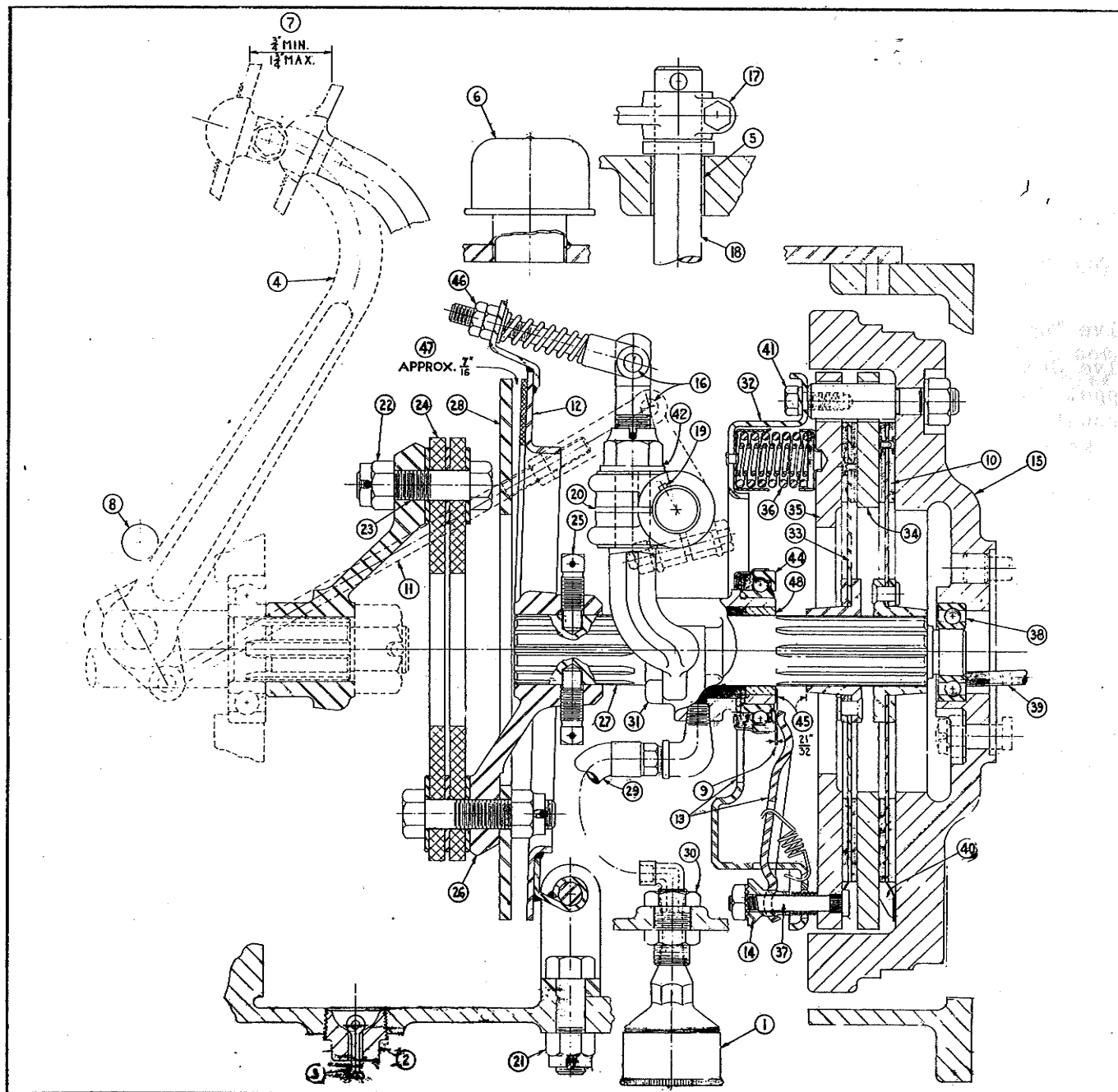


# Clutch



- |                                  |                                   |                                |
|----------------------------------|-----------------------------------|--------------------------------|
| 1. GREASE CUP                    | 17. RELEASE LEVER                 | 33. DRIVEN PLATE               |
| 2. DRAIN PLUG                    | 18. RELEASE SHAFT                 | 34. DRIVE PLATE                |
| 3. COTTER PIN                    | 19. WOODRUFF KEY                  | 35. PRESSURE PLATE             |
| 4. PEDAL                         | 20. RELEASE YOKE                  | 36. PRESSURE SPRINGS           |
| 5. RELEASE SHAFT BEARING         | 21. BRAKE HINGE YOKE NUT          | 37. RELEASE LEVER BOLTS        |
| 6. BREATHER                      | 22. UNIVERSAL JOINT NUTS          | 38. PILOT BEARING              |
| 7. FREE PEDAL TRAVEL             | 23. UNIVERSAL JOINT SCREWS        | 39. PILOT BEARING OIL FELT     |
| 8. PEDAL STOP                    | 24. UNIVERSAL DISC                | 40. SEPARATOR SPRING           |
| 9. THROW-OUT BEARING - CLEARANCE | 25. UNIVERSAL JOINT SPIDER SCREWS | 41. CLUTCH COVER CAP SCREWS    |
