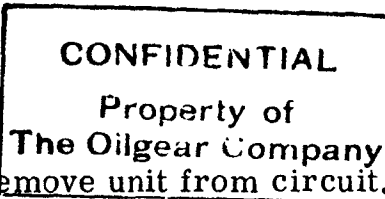


ASSEMBLY AND DISASSEMBLY PROCEDURE
FOR MVS-440 UNITS

(Refer to bulletin 957000 for
balance of instructions)



DISASSEMBLY

Disconnect piping and remove unit from circuit. Remove pipe plug (33)

from case bottom and drain fluid (approximately 13 gallons) from unit.

Remove screws (55A), cover (55) and gasket (56). Remove screws (16A & 16B) and cover (16). Remove screws (23A).

The position and alignment of rear shaft (57) within cradle (32) must be maintained while rear head (23) is being removed. To remove head, turn three screws (3/4" - 10NC-2x10" long) into "jacking" holes. Turn screws evenly while jacking head from cradle and tap rear shaft inward during the "jacking" operation so its position is maintained. The flat valve (12) assembly will be withdrawn with rear head. Remove retaining rings (69) and separate the flat valve from rear head. Withdraw tumblers (14A), hold-up pistons (14), springs (13) and compensating pistons (26) from flat valve (12). Withdraw wear plate (11). Remove screws (24A), gland (24) with o'ring (28) and shaft seal (35). Be careful not to damage seal on shaft keyway during removal. Do not press seal (35) from gland unless replacement is necessary. Remove rotor (35A). Remove locknut (27A), lockwasher (27B) and inner race of bearing (3) from driveshaft. Check visually to be sure cradle (32) is centered (neutral position).

Driveshaft, piston and cylinder assembly can be removed from the unit as an assembly by CAREFULLY tapping and pushing driveshaft (1) inward. Support cylinder (2) as it is pushed from cradle and do not allow pistons (10) to be pulled from their bores in cylinder. When entire assembly is removed from cradle, mark the lead piston exactly perpendicular to the vertical axis of U-joint shaft slot in driveshaft socket (39) and its corresponding bore in cylinder, if not already marked, to assure proper assembly. Then, carefully separate cylinder from pistons (10) and U-joint shaft (43). Remove retaining ring (54) and separate rear shaft (37) from cylinder socket (48). Remove inner race of bearing (50), locknut (52) lockwasher (53) and bearing (4) from rear shaft (57). Withdraw seat (46) and key (47). Press socket (48) with key (36) and retainer (49) from cylinder. Withdraw U-joint shaft (43) with shoe shafts (45) and shoes (44). Remove retaining ring (82) and withdraw socket (48). Withdraw plunger (40), spring guide (81) and spring (41). Remove collar (21) and bearing (19) from driveshaft. Remove key (22) (use tapped 1/4-20NC2 hole, if necessary) and withdraw socket (39) with drivepin (42). Remove outer race of bearing (3), retaining ring (83) and bearings (17 & 18) from units case (31).

Remove screws (66A), cover (66) and gasket (67). Control piston connecting rods can be removed from cradle tiller pin (63) by removing clamp screws (75A) from clamp (75) and removing clamp halves from case. (See reference bulletin on control for further control piston and connecting rod disassembly).

The stroke indicator assembly can be disassembled by loosening screw (62B) and lifting pointer (with pin (58 & 59) from hub (62A). Hub and lever (62 & 62A) can be withdrawn from unit's case. Remove screw (58A) to separate pointer (58) from pin (59).

If further disassembly is necessary, remove screws (37A & 38A), flanges (37 & 38) o'rings (5D), retainer (5C) and screws (5A & 5B). Carefully withdraw pintle head (5), sleeve (6) and pintle (7) as an assembly. Press inner race of bearing (70) from pintle (7) if necessary. Remove o'rings and seals (51, 76 & 77).

Remove retaining ring (73) and withdraw pivot shaft assembly (72) from case (a 1/2-13NC2 tapped hole is provided for insertion of a screw to aid in removal). Place unit on end and remove cradle (32) from case. Withdraw bearings (70 & 71), if replacement is necessary.

INSPECTION

Inspect all bearings (3, 4, 17, 18, 19, 50, 70 & 71) for signs of pitting, galling, binding or wear and replace, if necessary. Inspect flat valve (12) and wear plate (11) to be sure they are not scratched or grooved. Be sure compensating pistons (26) and hold-up pistons (14) are free in their bores. If damaged, they must be replaced as an assembly with flat valve. Inspect pump pistons (10) and their respective bores for signs of excessive wear. Be sure pistons and connecting rods move freely in their sockets and do not bind. Check o'rings and seals for hardening and deterioration and replace, if necessary. Wash all parts thoroughly prior to assembly.

