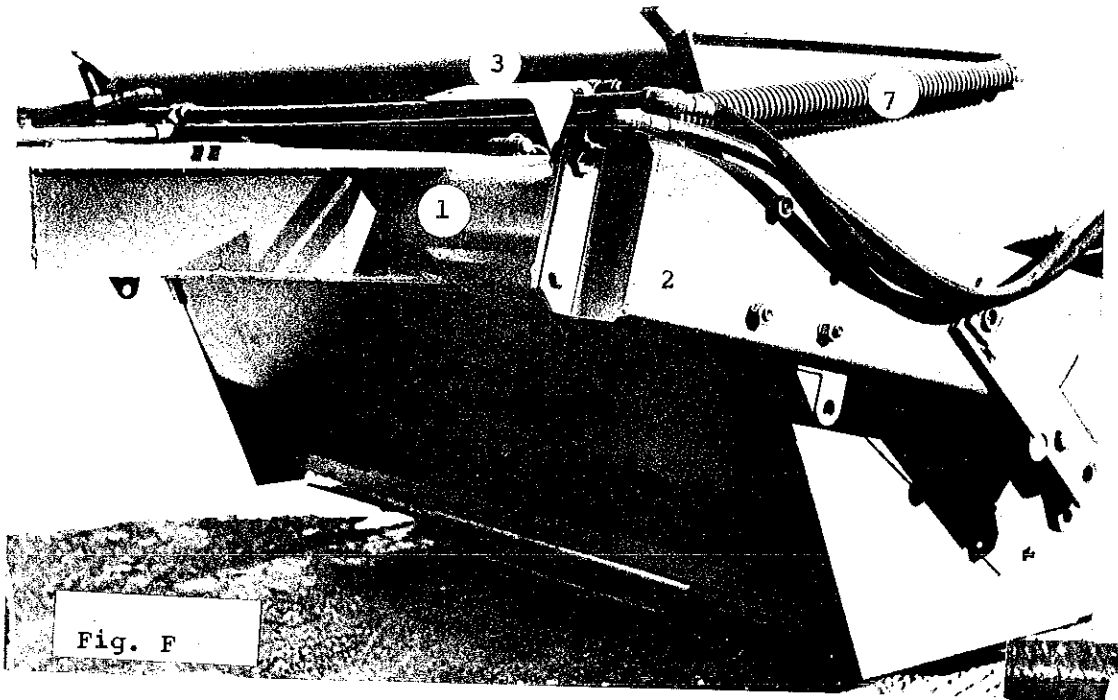


Fig. F

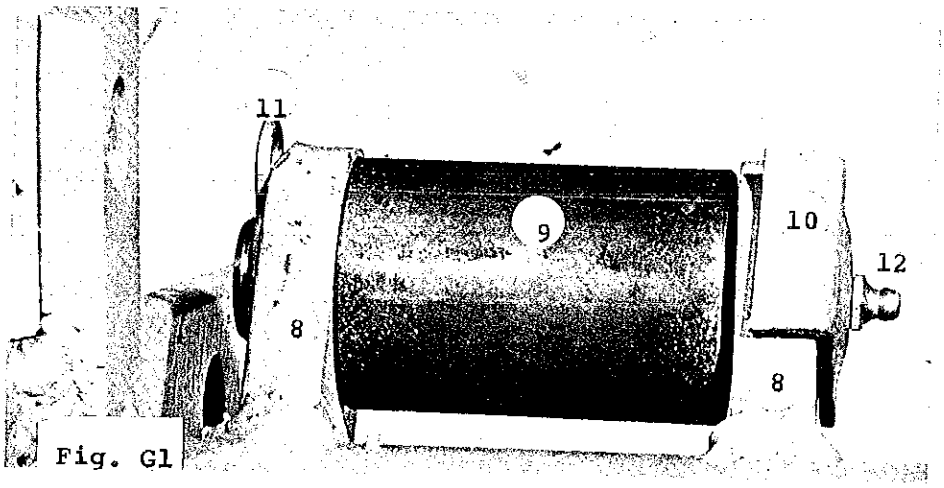


Fig. G1

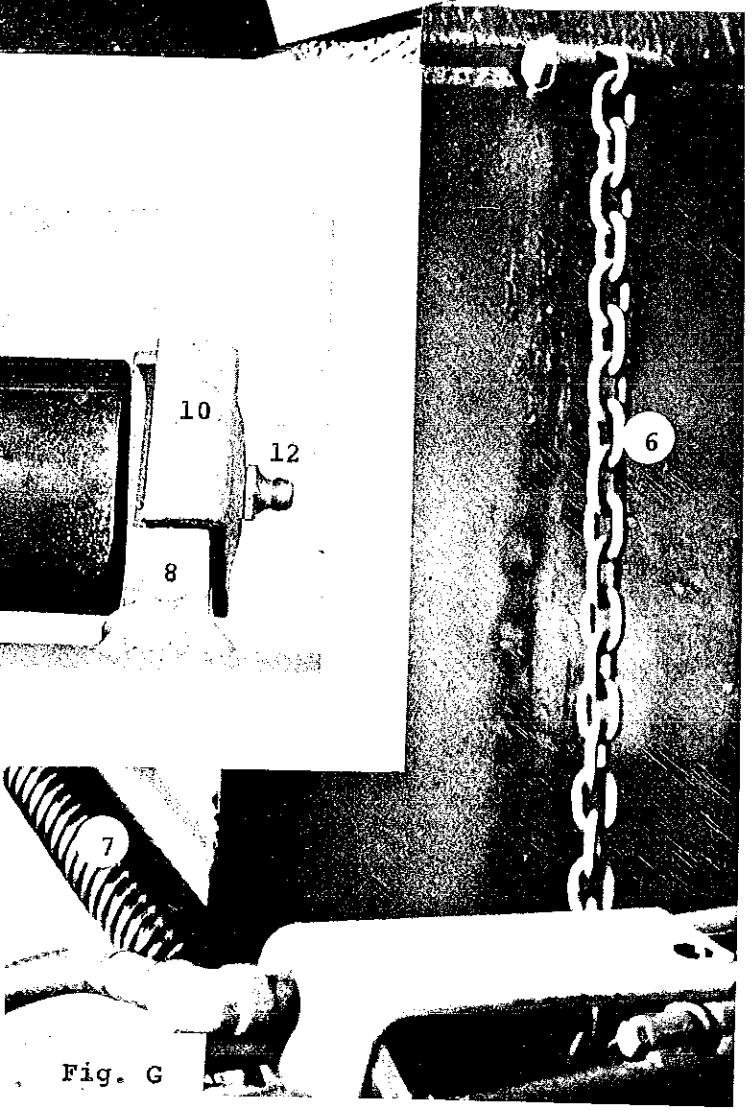


Fig. G

Figures F, G and G-1

1. Figure F shows the gooseneck (1) and the attachment to the siderails. Forget the hydraulic fittings since these will be assembled later.

2. The assembly is made with four 3/4 X 5" hex head machine bolts, and two 3/4 X 2" bolts. The top bolt also secures the anchor bracket (3).

3. On Model 650-SS and Model 650-SST scrapers only, the top rear bolt also attaches the indicator (2, Fig. M-1).

4. Leave all 6 bolts on both sides loose for the time being.

5. The gate limit chains (6) are assembled to the gate and gooseneck chain sleeves with 1/2 X 3-1/2 hex bolts.

6. The gate rollers (9) are factory assembled. See Kit No. 040490 for parts.

7. The gate springs (Fig. G, 7) are hooked into the welded brackets on the gooseneck, and attached to the gate with 066133 machine bushings and 063749 cotters (Ref. Fig. K).

MODEL 650-D and 650-SS SCRAPER PARTS LIST

| Fig. No. | Ref. No. | Part No. | Description | Will Fit | No. Req. |
|---|---|---|---|---|---|
| F | 1 | 040493 | Gooseneck | #4640 & up | 1 |
| " | 2 | 040509 | L.H. Siderail | " " | 1 |
| " | - | 040508 | R.H. Siderail | " " | 1 |
| " | 3 | 040476 | L.H. Anchor Bracket | All | 1 |
| " | - | 040475 | R.H. Anchor Bracket | " | 1 |
| " | - | 040428 | Siderail Cover Plate | " | 2 |
| G | 6 | 302130 | Gate Limit Chain | " | 2 |
| " | 7 | 408000 | Gate Spring | " | 2 |
| G1 | 8 | 040483 | Ear | " | 4 |
| " | 040490 Roller Repair Kit | | | " | 2 |
| " | 9 | 040486 | Roller | " | 2 |
| " | 10 | 040489 | Pin | " | 2 |
| " | 11 | 040488 | Pin Clip | " | 2 |
| " | 12 | 006000 | Grease Fitting | " | 2 |
| " | - | 040484 | Bearing (Not Shown, see note below) | " | 2 |

Note: To replace roller parts on 650 scrapers up to serial #3952, order Roller Repair Kit #040490 (2 required per scraper). This kit includes the pin (10) and grease fitting (12), along with a pin clip (11) and a roller bearing assembly (9). The roller bearing assembly has 2 - 040484 bearings (not shown) pressed in the ends of the tube. The kit also includes two loose 040484 bearings, which are to be tack welded in the ears (8) of the gooseneck before assembling the roller bearing assembly and pin. If the holes in the ears on older model scrapers have become worn and elongated, torch them off the gooseneck and order four 040483 replacement ears (8, Fig. G-1), before installing the 040490 kits.

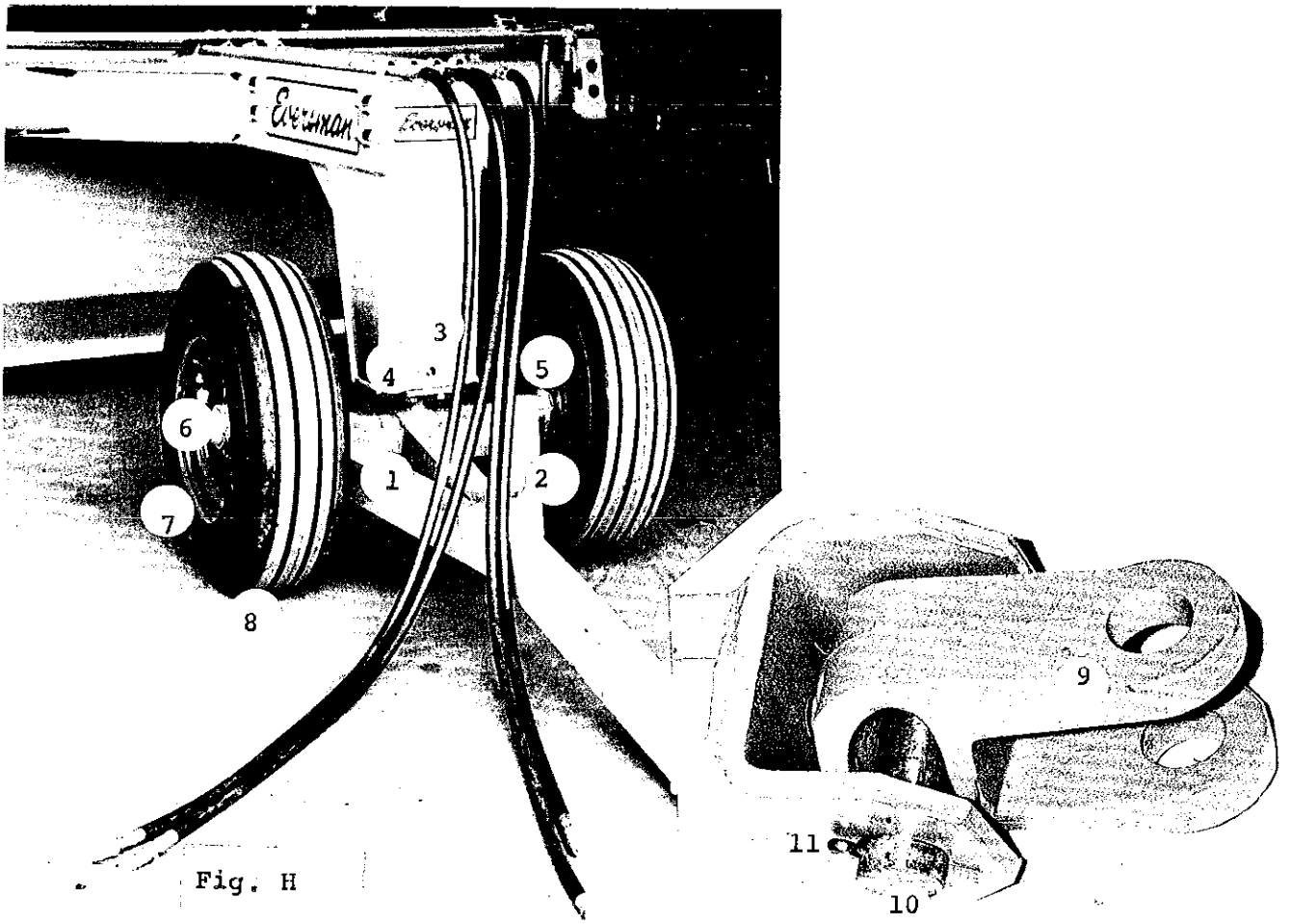



Fig. H

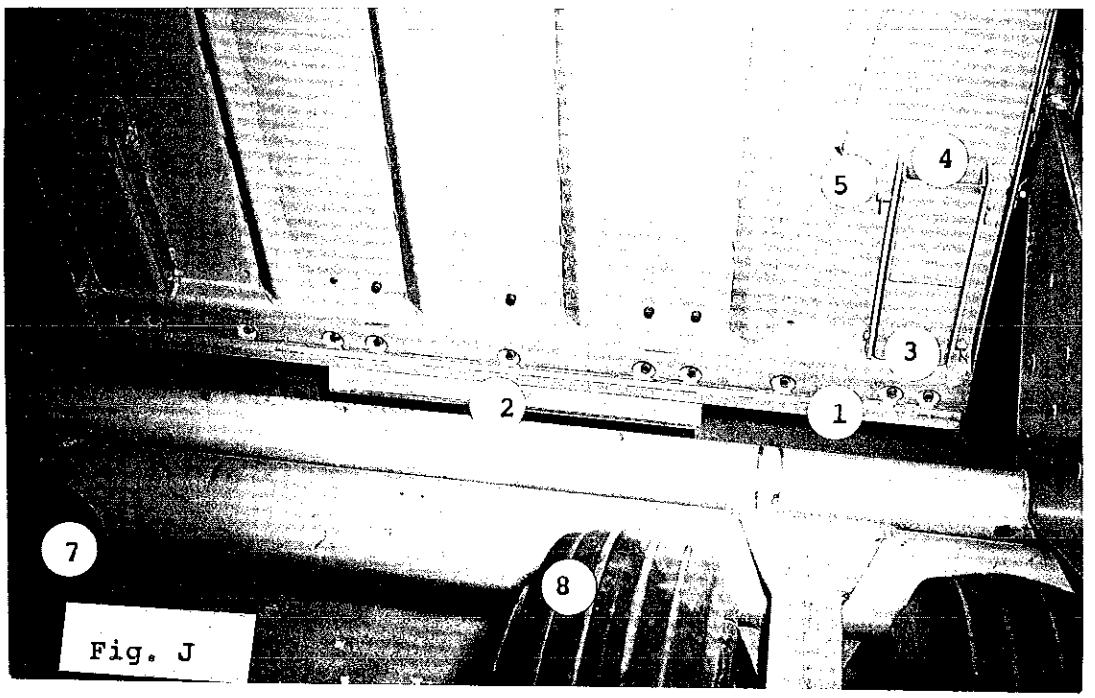



Fig. J

Figures H and J

1. Assemble dolly tongue (1) to gooseneck with ball keeper plate (4) and 3/4 X 1-3/4 cap screws.

2. Install the gooseneck on the rear ball of dolly tongue. The front ball should be used only if working in difficult conditions and with limited traction where additional weight on the tractor rear wheels would assist loading. In this case, it may also be necessary to add weights on the front of the tractor.