| 10. FRICTION FACING              | 26. DRIVE SPIDERS                 | 42. RELEASE YOKE NUT           |
| 11. RELEASE LEVER ROD            | 27. CLUTCH SHAFT                  | 43. RELEASE LEVER              |
| 12. CLUTCH BRAKE                 | 28. CLUTCH BRAKE DISC             | 44. RELEASE BEARING            |
| 13. CLEARANCE NOT LESS THAN 1/8" | 29. GREASE TUBE                   | 45. CORRECT MEASUREMENT 21/32" |
| 14. RELEASE LEVER NUTS & WASHERS | 30. ADAPTER HEAD NUT              | 46. LOCK NUTS                  |
| 15. FLYWHEEL                     | 31. THROW-OUT SLEEVE ASSEMBLY     | 47. CLUTCH BRAKE CLEARANCE     |
| 16. CLEVIS PIN                   | 32. COVER PLATE ASSEMBLY          | 48. THROW-OUT SLEEVE BUSHINGS  |

## Clutch—Continued

**DESCRIPTION** - The engine clutch is a standard type with 11 inch double plates. The function of the clutch is to connect the engine power to the transmission.

**LUBRICATION** - Starting each day and every 5 working hours, give grease cup, located near foot accelerator pedal, one complete turn down. When empty, fill with medium grade wheel bearing grease.

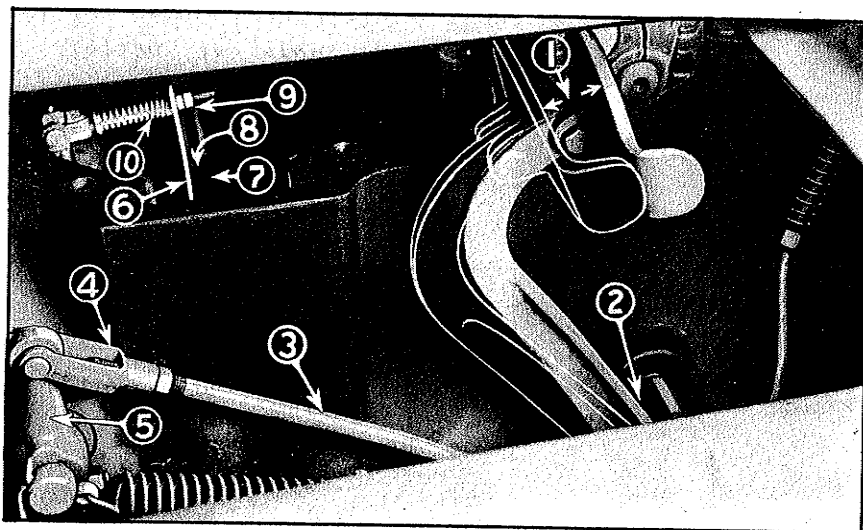
Keep cotter pin in drain plug in bottom of clutch compartment free in hole at all times.