ASSEMBLY

If bearing (70) outer race and rollers were removed, press them into bore in cradle (32). Press bearing (71) into its bore if it was removed. Install o'ring (74) on pivot shaft. Position cradle (32) in case (31) and press pivot shaft assembly (72) in place and secure it with retaining ring (73). Install

Glyd ring seals (51) and o'rings (76) on pintle (7). NOTE: Glyd rings will expand during installation and must be compressed after being placed on the pintle. Press inner race of bearing (70) on pintle. Install o'ring (77) in unit's case. Press pintle, sleeve and head (7, 6, & 5) assembly CAREFULLY into unit's case and cradle and secure it with screws (5A & 5B). Insert o'rings (5D) and retainer (5C) in head (5) and secure flanges (37 & 38) to head with screws (37A & 38A). Move cradle from side to side to be sure movement is smooth and free. Position stroke indicator pointer (58) on pin (59) and secure it with screw (58A). Insert pin (59) into bushing (60) and position stroke indicating lever (62) slot around pin (63). Then, insert pin (59) into its' bore in hub (62A) and secure it with screw (62B). The stroke indicator pointer should move freely when the cradle is moved.

Install retaining ring (83), outer race of bearing (3) and bearings (17 & 18). Press bearing (19) on driveshaft (1). Insert spring (41), guide (81) and socket (39) with drivepin (42) aligned so key (22) can be installed. Install key (22), plunger (40) and retaining ring (82). Install shoes (44) on U-joint shafts (45). Position driveshaft so pistons (10) are pointing upward and insert the U-joint shaft (43) assembly (NOTE: Shoes (45) are not square, if they do not fit in slot rotate them 90°).

Press front cylinder bearing (50) into cylinder socket (48). Insert key (47) in U-joint seat (46) and install seat in cylinder socket (48). Insert bearing retainer (49). Place bearing (4) on rear shaft (57) and secure it with lockwasher (53) and locknut (52). Press socket (48) with key (36) in place into cylinder. Carefully insert rear shaft assembly into

cylinder (2) and secure with retaining ring (54).

Suspend cylinder and rear shaft assembly (insert an eyebolt in tapped hole provided in end of rear shaft). Lubricate pistons (10) and their bores with hydraulic fluid and carefully lower cylinder so the lead piston (marked in disassembly) can be inserted in its corresponding bore. Continue to lower cylinder and insert remaining pistons until all pistons are inserted in their bores. Then, raise it just enough to allow U-joint shaft assembly to be inserted into socket (48). Lower cylinder until U-joint shaft is properly seated. Visually check to be sure cradle (32) is centered (neutral position). Carefully place entire driveshaft and cylinder assembly in a horizontal position being careful that the U-joint shaft and pistons do not separate from their proper positions. Carefully insert assembly into cradle and case. Install shaft seal rotor (35A) on driveshaft with chamfer on inside diameter of rotor facing inward and lapped face outward. Press shaft seal assembly (35) in gland (24) if it was removed (refer to TOC-570 for seal replacement instructions). Install o'ring (28) on gland (24). Position gland (24) and secure to case with screws (24A). Coat wear plate (11) faces with a thin coat of grease and install it on locating pins (34) with "cylinder face" note inward against the cylinder.

Lubricate compensating pistons (26), hold-up pistons (14) and tumblers (14A) with hydraulic fluid and insert them and springs (13) in flat valve (12). Position flat valve assembly on locating pins (30 & 30A) in rear