3. Insert simultaneously the swivel clevis (11), the L.H. hitch block (9) which is tapped for grease fitting, and the R.H. hitch block (10), into the dolly tongue. Secure assembly with 5/8 X 4 hex head machine bolts.

4. Assemble hitch clevis with spacer, clevis pin and hairpin.

5. Assemble wheels (7) on dolly hubs, which are factory installed, with 9/16 X 1-3/4 wheel bolts. Be certain to mount all wheels with the concave side against the hub face, and the valve stem on the wheel to the outside. Mounting the wheels incorrectly will overload and cause failure to the spindle, hub or wheel.

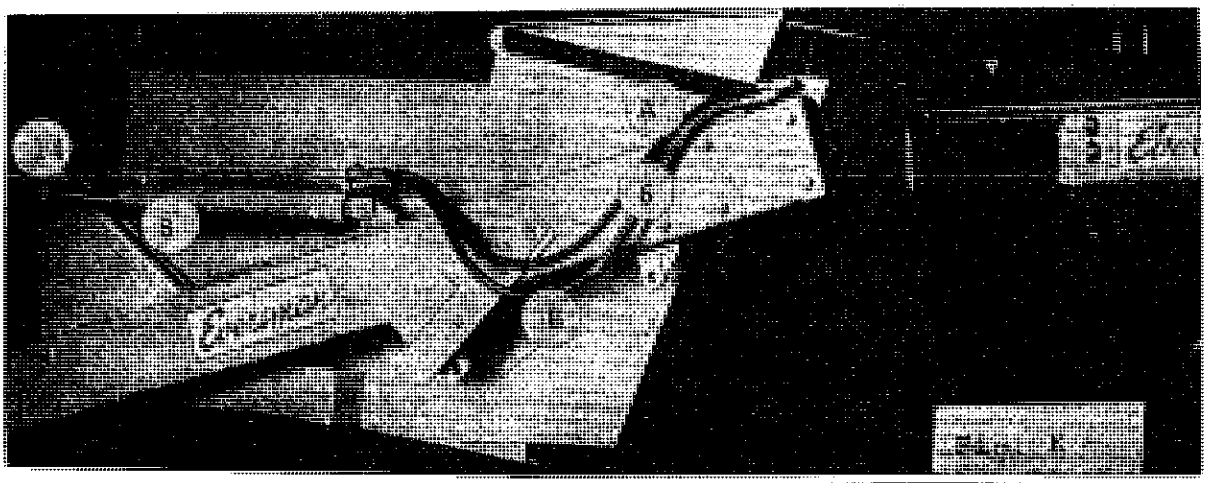
6. Install new optional 9:50 X 15, 8-ply tires (8); or if used tires are to be used, they must be good 6-ply (minimum) tires.

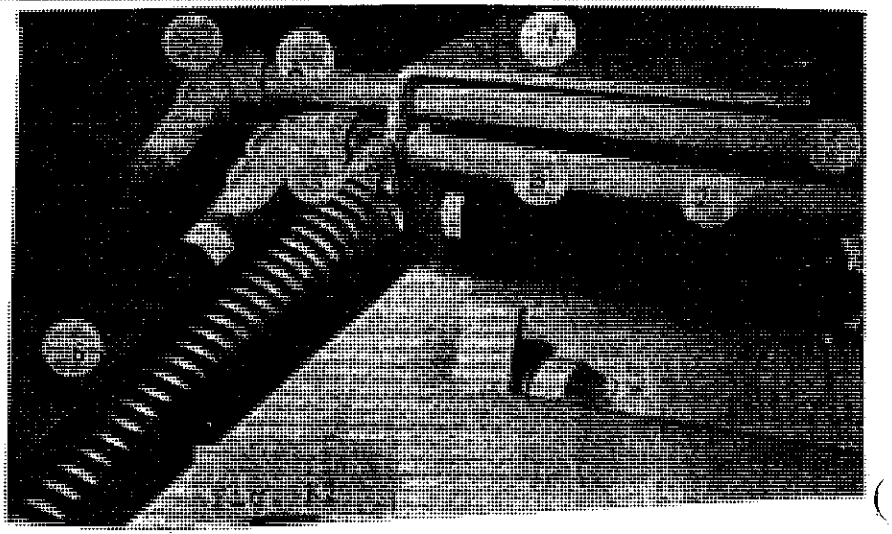
7. The cutting bit (1, Fig. J) is attached to the bucket with 1/2 X 1-1/4" plow bolts; and the frost bit, when required to improve cutting difficult soils, is assembled to the cutting bit and bucket with 1/2 X 1-3/4" plow bolts. (Do not use frost bit with spreading scraper.)

MODEL 650-D AND 650-SS SCRAPER PARTS LIST

| Fig. No. | Ref. No. | Part No. | Description | Will Fit | No. Req. |
|---|---|---|---|---|---|
| H | 1 | 040631 | Dolly Tongue | All | 1 |
| " | 2 | 025400 | Ball Hitch (Welded Replacement) | " | 2 |
| " | 3 | 025370 | Ball Socket Casting (Welded Replacement) | " | 2 |
| " | 4 | 025251 | Ball Keeper Plate | " | 1 |
| " | 5 | 040632 | Dolly Spindle (Welded Replacement) | " | 2 |
| " | 6 | 044115 | Hub Assembly | " | 6 |
| " | 7 | 590410 | 15" Wheel | " | 6 |
| " | 8 | 590780 | 9:50 X 15 Tire & Tube (Optional) | " | 6 |
| " | - | 590781 | Tire Only | " | - |
| " | - | 590782 | Tube Only | " | - |
| | 9 | 040629 | Clevis Casting | " | 1 |
| | 10 | 040641 | 1-1/2 X 6-1/4 Pin | " | 1 |
| | 11 | 063766 | 1/4 X 2-1/2 Cotter | " | 2 |
| J | 1 | 021450 | Reversible Cutting Bit | " | 1 |
| " | 2 | 040501 | Frost Bit (Optional) | " | 1 |
| " | 3 | 042915 | Stabilizer Channel | " | 2 |
| " | 4 | 042917 | Stabilizer Wear Plate (Weld. Rpcmt.) | " | 2 |
| " | 5 | 042914 | Pin | " | 2 |

NOTE: For all Model 600 scrapers, and for Model 650 scrapers below Serial No. 4941, the old clevis and hitch blades are no longer available. Order Kit #040643 which includes items 9, 10 and 11 above, plus 450642 yoke which must be welded to the front of the dolly tongue.





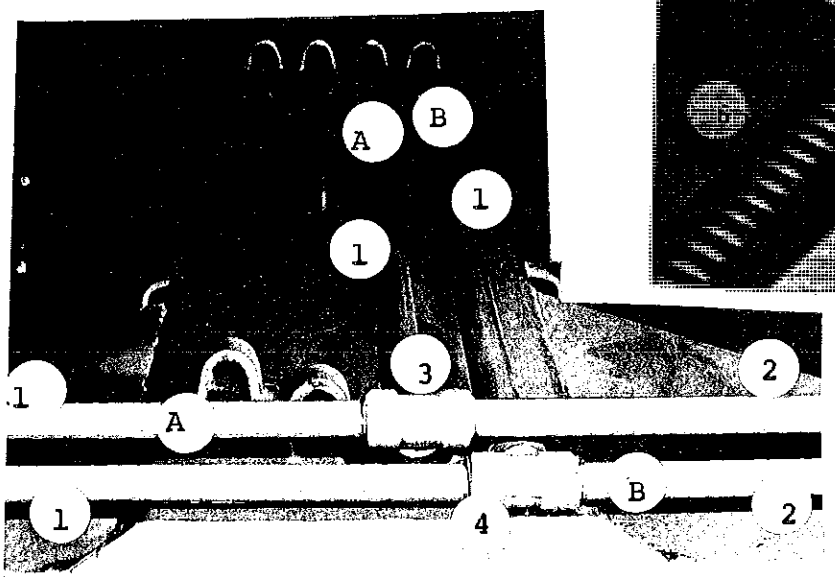
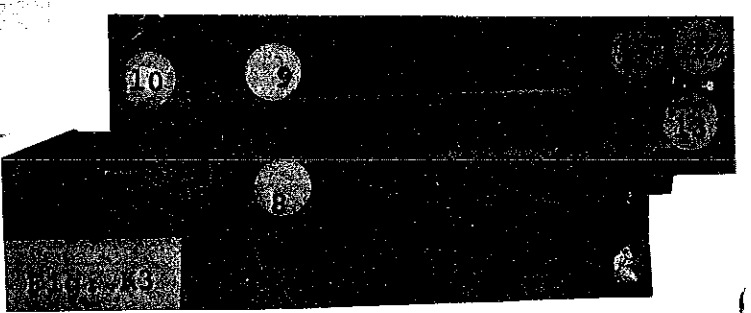
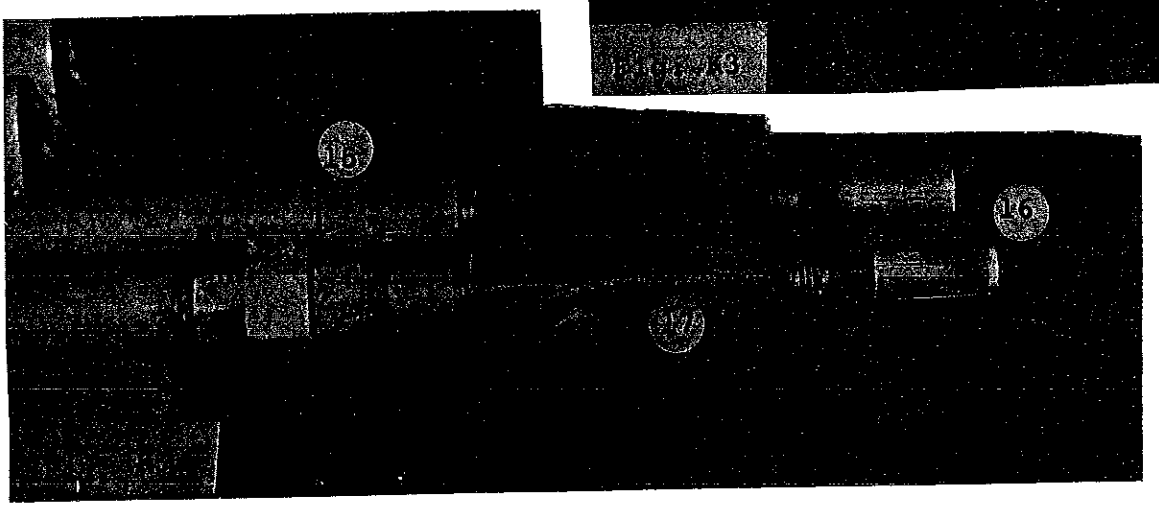



Fig. K1



Figures K, K1, K2, K3 and K4

The hydraulic installation for the bucket control applies to both the Model 650-D and 650-SS. In addition to the photographs, also observe the hydraulic line sketch on page 12 while making the assembly.

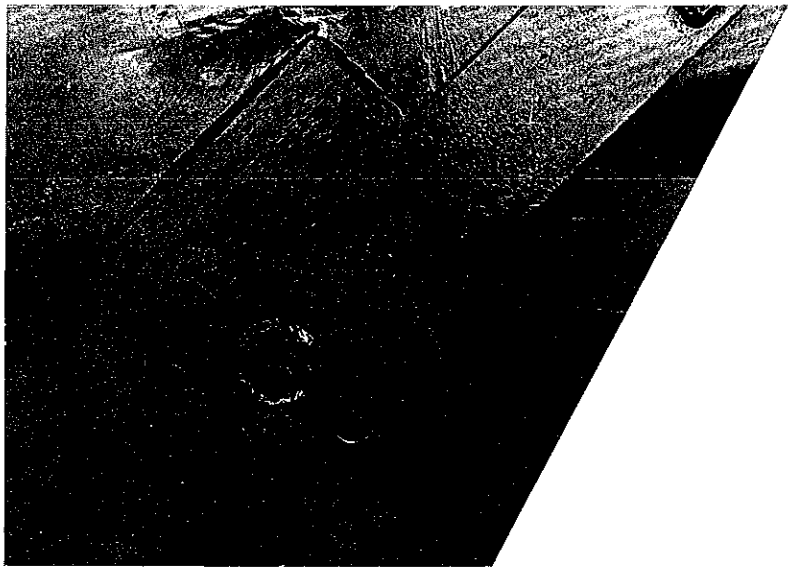
1. Before starting the hydraulic line assembly, it is recommended that one complete line of components be set aside and that installation completed before the other line is started. Install Line B first.
2. It is imperative that line A goes from the tractor control valve to the same port on the bucket cylinders on both sides of the scraper - and that line B is connected to the other port on both cylinders. If these lines are crossed, the lift pipe can be twisted and permanently damaged.
3. Line A contains 2 - 47" pipes (1), and a 42" pipe (2) connected at the rear of the gooseneck with a 45° street el (3), and a 1/2" tee (4). Line A then is attached to the top hole of the anchor brackets (7, Fig. K2) and with a 90° elbow (5) to a 52" hose (6). Attach the hose to the inside port of the bucket cylinder - on both sides of the bucket - with a swivel fitting (12). The hole clip (11, Fig. K3) supports the cylinder 27" pipe (9, Fig. K3) at the front port elbow.
4. Line B also uses 2 - 47" pipes (1), and a 42" pipe (2) and is jointed at the rear of the gooseneck with a 1/2" tee (4). Line B is then run through the bottom hole of the anchor brackets (7, Fig. K2) and attached to a 52" hose (6) through a 90° elbow (5). Attach this hose to the rear port of the cylinder with a swivel adaptor (13) jointed to the 27" cylinder pipe (9). Be certain the hose for line B is connected to the same, rear port on both bucket cylinders.
5. Figure K4 shows the optional cushion valve (17) installation at the front of the gooseneck. If the cushion valve is not installed, then both 88" hoses (16), from the tractor control valve, are attached to the hydraulic pipes with couplings (15, Fig. K4).
6. The bucket cylinders are attached to the siderails with 1" clevis pins, and to the lift pipe with snaprings (14, Fig. K).