Keep clutch pedal and all its linkage well lubricated to insure freedom of operation. Use grease gun and lubricate clutch pedal shaft with medium grade wheel bearing grease.

Every 250 working hours, and whenever clutch compartment cover is removed, put a few drops of oil on clutch release shaft bearings and clutch release linkage.

**BREATHERS** - At the beginning of each day, remove breathers on clutch compartment cover and wash in gasoline.

Before replacing, dip in clean engine oil.



1. FREE PEDAL TRAVEL - 1-3/4 INCH
2. CLUTCH PEDAL AGAINST PEDAL STOP
3. RELEASE ROD
4. ADJUSTING CLEVIS
5. RELEASE SHAFT LEVER
6. CLUTCH BRAKE
7. CLUTCH BRAKE DISC
8. CLEARANCE - 7/16 INCH
9. ADJUSTING NUTS
10. ADJUSTING ROD

**CLUTCH PEDAL ADJUSTMENT** - Clutch is self-adjusting for friction facing wear and requires only that sufficient free pedal travel be maintained during life of facings.

Form habit of checking free pedal travel at beginning of each day's operation. Free pedal travel is distance pedal pad travels from extreme rear position, when lower end of pedal is against stop, to point where throw-out bearing touches release levers and clutch is just starting to release. Clearance at this point is maintained by correct pedal adjustment.

Clutch pedal originally has 1-3/4 inches free pedal travel. As friction facings wear, this distance gradually reduces. When reduced to 3/4 inch, readjust release rod length at adjusting clevis between pedal and release shaft lever to give original clearance of 1-3/4 inches. Never allow less than 3/4 inch travel.

Do not start engine with release mechanism disconnected.

Whenever clutch compartment cover is removed, check distance between release levers and inside edge of clutch cover. When this distance becomes less than 1/8 inch, new facings must be installed. Never attempt to adjust release lever nuts at outer ends of release levers to compensate for friction facing wear.

## Clutch—Continued

**CLUTCH BRAKE ADJUSTMENT** - Proper clearance between clutch brake and brake disc is approximately 7/16 inch when clutch is engaged.

Start engine and adjust brake so that clutch shaft stops turning just before clutch pedal reaches extreme forward position. This adjustment is made by turning the two adjusting nuts on the brake adjusting rod. Turn nuts to the right to increase clearance and to the left to decrease clearance.

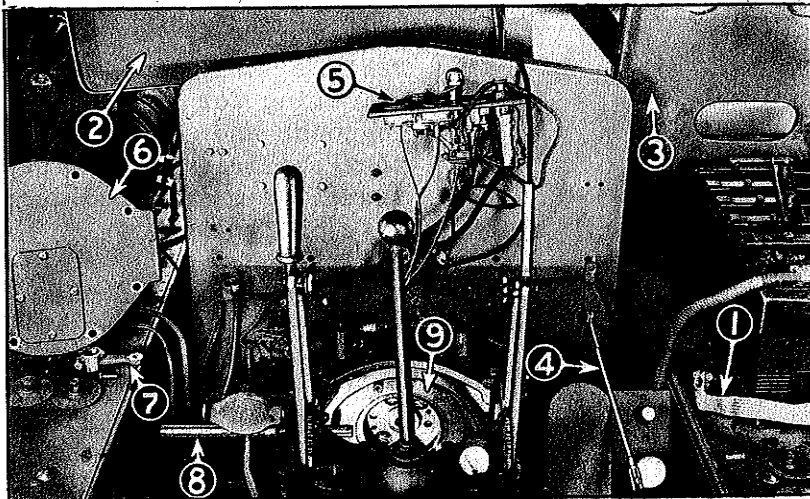
After adjustment has been made, lock the adjusting nuts together tightly.

**CLUTCH SLIPS** - Never rest foot on clutch pedal with engine running as this will cause slippage, and unnecessary wear on the clutch release bearing.