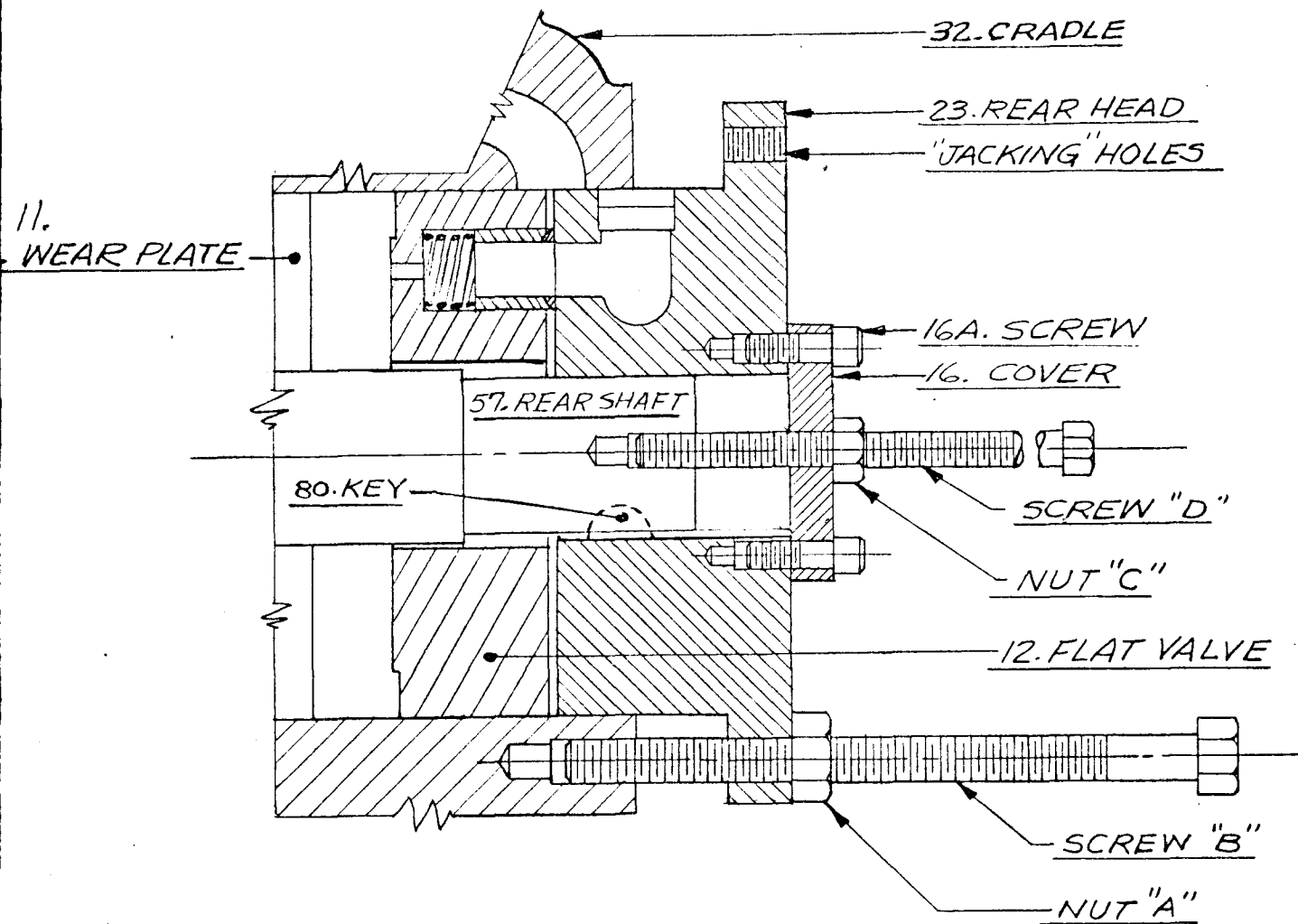
head (23) and install retaining rings (69) to secure it to head. Depress flat valve to be sure it moves freely and does not bind on locating pins. Install cover (16) and screws (16A) on rear head. Insert key (80) in its keyslot in rear driveshaft.

Refer to the attached sketch (IV-10120-L) and proceed as follows to install rear head (23) and flat valve (12) assembly in cradle (32). Turn three nuts "A" onto screws "B" as indicated in diagram. Position rear head (23) so keyslot is properly aligned with key (80) withing cradle (32) and tighten nuts "A" evenly until rear shaft (57) begins to engage in head. To assure proper alignment and position of rear shaft, turn a nut "C" onto screw "D" (as indicated in diagram) turn screw into the tapped hole in rear shaft and turn nut "C" down until it contacts rear cover (16). Proceed to turn all nuts "A" and "C" equally in distance until rear head (23) and rear shaft (57) are pulled together evenly and rear head is seated against cradle (32). Remove screws "B" and "D" and install screws (16B & 23A) in their respective tapped holes as shown on parts drawing. Position gasket (56) and secure cover (55) to unit with screws (55A).

Refer to control instruction bulletin for assembly of control to unit. Position connecting rods around tiller pin (63) and install clamp (75) halves around them. Secure with screws (75A). Set unit for zero delivery (neutral position), loosen screw (58A) and adjust stroke indicator pointer (58) for zero (neutral) position on plate (68). Then, tighten screw (58A). Check to be sure pointer moves freely and does not bind when unit is stroked. Position gasket (67) and secure cover (66) to units case with screws (66A). Replace pipe plug (33) connect unit to circuit and case with hydraulic fluid before starting.

Refer to Section VIII. D. of bulletin 957000 for Testing and Adjusting.

REAR HEAD ASSEMBLY METHOD FOR MVS & PVS UNITS



THREAD AND LENGTH OF SCREWS "B" & "D"

UNIT SIZE	SCREW "B"	SCREW "D"
113	1/2-13NC 2 X 10" LG.	3/8-16NC 2 X 8" LG.
225	5/8-11NC 2 X 10" LG.	1/2-13NC 2 X 10" LG.
440	3/4-10NC 2 X 10" LG.	1/2-13NC 2 X 10" LG.

THE OILGEAR COMPANY
1560 W. PIERCE STREET
MILWAUKEE 4, WISCONSIN

8/2/65 A.W.

DWG. IV-10120-L