MODEL 650-D AND 650-SS SCRAPER PARTS LIST

| Fig. No. | Ref. No. | Part No. | Description | Will Fit | No. Req. |
|---|---|---|---|---|---|
| K | 1 | 040432 | 47" Hydraulic Pipe | All | 4 |
| " | 2 | 041023 | 42" Hydraulic Pipe | " | 2 |
| " | 3 | 622220 | 45° Street El | " | 1 |
| " | 4 | 623220 | 1/2" Tee | " | 2 |
| " | 5 | 621520 | 1/2 X 90° Street El | " | 4 |
| " | 6 | 041021 | 52" Hose | " | 4 |
| " | 7 | 040476 | L.H. Anchor Bracket | " | 1 |
| " | - | 040475 | R.H. Anchor Bracket | " | 1 |
| " | 8 | 041001 | Cylinder Assembly (24" Stroke) | " | 2 |
| " | - | 041040 | Cylinder Repair Kit (S/N 3934 & up) | " | - |
| " | 9 | 041006 | 27" Pipe | " | 2 |
| " | 10 | 622320 | Street Elbow | | |
| " | 11 | 041010 | Hose Clip | " | 2 |
| " | 12 | 710400 | Female-Female Swivel Adaptor | " | 2 |
| " | 13 | 710402 | Male-Female Swivel Adaptor | " | 2 |
| " | 14 | 021880 | Snapring | " | 2 |
| " | 15 | 620720 | Coupling | " | 2 |
| " | 16 | 041017 | 88" Hose | " | 2 |
| " | 17 | 041018 | Cushion Valve Kit (Optional) | " | 1 |

IMPORTANT - NOTE CAREFULLY

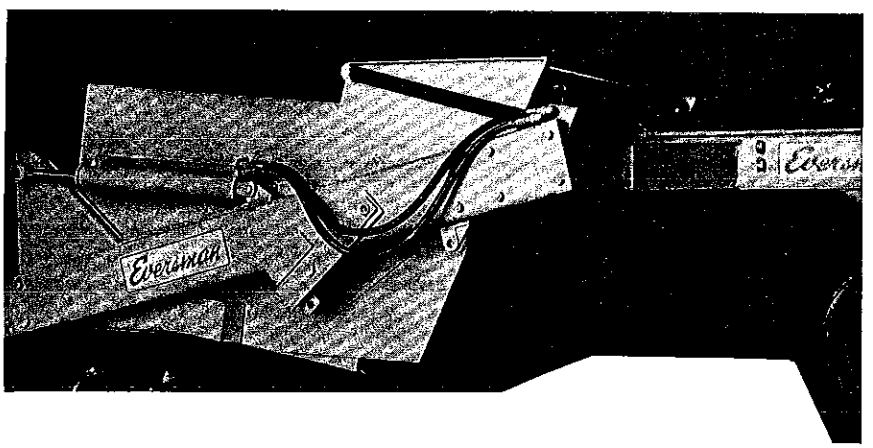
To operate the Model 650-D Scraper, the pin brackets must be bolted to the side-rails. As shown on the right, a 1" X 5-1/2" hex bolt (055646) nut and lock-washer must be installed through the pin bracket and siderail on both sides. Without these bolts the bucket to gate linkage is inoperative.



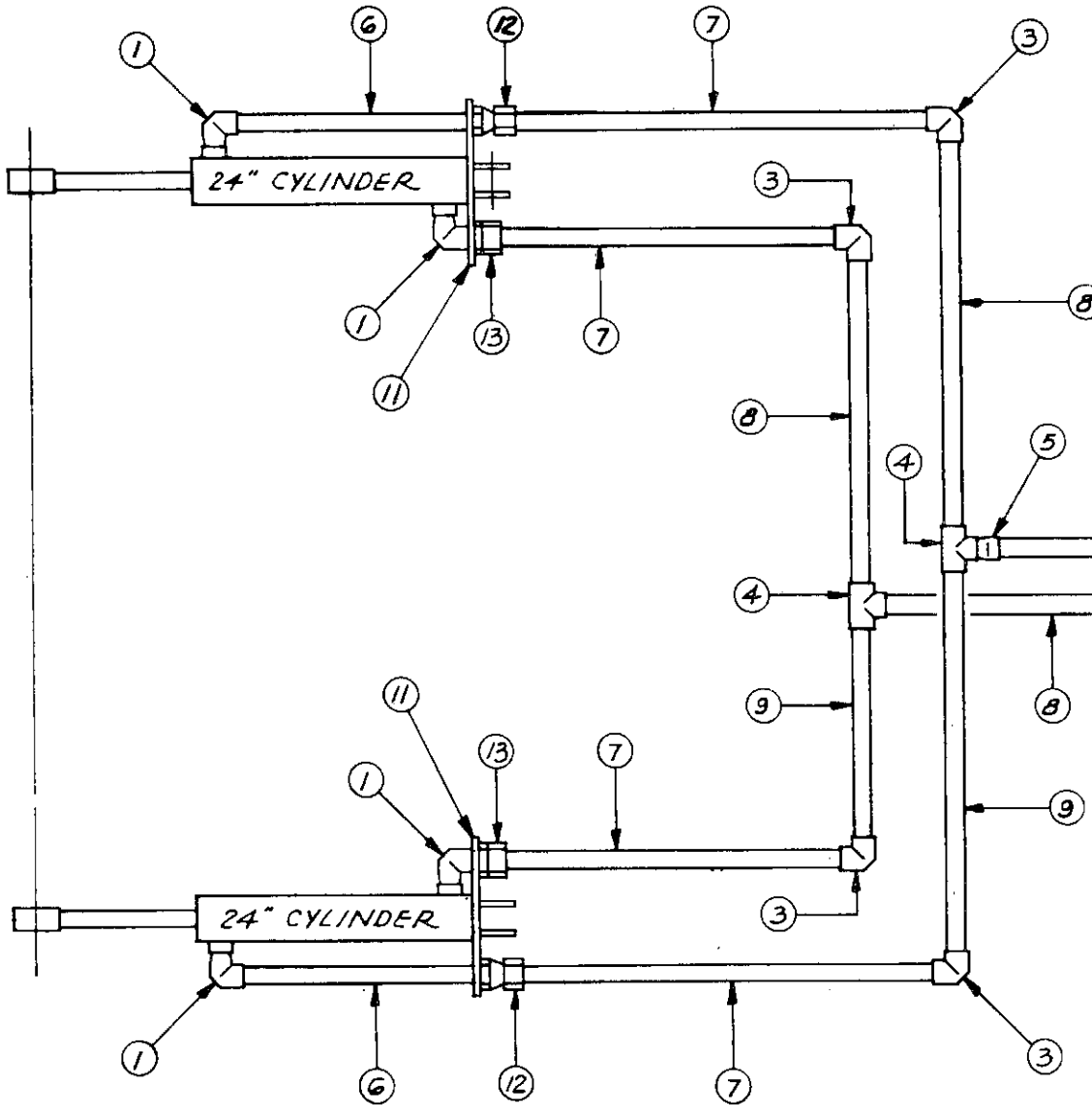
SPECIAL NOTES - IMPORTANT - FOLLOW THESE INSTRUCTIONS CAREFULLY.

Referring back to the detail assembly instructions, the bolts at the 4 corners of the siderails must now be thoroughly tightened as follows:

a) While the bolts are still loose, center the bucket and gate in the middle of the frame, so there is equal clearance on both sides.
b) Run the bucket through several cycles slowly, from full dump position to full cut.
c) Check to be certain the bucket and gate are still centered. (There is sufficient tolerance in the bolted connections to actually throw the bucket or gate far enough off center to cause interference.)
d) Then thoroughly tighten all corner bolts, progressively, as you move around the scraper. If bolts at one corner are completely tightened before moving to the next corner it is possible to pull the frame out of line. Hence, tighten each bolt several turns and then move on to the next, continuing until all are tight.
e) Be certain all zerks are well lubricated. Check hydraulic oil reservoir in tractor after cylinder hoses and oil lines are full.
f) In order to lift the 650 bucket to dump with a full load, the tractor hydraulic system must develop at least 1200 PSI, preferably 1500 PSI. This is no problem on recent wheel tractors, however, older models of wheel tractors and crawlers may be insufficient. This is especially true of crawlers with Be-Ge pumps which have a working pressure of only 850 PSI.
g) Be certain all air is bled from the hydraulic system since air pockets can produce erratic operation. After filling the scraper oil lines and cylinders, it will probably be necessary to check, and refill, the tractor hydraulic reservoir.



045111




THIS SKETCH IS A SCHEMATIC DIAGRAM ONLY (NOT TO SCALE)

045111

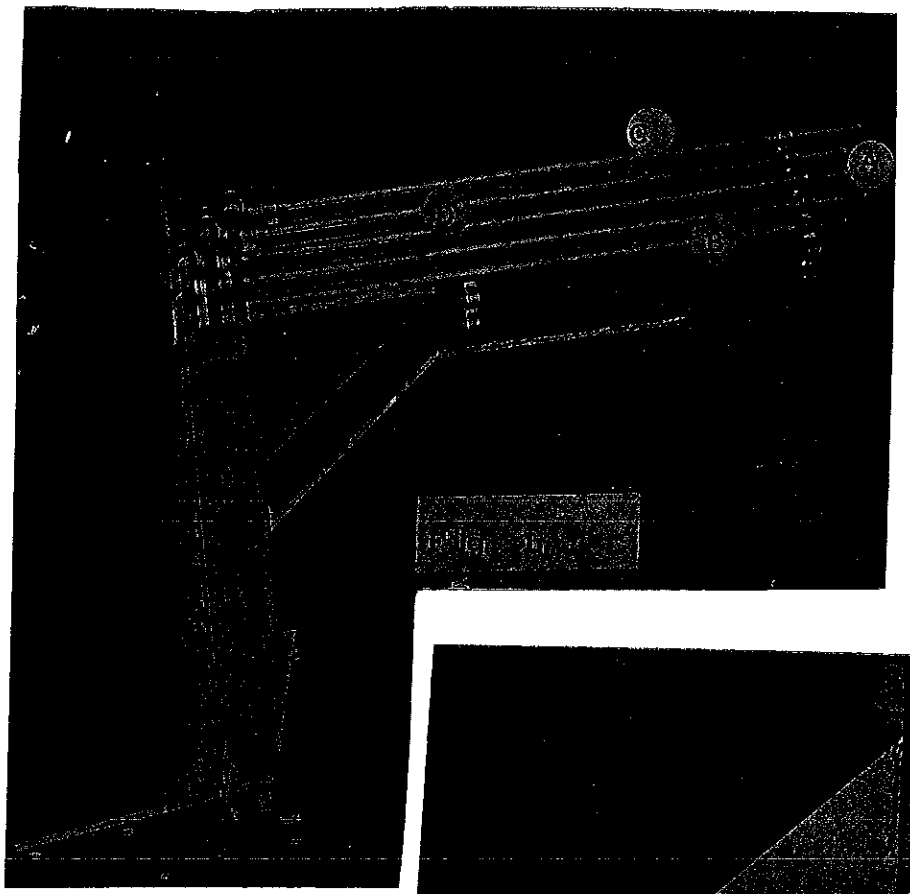
| | | | | |
|---|---|---|---|---|
| 13 | 710402 | 2 | FTG, 1/2 M♯F SWIVEL | A |
| 12 | 710400 | 2 | FTG, 1/2 F♯F SWIVEL | A |
| 11 | 041010 | 2 | CLIP, HYD. CYL. | A |
| 10 | 041017 | 2 | HOSE, 1/2 x 88 HYD. | A |
| 9 | 041023 | 2 | PIPE, HYD. 42" | A |
| 8 | 040432 | 4 | PIPE, 1/2 x 47 E.H. | A |
| 7 | 041021 | 4 | HOSE, 1/2 x 52 HYD. | A |
| 6 | 041006 | 2 | PIPE, HYD. CYL. 27 1/2 | A |
| 5 | 622020 | 1 | ELL, 1/2-45° STR. BLK | N |
| 4 | 623220 | 2 | TEE, 1/2 NPT BLK | N |
| 3 | 621520 | 4 | ELL, 1/2-90° BLK | N |
| 2 | 620620 | 2 | COUPLING, 1/2 BLK | N |
| 1 | 622320 | 4 | ELL, 1/2-90° STR. BLK | N |

# HYDRAULIC DIAGRAM MODEL 650D SCRAPER

045111

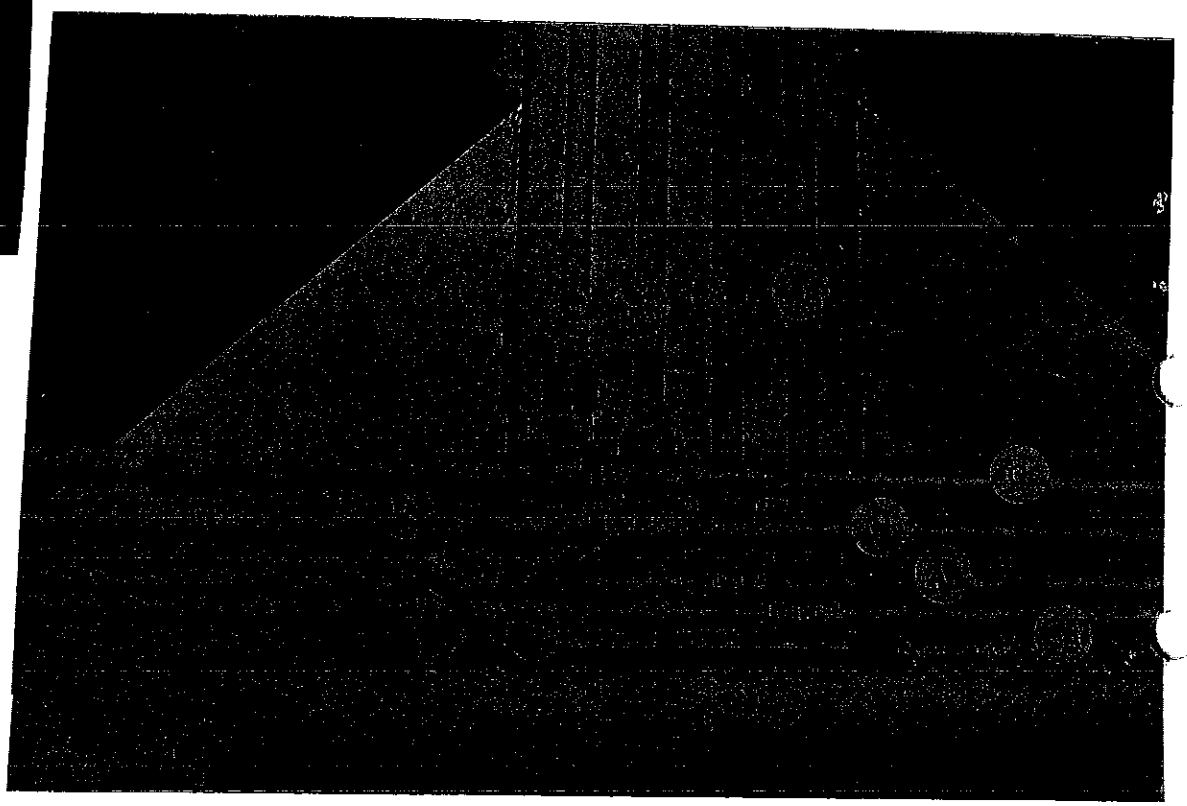
The following instructions apply only to the Model 650-SS, "Spreading Scraper".