If clutch slips when there is sufficient free pedal travel, it indicates that friction facings are worn and should be replaced immediately. Never operate tractor in this condition.

Slippage will cause excessive heat and damage to clutch and flywheel.

**REMOVAL** - Before disturbing any clutch parts, be sure of their exact position so replacements can be made correctly.



1. DISCONNECTED BATTERY GROUND CABLE
2. FUEL TANK
3. FUEL TANK MOUNTING PLATE
4. THROTTLE ROD
5. INSTRUMENT PANEL AND WIRES
6. CLUTCH HOUSING COVER PLATE
7. CLUTCH RELEASE LEVER
8. CLUTCH RELEASE SHAFT
9. ENGINE FLYWHEEL

with wires to the top of the dash. This will allow better accessibility for clutch removal.

Remove clutch housing cover plate, clevis pins from clutch brake release lever and clutch release rod. Disconnect release spring and stop light switch pull wire.

Remove cotter pin from left end of release shaft, drive lever from shaft and remove Woodruff key. Remove clevis pin from clutch brake release rod. Remove cotter from large nut on clutch release yoke and loosen nut on yoke. Remove cotter from right side of clutch release shaft and drive shaft out of release support and case until the shaft strikes left hand upper track wheel. Release yoke and support can now be lifted out. Loosen the rear upper track wheel from track frame, and shift the wheel so that the clutch release shaft may be removed from case.

Disconnect the battery ground cable at battery to eliminate any danger of fire from short circuiting of wiring system.

Remove FUEL TANK.

Disconnect throttle rod and speedometer cable, then remove fuel tank support plate assembly.

Remove horn button and cable from right hand steering lever.

Remove four screws holding instrument panel to fuel tank mounting supports. Remove and tie complete instrument panel

## Clutch—Continued

Remove cotter and pin holding brake plate to brake plate yoke in bottom of housing. Next remove eight cotters, nuts, and cap screws from universal joint, and lift fabric discs out.

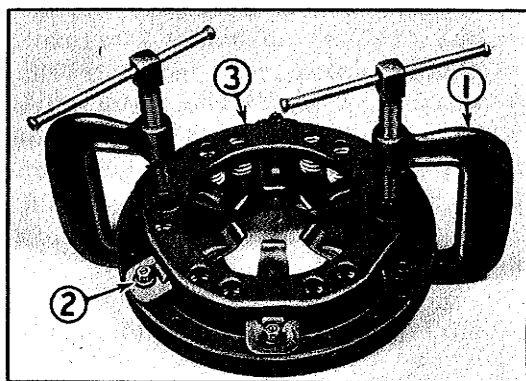
Cut lockwire and remove two set screws from front universal drive coupling and slide coupling from shaft. Next lift the brake assembly and brake disc from housing.

Disconnect grease tube at adapter on case being careful to hold adapter head on inside of case to prevent tube from being twisted. Remove six cap screws holding clutch cover plate to flywheel and lift out clutch cover plate, discs, center driving plate, clutch shaft, and throw-out sleeve, as a unit.

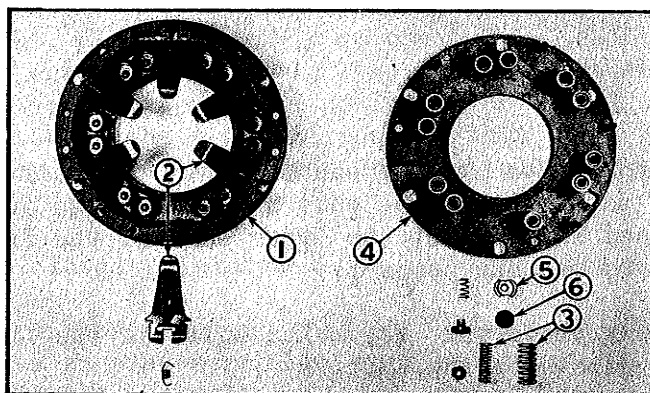
**FACING REPLACEMENT** - If clutch slips, facings should be replaced at once with genuine Cletrac friction facings. This particular type is required for proper operation of clutch. Under no circumstances allow a substitution. Certain parts of clutch assembly may need replacing when driven plates are refaced, especially if large cracks appear in the pressure or drive plates. Excessive heat, as shown by highly discolored pressure plate, may cause pressure springs to lose their tension. In such case, have new springs installed.