The difference between the 650-D and the 650-SS is the addition of two 8" stroke cylinders to control the spread during dumping; and the required hydraulic fittings, hoses and pipes to operate these cylinders. For the Model 650-SS, two tractor control valves are required. Figures L and L-1 below show the installation of the hydraulic lines on the gooseneck. This is the complicated part of the 650-SS assembly, so follow instructions carefully. Lines A and B will connect to one tractor control valve, and to the bucket cylinders (24" stroke cylinders). Note sketch on page 12 for hydraulic line assembly for bucket cylinders. Follow these lines through Figures L and L-1; and through the side connections, Figure M, to the cylinder hoses, and then into the cylinder ports, Figure M-1. You must be absolutely certain that line A connects to the same cylinder port on each side, and that line B connects to the other port on each side - otherwise, the lift pipe will be twisted and permanently damaged.



The parts and detail instructions for lines A and B are on page 10.

**Note - Also refer to Sketch #045113, on page 17 for hydraulic line assembly for the Model 650-SS**



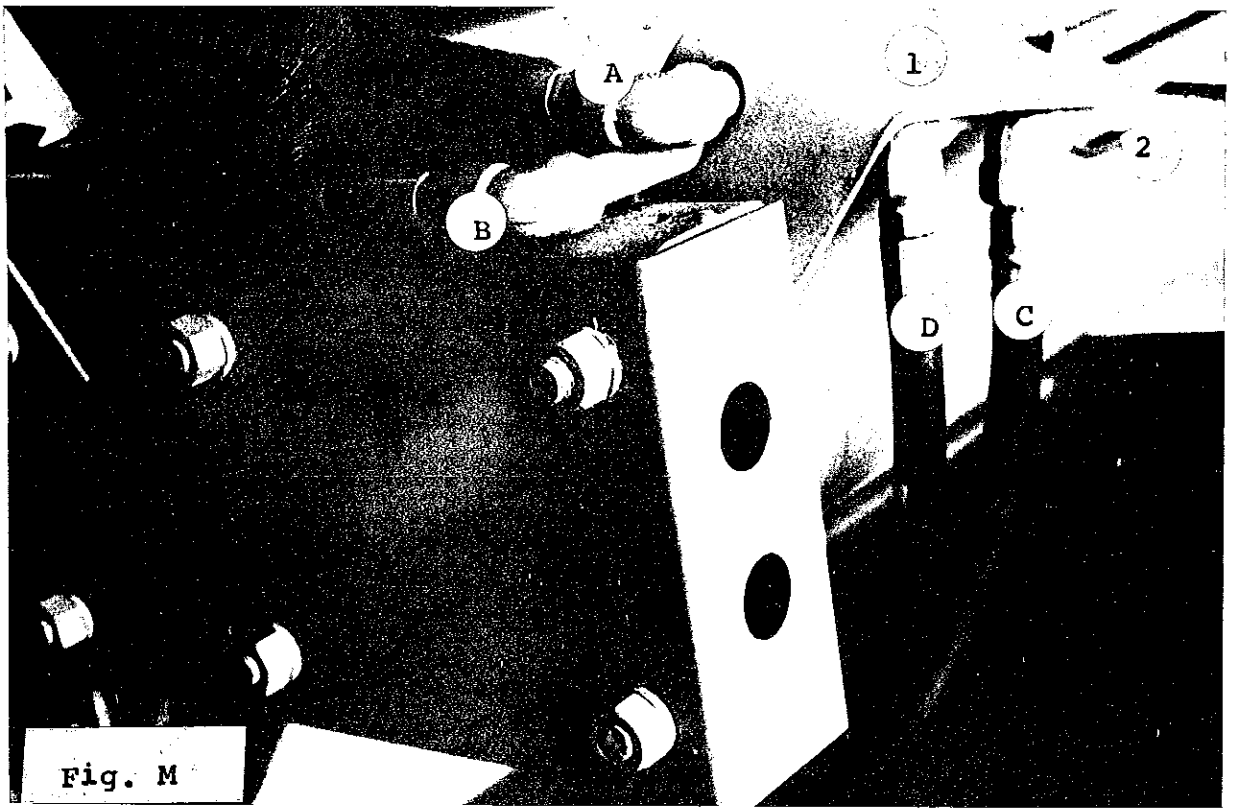


Fig. M

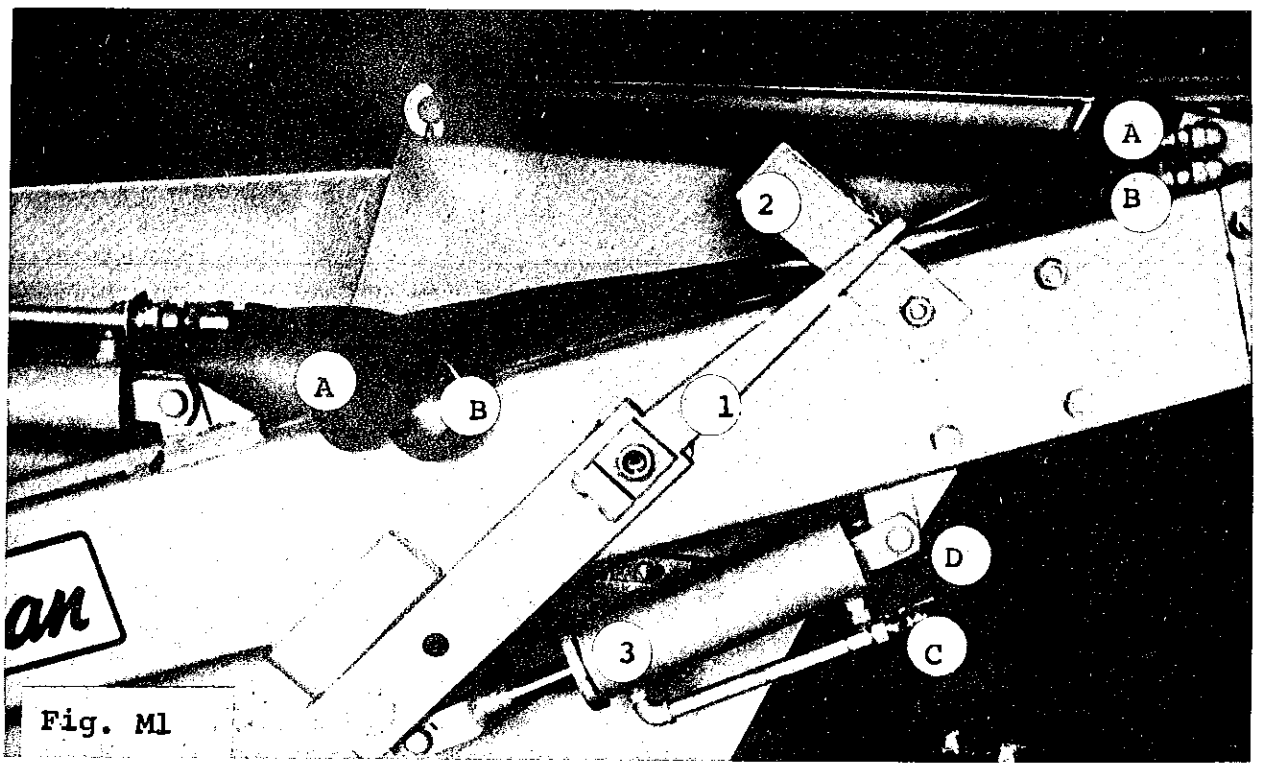


Fig. M1

041025 Spreading Scraper Hydraulic Kit converts a Model 650-D to a Model 650-SS.

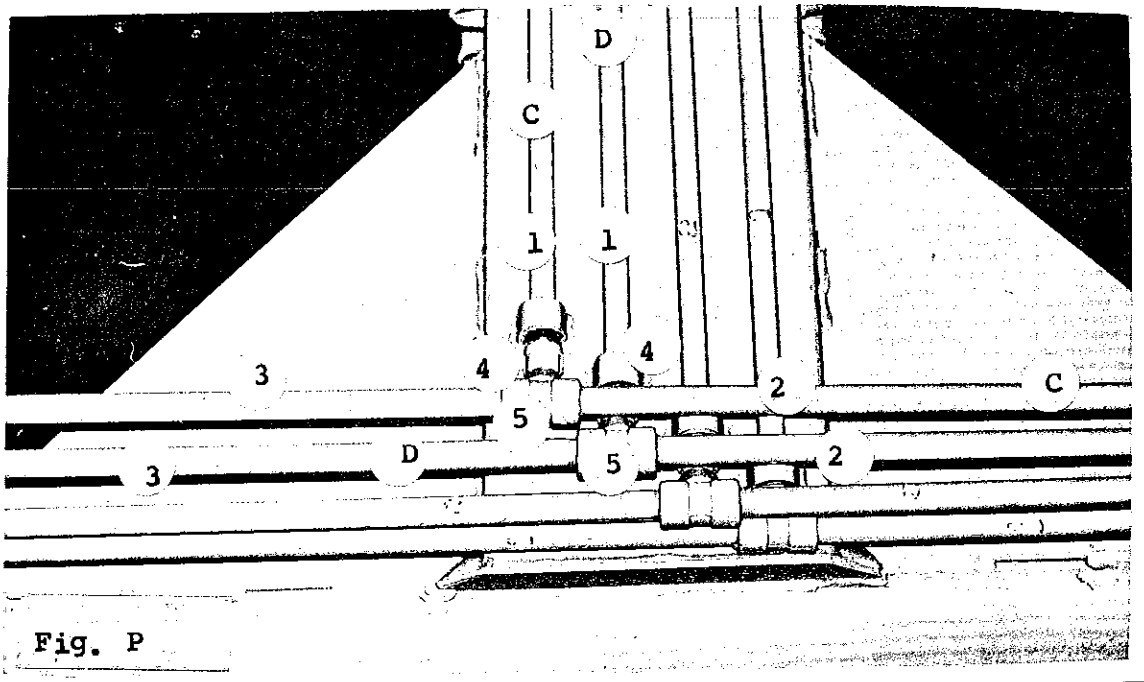



Fig. P

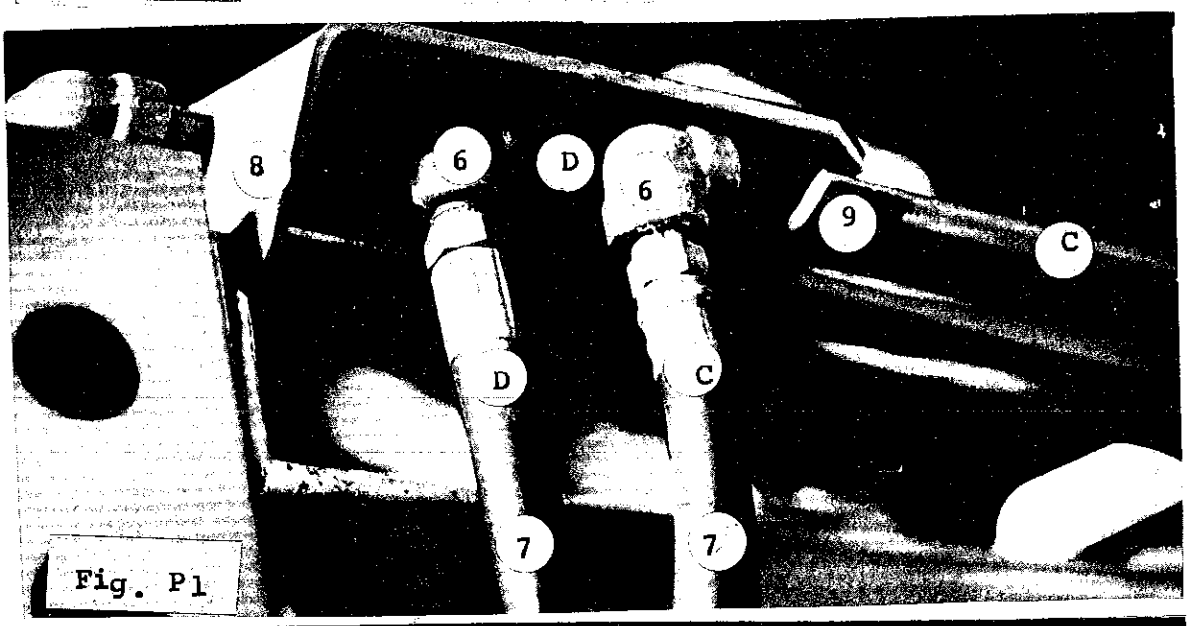



Fig. P1

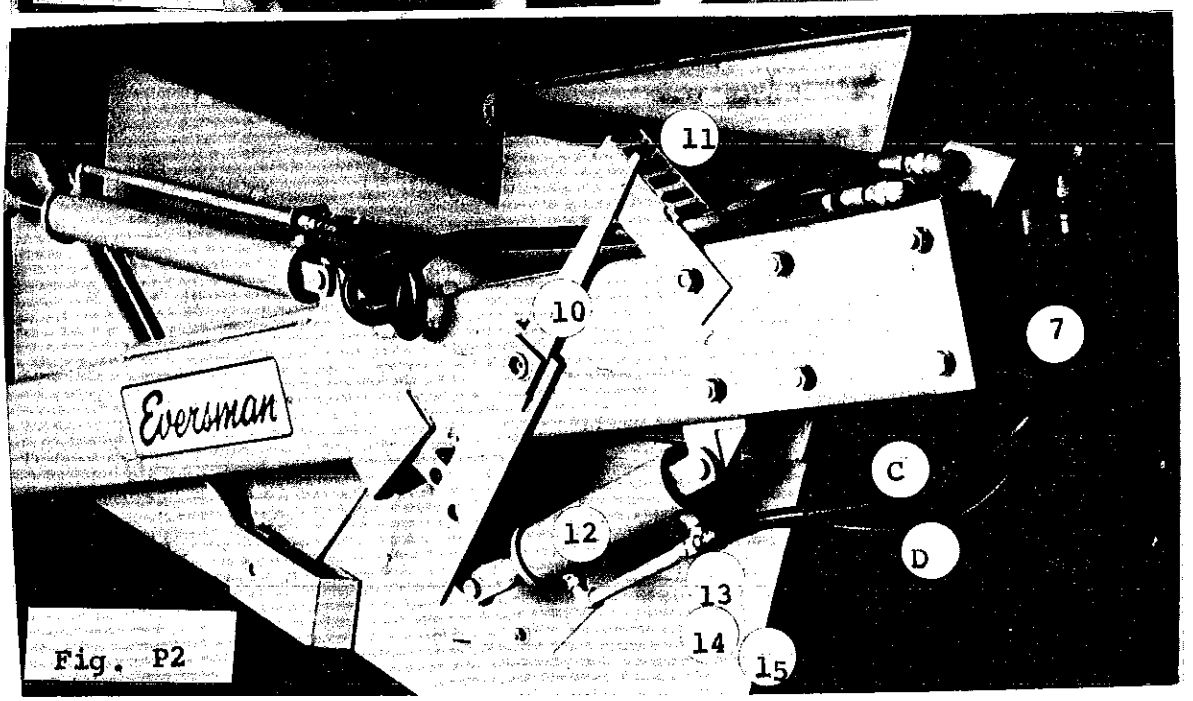



Fig. P2

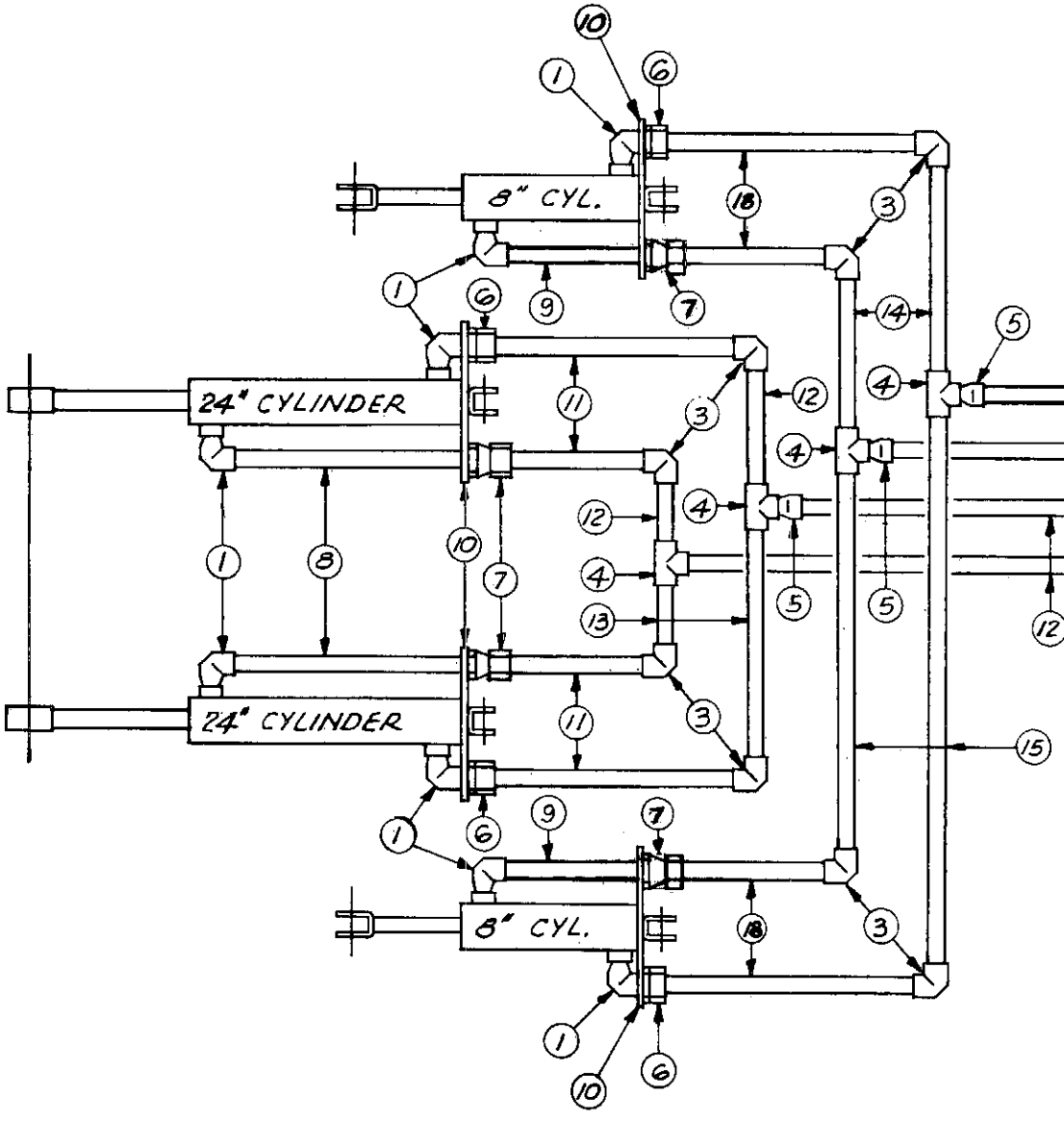
Figure P, P1 and P2

1. For line C lay out the 43-1/2", 40" and 37" pipes, along with a 45° street el and 1/2" tee and assemble as shown in Fig. P. The pipes are secured to the siderails with anchor brackets (8, Fig. P1).
2. For line D lay out the same length pipes, street el and tee, and assemble. Line C and D pipes are fastened together with a pipe clip (9) as shown in Fig. P1.
3. Attach 8" stroke cylinders (12, Fig. P2) to the siderails and pin brackets, as per Fig. P2, with 1" clevis pins, and 34" hoses (7) lead from the oil pipes to the cylinder ports. Use swivel fittings (13 & 14) and a hose clip (15) to connect the hoses to the cylinder.
   CAUTION: Be certain that the same oil lines are connected to the same cylinder ports on both cylinders.
4. Install the pointers (10) and indicators (11) on both siderails.

| Fig. No. | Ref. No. | Part No. | Description | Will Fit | No. Req. |
|---|---|---|---|---|---|
| Line C - To Spreading Cylinders | | | | | |
| P | 1 | 041024 | 43-1/2" Pipe | All | 1 |
| " | 2 | 041022 | 40" Pipe | " | 1 |
| " | 3 | 041009 | 37" Pipe | " | 1 |
| " | 4 | 622220 | 45° Street El | " | 1 |
| " | 5 | 623220 | 1/2" Tee | " | 1 |
| " | 6 | 621520 | 1/2 X 90° El | " | 2 |
| " | 7 | 022270 | 34" Hose | " | 2 |
| Line D - To Spreading Cylinders | | | | | |
| P | 1 | 041024 | 43-1/2" Pipe | " | 1 |
| " | 2 | 041022 | 40" Pipe | " | 1 |
| " | 3 | 041009 | 37" Pipe | " | 1 |
| " | 4 | 622220 | 45° Street El | " | 1 |
| " | 5 | 623220 | 1/2" Tee | " | 1 |