If brake plate lining shows excessive wear, new lining should be installed.

**PRESSURE AND DRIVE PLATES** - Examine both plates for cracks. Discoloration will do no harm. Small local heat cracks, due to abusive operation, may occur in faces of driving plates or flywheel, but these will not interfere with operation of clutch, provided they are polished smooth with fine emery cloth. If cracks are large, plates should be replaced.



1. HAND CLAMP
2. RELEASE LEVER BOLT AND NUT
3. COVER



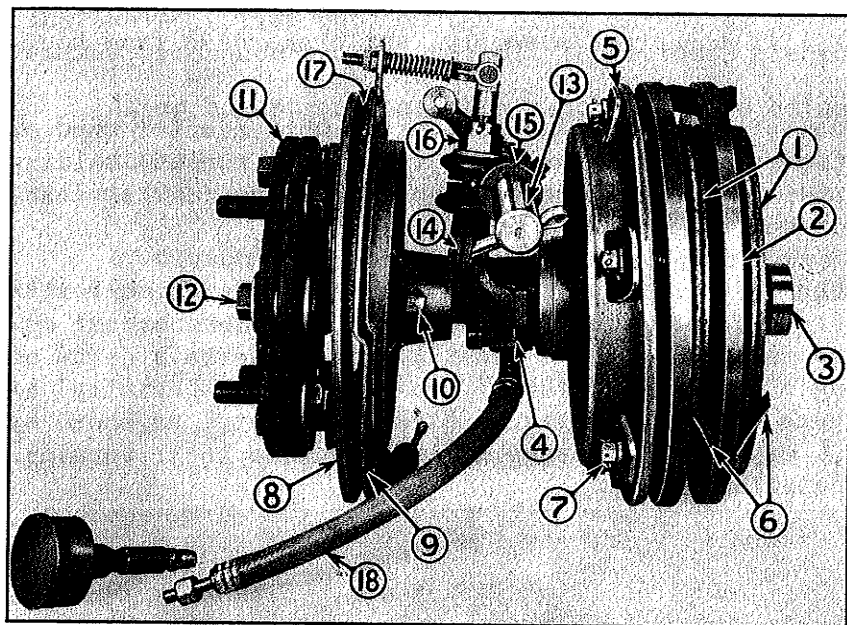
1. COVER
2. RELEASE LEVER
3. PRESSURE SPRINGS
4. PRESSURE PLATE
5. SPRING LOCATOR
6. INSULATOR BUTTON

**CLUTCH COVER PLATE ASSEMBLY** - Partially compress unit with two hand clamps. Remove release lever nuts and washers, then back off hand clamps. Steel cover may then be removed, and release levers, pressure springs, and pressure plate serviced.

After parts are replaced, set cover plate in correct position, being careful to locate each spring properly and make sure spring locator and insulator button are in place. Compress entire unit evenly with two hand clamps until release lever bolts protrude thru top of cover. Replace washers and adjusting nuts. Draw nuts down flush with bolt ends, but do not make final adjustment until clutch is installed in flywheel and release levers have been properly adjusted.

## Clutch—Continued

**CLUTCH RELEASE SLEEVE** - Examine bushings in release sleeve assembly to see that they are tight in the sleeve and in correct position, which is just flush with outer end of sleeve. Also check bushing clearance on clutch shaft. This should be .008 to .010 inch. If worn excessively, replace bushings and fit to shaft.