| " | 6 | 621520 | 1/2 X 90° El | " | 2 |
| " | 7 | 022270 | 34" Hose | " | 2 |
| P1 | 8 | 040476 | R.H. Anchor Bracket | " | 1 |
| - | - | 040475 | L.H. Anchor Bracket | " | 1 |
| " | 9 | 705800 | Pipe Clip | " | 2 |
| P2 | 10 | 044612 | Pointer | " | 2 |
| " | 11 | 044613 | Indicator | " | 2 |
| " | - | 044614 | Indicator Arm | " | 2 |
| " | 12 | 311015 | Cylinder Assembly 8" Stroke | " | 2 |
| " | - | 622320 | 1/2 X 90° Street El | - | - |
| " | - | 041013 | 1/2 X 9-1/2" Pipe | - | - |
| " | - | 060403 | 1/4 Allen Set Screw | - | 1 |
| " | - | 063764 | 1/4 X 2 Cotter | - | 2 |
| " | - | 064593 | Locknut | - | 1 |
| " | - | 031260 | Rod Guide | - | 1 |
| " | - | 305730 | Clevis Rod | - | 1 |
| " | - | 311016 | Barrel | - | 1 |
| " | - | 401043 | Piston | - | 1 |
| " | - | 701026 | 1 X 3 Pin | - | 1 |
| " | - | 024500 | Seal Kit | - | 1 |
| " | 13 | 710400 | 1/2 Female-Female Swivel | All | 2 |
| " | 14 | 710402 | 1/2 Male-Female Swivel | " | 2 |
| " | 15 | 041010 | Hose Clip | " | 2 |

Effective Serial No. 4640, the welded pipe clips were replaced with 413100 pipe clips which are held with 1/2 X 1" hex bolts.

045113




THIS SKETCH IS A SCHEMATIC DIAGRAM ONLY (NOT TO SCALE)

045113

| | | | | |
|---|---|---|---|---|
| 18 | 022270 | 4 | HOSE, 1/2 x 34 HYD. | A |
| 17 | 041017 | 4 | HOSE, 1/2 x 88 HYD. | A |
| 16 | 041024 | 2 | PIPE, 1/2 x 43 1/2 E.H. | A |
| 15 | 041022 | 2 | PIPE, 1/2 x 40 E.H. | A |
| 14 | 041009 | 2 | PIPE, 1/2 x 37 E.H. | A |
| 13 | 041023 | 2 | PIPE, HYD. 42" | A |
| 12 | 040432 | 4 | PIPE, 1/2 x 47 E.H. | A |
| 11 | 041021 | 4 | HOSE, 1/2 x 52 HYD. | A |
| 10 | 041010 | 4 | CLIP, HYD. CYL. | A |
| 9 | 041013 | 2 | PIPE, 1/2 x 9 1/2 E.H. | A |
| 8 | 041006 | 2 | PIPE, HYD. CYL. 27 1/2 | A |
| 7 | 710400 | 4 | FTG, 1/2 F & F SWIVEL | A |
| 6 | 710402 | 4 | FTG, 1/2 M & F SWIVEL | A |
| 5 | G22020 | 3 | ELL, 1/2-45° STR. BLK | N |
| 4 | G23220 | 4 | TEE, 1/2 NPT BLK | N |
| 3 | G21520 | 8 | ELL, 1/2-90° BLK | N |
| 2 | G20G20 | 4 | COUPLING, 1/2 BLK | N |
| 1 | G22320 | 8 | ELL, 1/2-90° STR. BLK | N |

# HYDRAULIC DIAGRAM MODEL 650SS SCRAPER

045113

Model 650-DT

This scraper is the front unit for a tandem operation. It is identical to the Model 650-D except for the additional hydraulic parts and the tandem rear frame, 040465, (Fig. Q), which contains a drawbar required to pull the trailing unit. Two tractor control valves are required for operation of the tandem machines.

An older Model 600-SD Eversman scraper can be pulled behind a 650-DT machine without any alterations.

Drawing 045112 on page 19 shows the routing of the hydraulic lines and the parts list for the DT model. The 108" pipes (5) are inserted inside the siderails of the front unit. The couplers and hoses for the trailing scraper hydraulic lines are shown in Fig. Q1.

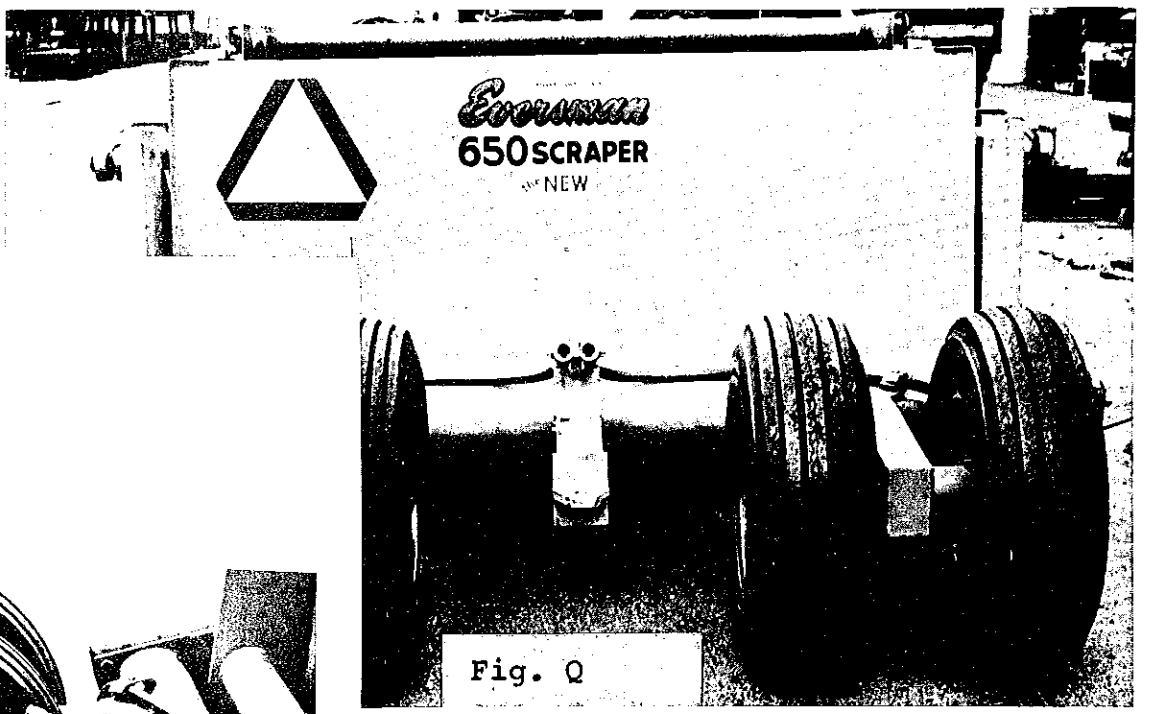


Fig. Q

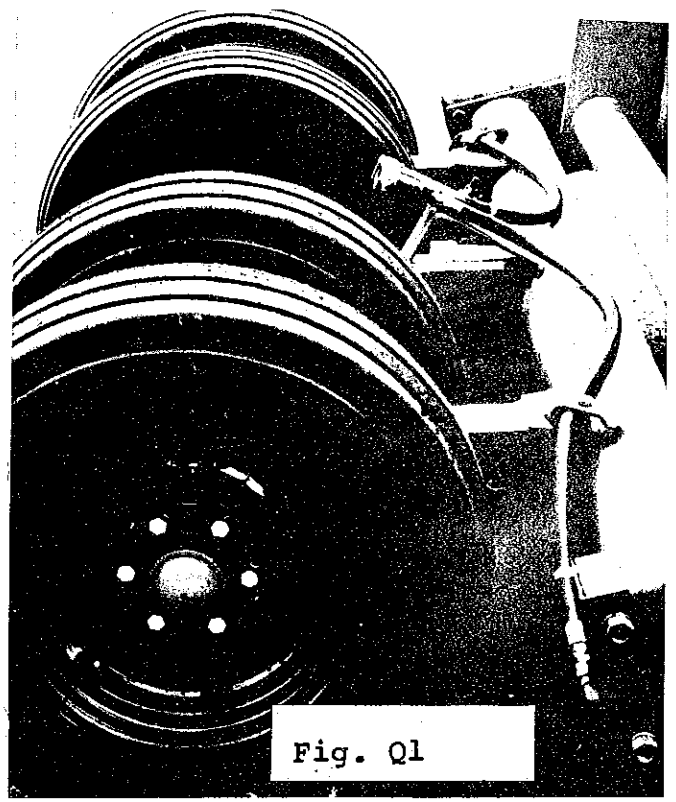


Fig. Q1

To convert a Model 650-D to a Model 650-DT, install:

044013 - Tandem Drawbar Kit, and
041031 - Hydraulic Kit

- - - - - - - - - - - - -

To convert a Model 650-DT to a Model 650-SST, install:

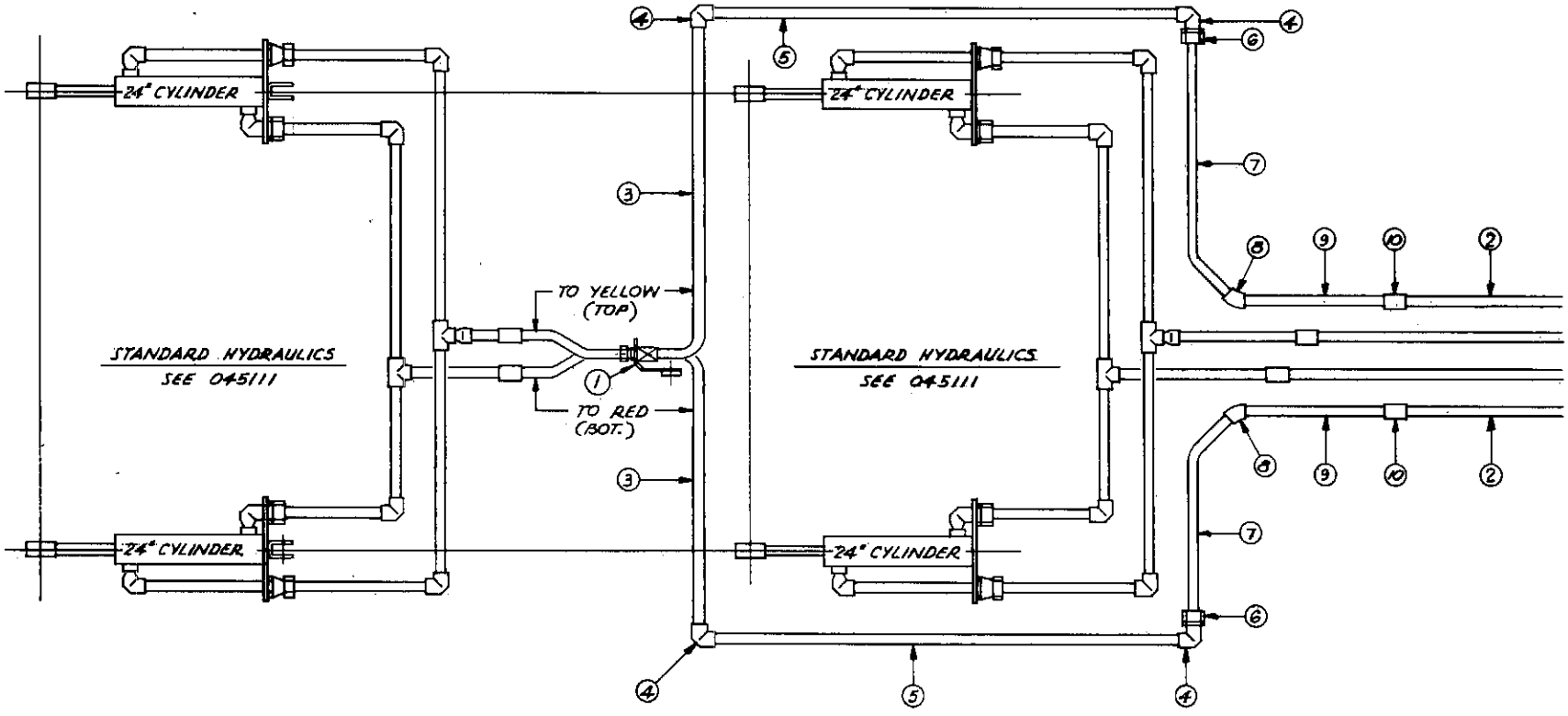
041032 - Hydraulic Kit

- - - - - - - - - - - - -

To convert a Model 650-SS to a Model 650-SST, install:

041029 - Hydraulic Kit

045112




THIS SKETCH IS A
SCHEMATIC DIAGRAM ONLY
(NOT TO SCALE)

| | | | | |
|---|---|---|---|---|
| 10 | 620620 | 2 | COUPLING, 1/2 BLK. | N. |
| 9 | 041027 | 2 | PIPE, 1/2 x 29 E.H. | A. |
| 8 | 621020 | 2 | ELL, 1/2 x 45° BLK. | N. |
| 7 | 041026 | 2 | HOSE, 1/2 x 42 HYD. | A. |
| 6 | 710402 | 2 | FTG, 1/2 M F.F. SWIVEL | A. |
| 5 | 041008 | 2 | PIPE, 1/2 x 108 3/4 E.H. | A. |
| 4 | 621520 | 4 | ELL, 1/2 x 90° | N. |
| 3 | 041021 | 2 | HOSE, 1/2 x 52 HYD. | A. |
| 2 | 041017 | 2 | HOSE, 1/2 x 88 HYD. | A. |
| 1 | 601010 | 1 | COUPLERS ASM, Q.D. R 1/4 | A |

TANDEM SCRAPER.

HYDRAULICS DIAGRAM
MODEL 650 DT SCRAPER
045112

THE EVERSMAN MFG COMPANY
DENVER, COLO. 80204

MODEL 650-SST

This model is the front unit of a tandem operation utilizing the spreading cylinders. The Model 650-SST is the front machine and a Model 650-SS is the trailing unit. The combination requires two tractor control valves and a selector valve. If the tractor is equipped with four control valves, the selector valve can be eliminated. Sketch #045114 on page 21 shows the routing of the hydraulic lines and the fittings required. The photographs on page 22 show the final assembly. The operating sequence is as follows:

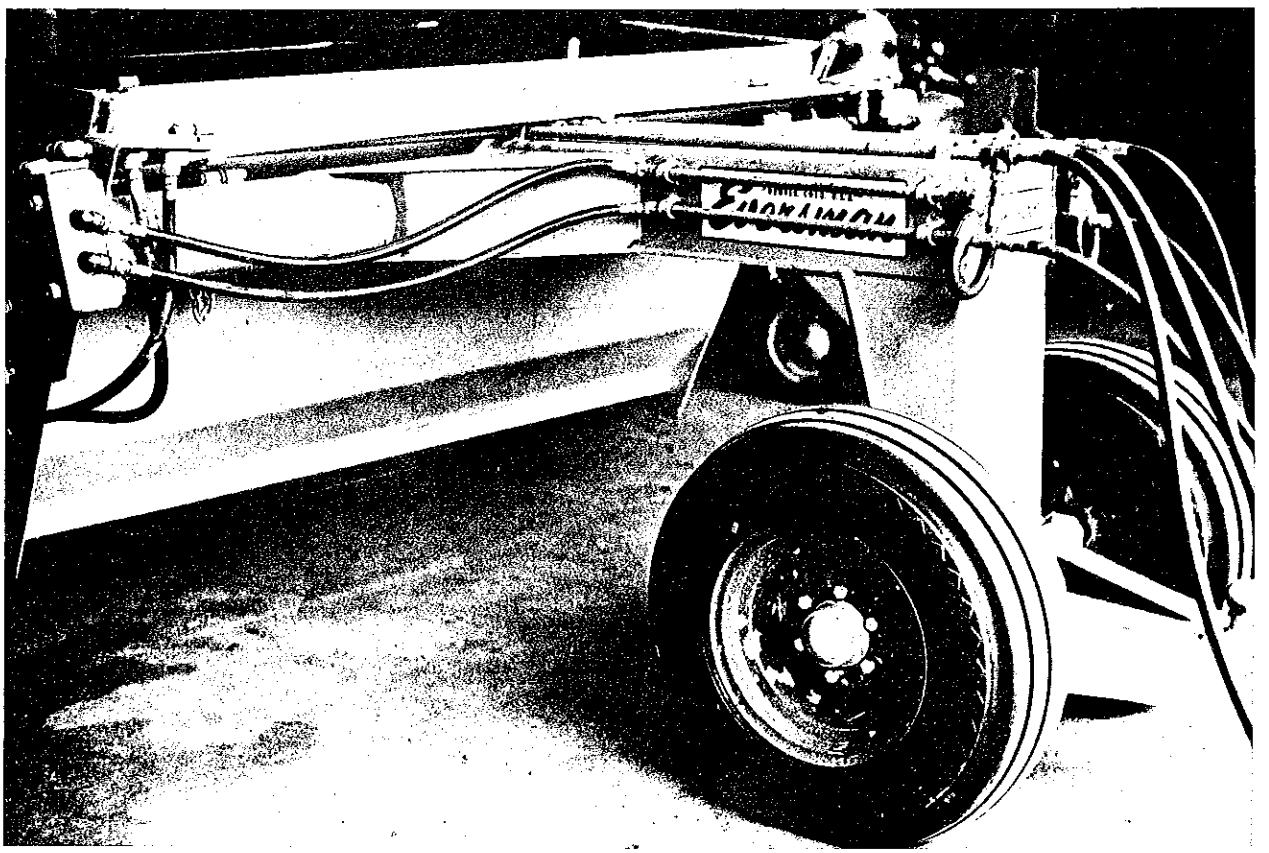
(a) Set the selector valve for the front unit hydraulic system and load.

(b) When the front bucket is fully loaded, raise to transport position, and then shift the selector valve to the trailing unit hydraulic system. Fully load and raise the rear unit to transport position.

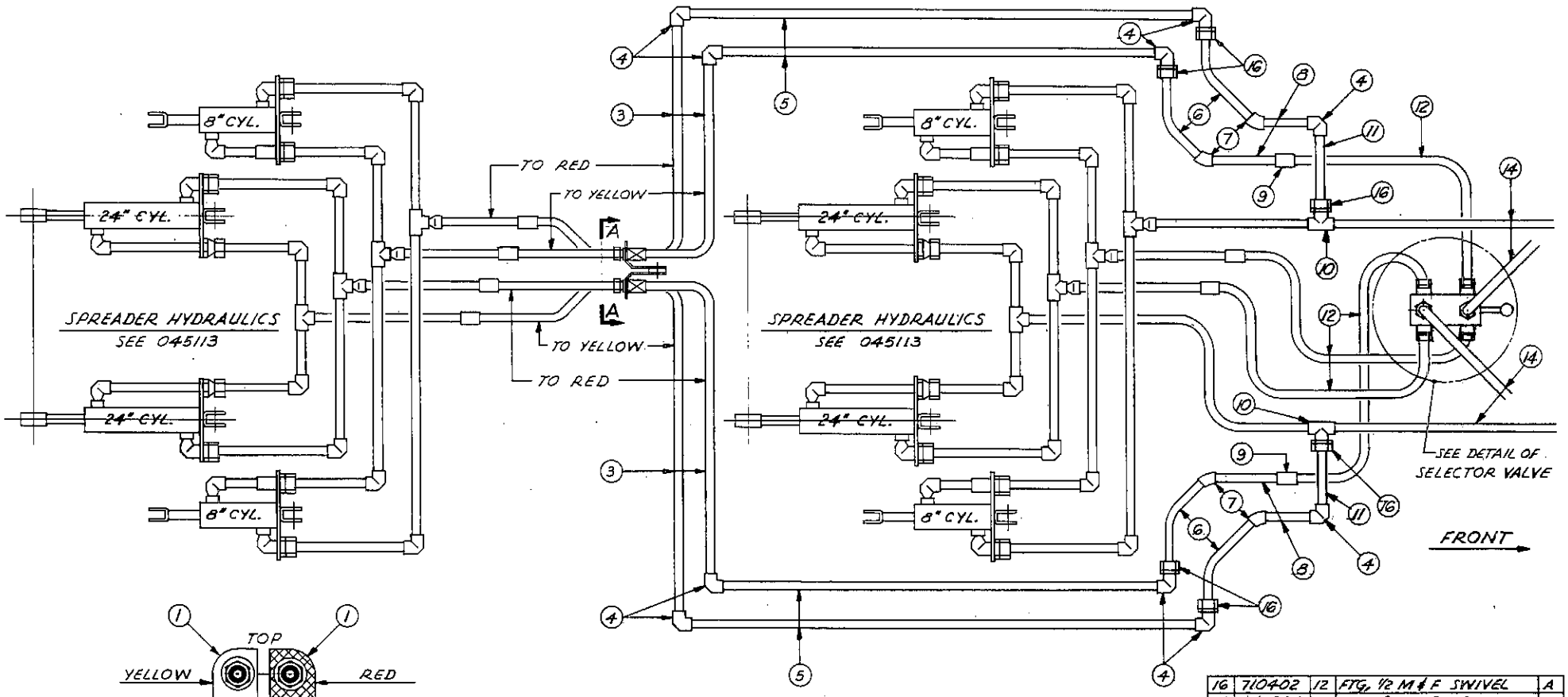
(c) On approach to dump area, shift the selector valve back to the front unit and operate bucket cylinders and spreading cylinders just as you would for a single model 650-SS scraper. The front machine can be left in this spreading condition, and still shift the selector valve to the rear unit to spread with that bucket also.

Actually, the operation of the tandem units is identical to a single scraper operation except you have the option, by means of the selector valve, to control either the front or the rear machine.

As in the case of a single scraper operation, always remember to return the spreading cylinders to the fully extended position as soon as you have finished dumping and before returning to the transport position. Forming this habit will eliminate the problem of loading, since you must load by utilizing the bucket cylinder only, and not the spreading cylinder.



045114

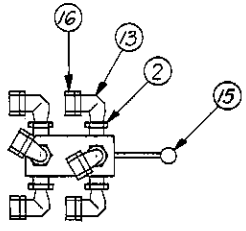






SEC. A-A

THIS SKETCH IS A SCHEMATIC DIAGRAM ONLY (NOT TO SCALE)

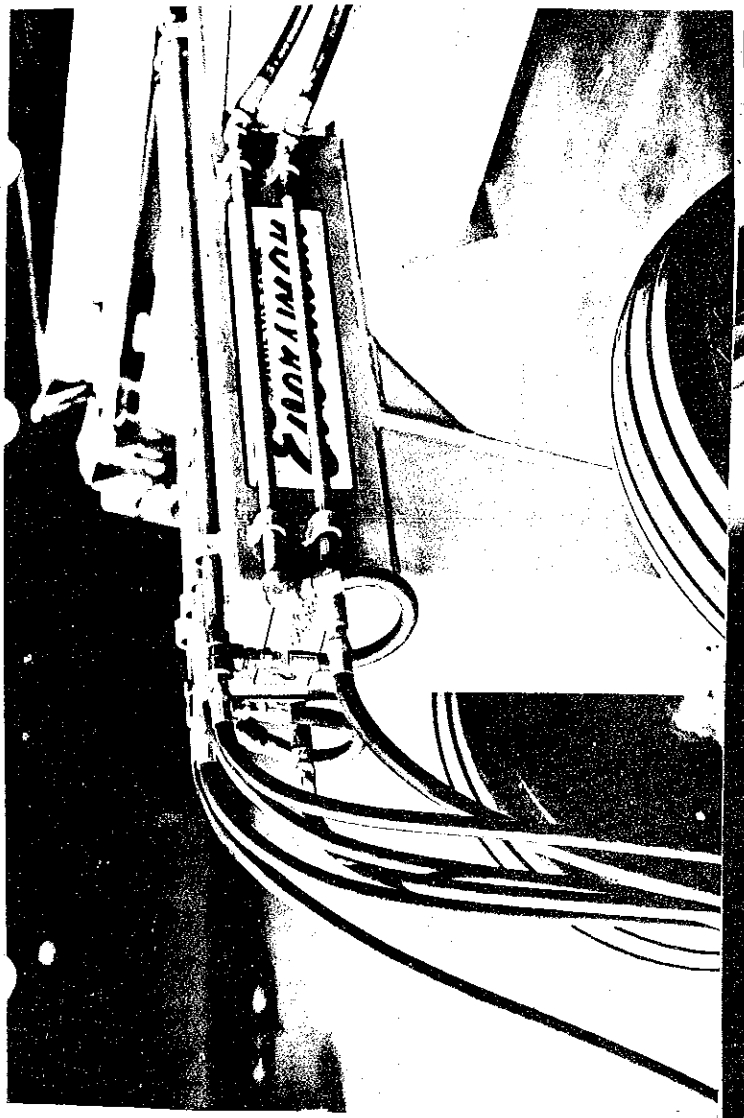


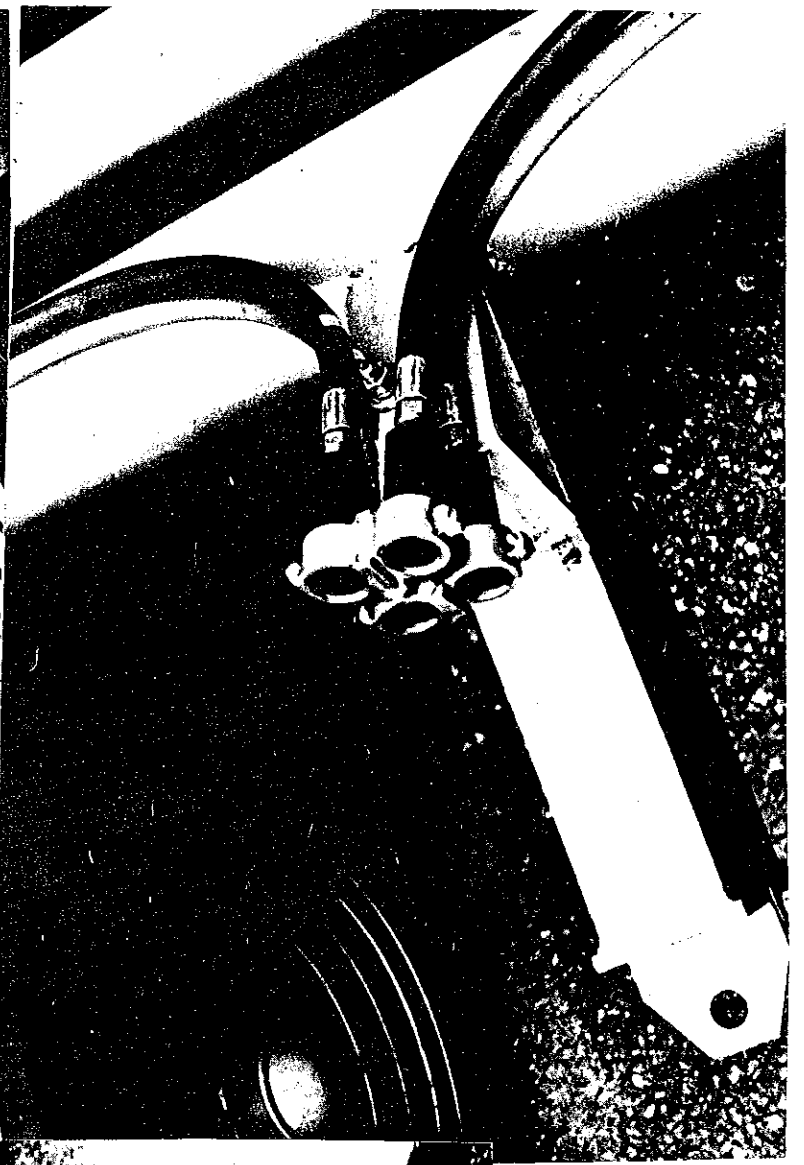
DETAIL SELECTOR VALVE

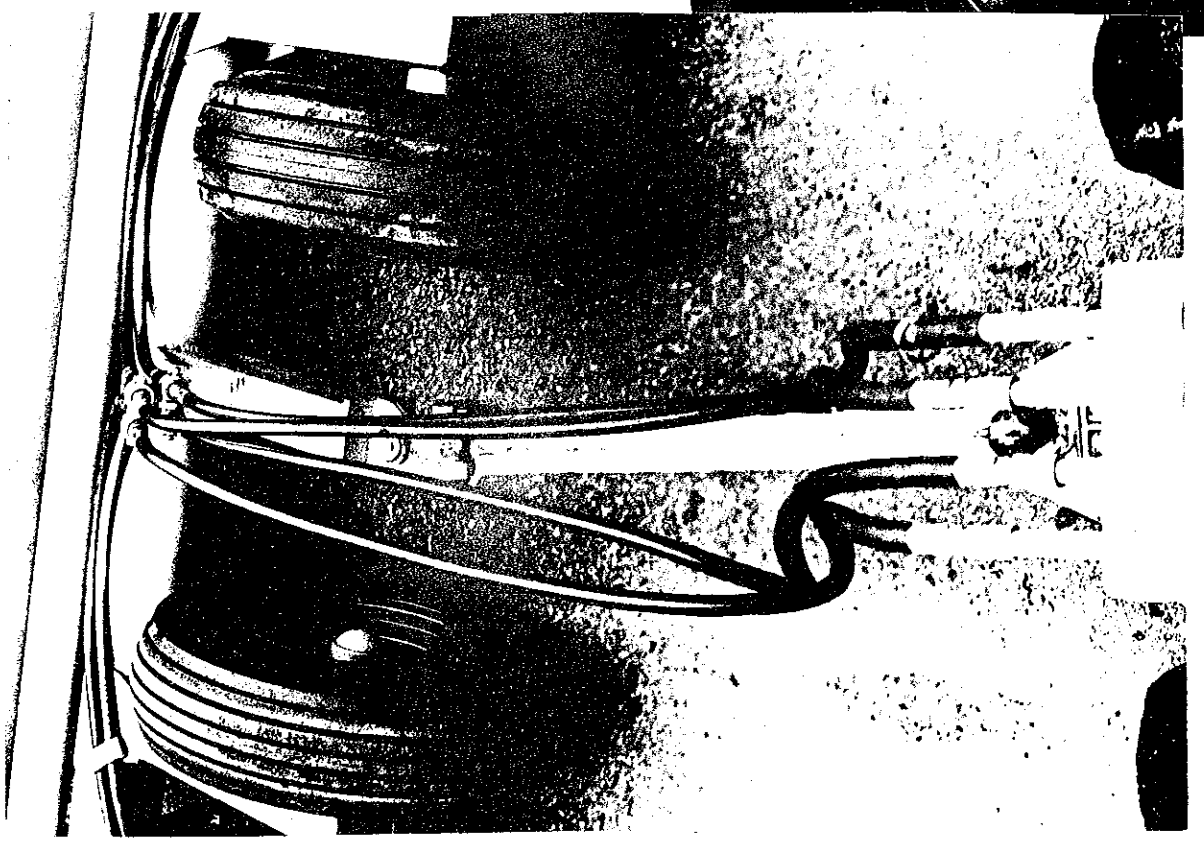
| IT. | DWG NO. | QTY | DESCRIPTION | SIZE |
|---|---|---|---|---|
| 16 | 710402 | 12 | FTG, 1/2 M & F SWIVEL | A |
| 15 | 041028 | 1 | VALVE, SELECTOR | A |
| 14 | 041017 | 4 | HOSE, 1/2 x 88 HYD. | A |
| 13 | 622320 | 6 | ELL, 1/2 x 90° STR. BLK | N |
| 12 | 041042 | 4 | HOSE, 1/2 x 120 | A |
| 11 | 041041 | 2 | HOSE, 1/2 x 15 H-P | A |
| 10 | 623220 | 2 | TEE, 1/2 NPT BLK | N |
| 9 | 620620 | 2 | COUPLING, 1/2 BLK | N |
| 8 | 041027 | 4 | PIPE, 1/2 x 29 E.H. | A |
| 7 | 621020 | 4 | ELL, 1/2 x 45° BLK | N |
| 6 | 041026 | 4 | HOSE, 1/2 x 42 HYD. | A |
| 5 | 041008 | 4 | PIPE, 1/2 x 108 3/4 E.H. | A |
| 4 | 621520 | 10 | ELL, 1/2 x 90° | N |
| 3 | 041021 | 4 | HOSE, 1/2 x 52 HYD. | A |
| 2 | 620060 | 6 | BUSHING, 1 x 1/2 REDUCING | N |
| 1 | 601010 | 2 | COUPLERS ASM, Q.D. R & Y | A |

TANDEM SCRAPER
HYDRAULICS DIAGRAM
MODEL 650 SST SCRAPER | 045114

THE EVERSMAN MFG COMPANY
DENVER, COLO. 80204







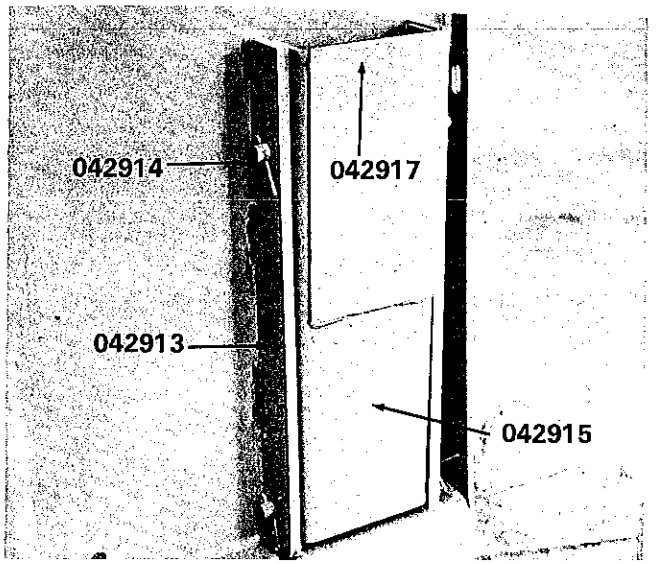
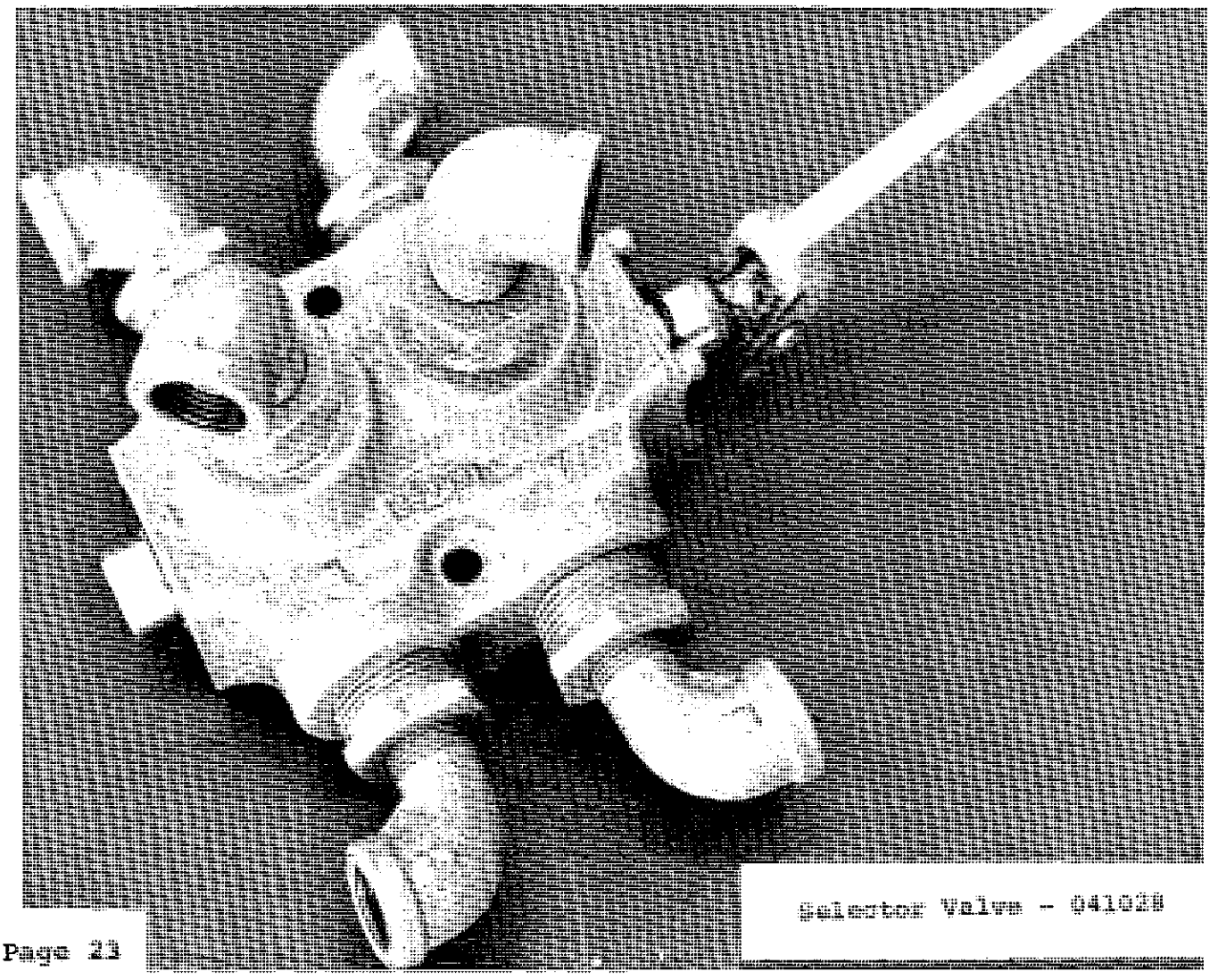



**Figure R– Stabilizer Assembly**

Figure R shows installation of the stabilizer assembly under the bucket and immediately behind the cutting bit. These are factory assembled on the buckets before shipping. The purpose of these stabilizers is to prevent side-to-side wobble during cutting. They should be set only *low* enough to accomplish a smooth cut – depending on the soil conditions. If they are set too low, below the bottom of the bucket, they will impair the cutting ability of the bit. In heavy soils, they should run almost flat; in average soils, about 1" below the support bars; and in loose or sandy soils, they must be set in the most forward holes so they will run *deeper* in the ground to stabilize the cut. When the wear plate (042917) is worn, torch off and replace.



# OPERATING INSTRUCTIONS

The Eversman Scraper will work under a very wide variety of soil and moisture conditions, however, dirt moving is primarily a dry soil operation. If the soil sticks to the wheels and builds up excessively, it is too wet to work. Excessive slippage, unnecessary power consumption, and over compaction of the fill areas may result. The questions of top soil removal, proper finished grade and balancing out your cuts and fills can be answered by your local, state, or federal technicians if you are in doubt.

It does not require any special skill or training to operate the Eversman Scraper. However, a little experience plus good management can help get the job done more quickly. The TOTAL YARDS MOVED PER HOUR depend on:

(1) *Having a Definite Planned Program* and following it.
(2) The *Average Load Size.*
(3) The *Hauling Distance.*
(4) The *Speed of Operations* (or total time per cycle).
(5) The amount of *Lost Time* from interruptions, unnecessary stops, etc.

It will pay in time and fuel saved to lay out a definite program before you start your project, especially on field leveling or terracing. Some suggestions on planning "cut-haul-fill" patterns are covered below under "Field Grading."

## Loading

The *size* of your *loads* will depend on: (1) the tractor power and traction; (2) the soil conditions; and (3) your operating skill and procedure. Your average load size can usually be increased with practice. While the Eversman 650D and 650SS models can each be heaped to a 6-yard capacity, in general, more yards per hour can be moved by taking the largest load you can pick up quickly, then hauling, unloading, and returning as fast as you can safely.

Under some conditions (like loading sand) speed may help in heaping the load; while in others, power is more often a factor. Generally, it is preferable to make *Long, Thin, Smooth Cuts* and *Keep the Tractor Moving.* It is better for succeeding loads to keep the cut area relatively smooth.

Normally, the *Best Gear for Loading* is the highest gear in which the tractor will spin the wheels before stalling the engine. When possible, make the cut in the same direction as you haul to save time and avoid turning with a full load. Start to make your cut as you approach a slight ridge, or high spot. It requires power to take the dirt back, and up, in the bucket, which can best be supplied by cutting into the ridge.

## Hauling

If the field or work area is rough or the distance to haul is rather long, it will be worthwhile to make a *Smooth Hauling Lane* and possibly a separate return path so that you can haul and return in a high gear. (For route patterns, see Field Grading.)

As you are leaving the loading area, raise the load to the hauling position.

## Spreading and Dumping - MODEL 650-D

A single-control valve on the tractor operates both the bucket and the gate. The gate of the Eversman Scraper opens automatically, as the bucket is actuated backward and upward toward a near vertical position. The bucket can be stopped at any point to vary the thickness of the spread soil.

A compromise was made on the design specifications of the Eversman, whereby the range on the thin side of the spreading was reduced in order to both (1) provide greater transport clearance; and, (2) to reduce the initial cost by eliminating the need for a second control valve on the tractor, and a separate hydraulic cylinder to regulate the opening and closing of the gate. In dry, light soils, the bucket will start to dump as soon as the gate opens. However, in heavier and damp, sticky soils, the bucket must be rotated further back before the load starts to dump. This might result in a thicker, more concentrated spreading than desired. The soil, however, can be distributed over a wider area, in a thinner layer, by crossing the fill on a succeeding trip, with the bucket in its lowest position. The best way to actually distribute the soil over the fill area is with a land smoother, after all dirt moving is completed.

When dumping, it is recommended that the highest possible speed be maintained through the fill area, and that the bucket be *gradually opened,* rather than to open it quickly by moving the control valve handle rapidly from the hauling position to the full dump position.

## Field Grading

It will pay to determine, before you start operations, the areas to be cut and filled, the depth of each cut and fill, and the best haul-route pattern. It is cheaper to haul in two directions from the same cut, if possible. There are, in general, three "cut-haul-fill" patterns. Sometimes they can be combined at a definite saving.

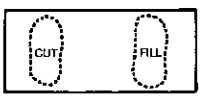


Figure A

Figure B

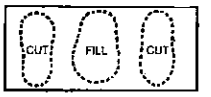


Figure C

If you can work the plan shown in Fig. **B** or **C**, rather than **A**, it will save travel and turning time. It may be possible to reduce empty travel time by combining several cuts, hauls and fills on the field in one overall or continuous circuit.

## Pit Silo and Trench Construction

In order to keep the banks vertical, install the optional trenching bits (Kit No. 044010) under the side frame rails (Refer Fig. **R**). Make cuts downhill, and take long, thin cuts to keep the bottom of the trench as smooth as possible.

## Field Finishing

After completing your dirt moving work, you still must finish your field by smoothing, especially the cut and fill areas. A few times over the field with an Eversman Land Smoother will wipe out the rough spots and surface irregularities.

AFTER EXTENSIVE EARTH MOVING and land forming, you should consider the need to: (a) use a subsoiler or pan breaker if moisture conditions and heavy traffic have caused excessive compaction; (b) apply proper fertilizer to the cut areas; (c) plant an annual crop the first season while permitting the fill areas to settle; (d) recheck the grades and correct any settlement by again leveling before planting a perennial crop; (e) maintain the correct surface (and produce a good seedbed) by always using a land smoother ahead of your seeder. It takes time, money and effort to establish correct grades on your fields. Erosion and tillage operations cause surface irregularities. To protect your investment, keep the surface smooth and maintain correct grades by using an Eversman Land Leveler.

## Loading - Model 650-SS

The Model 650-SS operation will require the tractor driver to make several trips to familiarize himself with the loading, dumping, spreading and transporting controls for both the bucket cylinders and the spreading cylinders. On each individual field, judgment must be used depending on the soil consistency and moisture, as to the depth of spread possible. Furthermore, it will take a few loads to determine the most effective bucket setting to attain the desired results.

Before the operator takes the 650-SS to the field, there are several important factors he should understand.

1. Remove the frost bit since precision spreading is not possible with this installed.

2. The spreading cylinders are not used for the loading operation.

3. The spreading cylinders must be extended to the full 4" stroke, and then left there while loading. If this is not done, the cutting bit will enter the ground at too steep an angle which increases draft and also results in a rough, uneven cut. It is recommended that the operator form the habit of extending the spread cylinders just as soon as he completes his spreading and dumping cycle, and before he starts his return run to the cut area. This will always assure him of having the bucket at the correct angle when it is lowered to cut.

4. Keep in mind that the spreading cylinders do not open, or close, the gate. The exclusive, and patented, automatic gate control mechanism opens and closes the gate so that it will always be in the correct position relative to the movement of the bucket. This automatic control permits one hydraulic control valve on the tractor to operate the 650 for loading and transporting. The second tractor control valve is required only for spreading.

5. When loading, the depth and length of cut are factors of the tractor speed and power available, as well as the soil density and moisture content.

## Transporting with Load

After filling the bucket, extend the bucket cylinders to raise the scraper. The gate will follow the movement of the bucket to reach a normal closing position. The spreading cylinders are not actuated when lifting the bucket to transport.

In order to improve the spreading characteristics of the 650 scraper, a compromise had to be made by limiting the transport height. Hence, the clearance during transport is approximately 10" on the 650 compared to 12" on the older model 600.

## Dumping and Spreading - Model 650-SS

Before starting field work, the operator should run the bucket cylinders and the spreading cylinders through several cycles so that he has a clear picture of what is occurring with each adjustment he makes.

First, leave the spreading cylinders fully extended and extend the bucket cylinders only. As the bucket cylinders are extended and the bucket is rotating, the cutting bit will maintain a nearly constant level above the ground - until the very end of the stroke, at which point the bit is elevated rapidly. As the bucket rotates, the gate will automatically open - without touching the spreading cylinder's control valve.

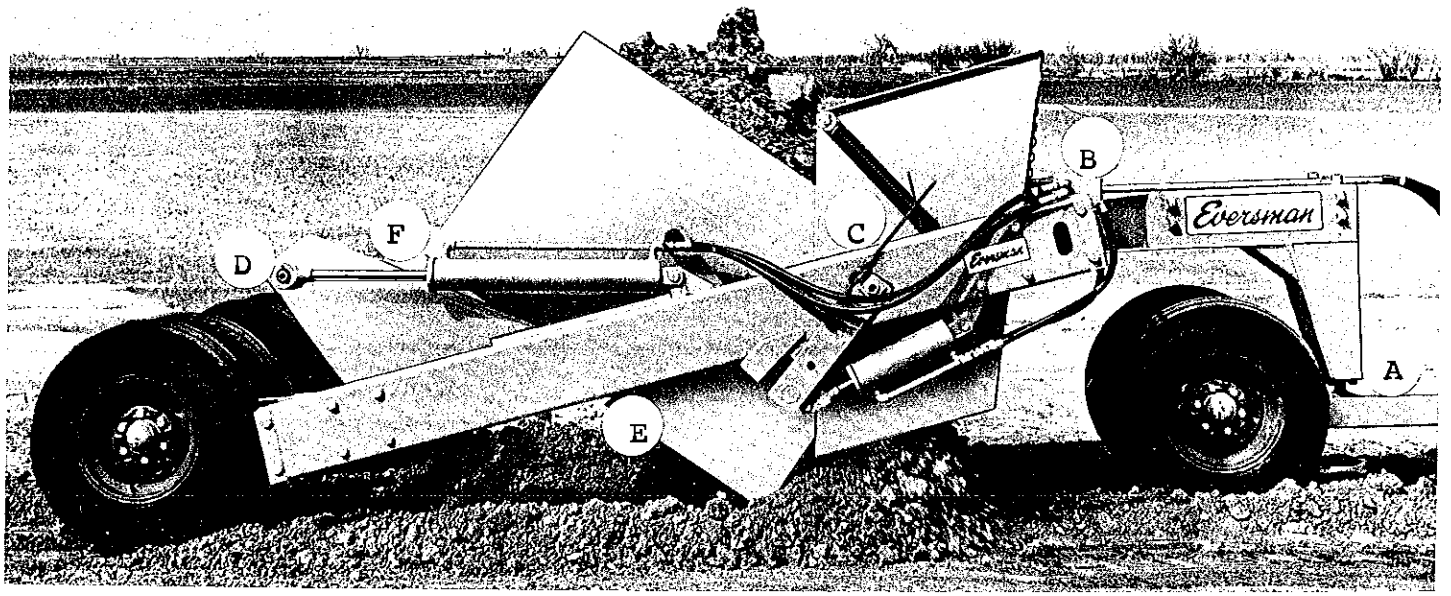
Then, study the function of the spreading cylinders. As they are retracted, they lower the bit closer to the ground. The pointer on the indicator bracket (Figure P2) shows the operator the relative height of the cutting bit. When the pointer is at the top line of the indicator, the scraper cylinders are fully retracted - the cutting bit is at ground level - the lowest position possible.

On the other hand, when the pointer is at the lower position on the indicator, the scraper cylinders are fully extended and the cutting bit is at its highest position above the ground. The indicator pointer, therefore, shows the operator the relative height of the cutting bit.

Somewhere within the range of the two cylinder adjustments, is the point at which the desired dump and spread is obtained. This point will depend on the moisture of the soil and the consistency and density of the soil. Dry, loose soil will flow out as soon as the bucket starts to rotate and the gate starts to open. Spreading is then easily accomplished by controlling the bit height with the spreading cylinders. In general, the bucket should be rotated to about half way through the dump cycle to achieve the best spreading results.

However, heavy, sticky wet soil will be much slower to leave the bucket, and spreading accurately and to a pre-determined depth, might even be impossible under these adverse conditions.

The operator must learn to make his adjustments depending on the individual field and soil conditions. As mentioned under "Loading", it is recommended that the operator form the habit of immediately extending the spreading cylinders to the full 4" stroke as soon as he has emptied the bucket and before he returns to the cut area to re-load.




## Lubrication

1. Grease all zerks on wheel hubs each week.

2. Grease all other zerks, on ball hitch (A); rollers (B); links (C); cylinder ball joints (D); bucket bearings (E); rear lift pipe (F); and
   This should be done each day after heavy usage.

## Hydraulic System

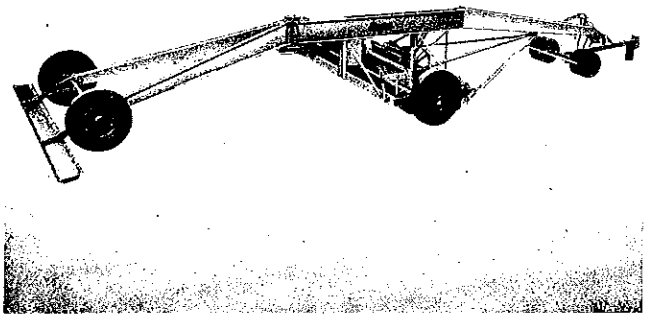
After assembly and before starting field operations, the hydraulic system should be bled to remove all air - especially for the tandem units. Erratic operation is possible on both cutting and spreading cycles if there is excessive air in the system.

After front unit is assembled, attach short hoses to the quick disconnects on the rear frame and dump oil into a bucket. Then bleed the rear unit before hooking to the front scraper.

Cycle the spreading cylinders through the full 8" stroke before mounting on the scraper.

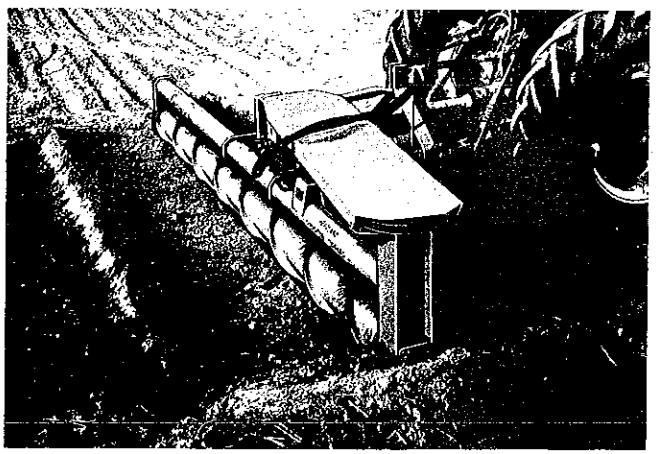
# OTHER *Eversman* PRODUCTS



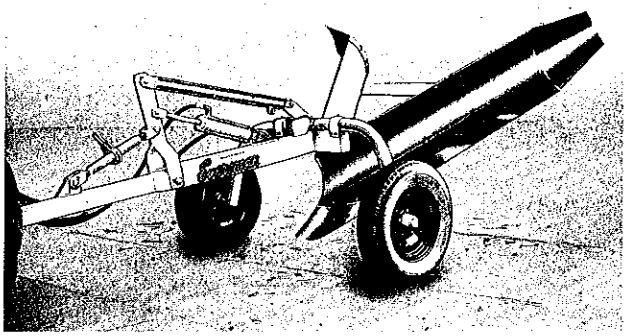


Cover 30% more ground with your regular 3-4 plow tractor and the Eversman *Model 3212* automatic land smoother—32 feet long, with a 12-foot wide cutting blade. Also available, the *Model 329,* 32 feet long, 9'3" blade—for 3-plow tractors, the *Model 4512,* 45-feet long with a 12' blade for 4-5-plow tractors.

All models utilize the famous Eversman crank axle design for a fully automatic operation, and will do a complete job of land smoothing, dirt moving and seed bed preparation.

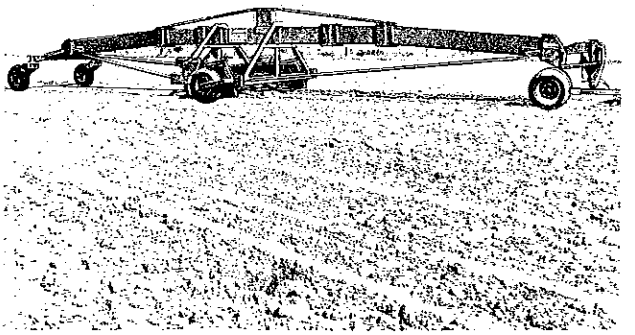


The new Model 130 Headland Furrow Opener. Saves work and time and you can eliminate hand digging the 10 to 12 feet required to run water from the siphon tubes to the rows. Hydraulic control. Cutting length 13'2", depth of furrow 3" to 5", roter speed 250 RPM. Direction of rotation towards tractor. Swivel 37° both directions. Sealed, self-aligning ball bearings. P.T.O. drive. Mounts on standard 3 point hitch, category 1 or 2. Weight 800 lbs.



A modern Ditcher for building or cleaning ditches for either irrigation or drainage. Outstanding maneuverability and transportability features makes it possible for one man to do his ditching work fast and at low cost. Operated either mechanically or hydraulically with standard farm tractors.

Available in seven rubber mount or 3-point hitch models to fit all size ditches and farm tractors.



*The Grade Plane* is a large, rugged leveler which combines length and weight with the proven Eversman crank axle design. Full castering rear wheels and swivel connection at front tongue permits fast, easy turning at field ends. Available in 12' and 14' widths, with 46', 55' or 70' lengths. An automatic trip blade is available where stumps or rocks might be encountered.

**MANUFACTURERS OF QUALITY FARM EQUIPMENT SINCE 1928**

THE EVERSMAN MANUFACTURING COMPANY

FIFTH STREET AT CURTIS • P. O. BOX 4345 • (303) 629-1234

DENVER, COLORADO 80204

300 - 4/76