- |                           |                                 |
|---------------------------|---------------------------------|
| 1. DRIVEN PLATES          | 10. COUPLING SPIDER SET SCREWS  |
| 2. DRIVE PLATE            | 11. UNIVERSAL JOINT DISCS       |
| 3. PILOT BEARING          | 12. UNIVERSAL JOINT LONG BOLT   |
| 4. THROW-OUT SLEEVE       | 13. RELEASE SHAFT               |
| 5. CLUTCH COVER ASSEMBLY  | 14. RELEASE YOKE                |
| 6. DRIVE PLATE SPRINGS    | 15. RELEASE YOKE SUPPORT        |
| 7. RELEASE LEVER STUD NUT | 16. RELEASE YOKE NUT            |
| 8. CLUTCH BRAKE DISC      | 17. BRAKE CLEARANCE - 7/16 INCH |
| 9. CLUTCH BRAKE           | 18. GREASE TUBE                 |

with short hubs facing each other. Install the drive plate between the driven plates so that the free ends of the springs are facing in a counter clockwise direction when looking at the rear end of the flywheel. This is important to allow clutch to release properly.

Next place the assembled unit in the flywheel, making sure that clutch shaft enters pilot bearing.

Install clutch cover cap screws and tighten evenly.

If pressure plate or springs have been replaced, with clutch installed in flywheel, use gauge block (step cut to  $21/32$  inch, as shown in illustration) to adjust one release lever.

Correct adjustment is made by placing gauge block on clutch shaft so that back end of notch is against the outside of clutch release lever and end of gauge is against the end of spline hub of clutch driven plate. Adjust one release lever adjusting nut until release lever touches gauge block. Next move clutch release sleeve and throw-out bearing assembly forward on shaft until it just touches the release lever adjusted to  $21/32$  inch. Then adjust the other release levers parallel to this lever.

**INSTALLING CLUTCH** - If new driven plates are required, try them separately on clutch shaft for free sliding action, then give hub splines a light coat of grease before installing.

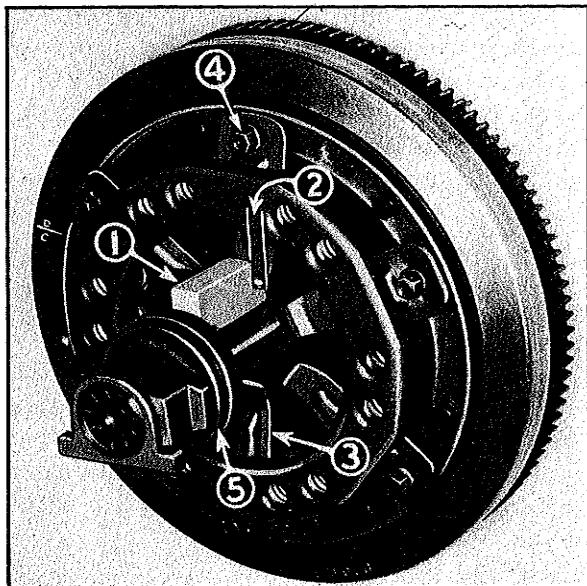
At this point, place clutch drive plate in flywheel and make certain it slides freely on clutch driving studs. This is important.

Inspect pilot bearing, making certain that crankshaft oil wick touches the inside of bearing.

Pack bearing with medium grade wheel bearing grease.

Place clutch shaft in housing, and assemble throw-out sleeve assembly, clutch cover assembly, and driven plates on shaft, making sure driven plates are assembled

## Clutch—Continued



1. GAUGE BLOCK
2. STEP CUT 21/32 INCH
3. RELEASE LEVER
4. ADJUSTING NUT
5. THROW-OUT BEARING ASSEMBLY

Variation in setting release levers should never exceed .025 inch, or clutch drag will result.

Next, place brake plate, brake disc, and drive coupling spider on clutch shaft in order named, aligning set screw holes in spider with holes in clutch shaft.

When installing the universal joint discs and bolts, always install a flat washer under the bolt head, one between the discs, and one next to the nut. After tractor serial Nos. 10JA174 up and 4DA384 up, an additional special flat washer has been added at the bolt head.

Install the universal joint discs using the 2-1/2 inch bolt with the threaded end facing to the front of the tractor.

Install the 2-3/8 inch bolts with the threaded end facing toward the rear. Tighten all bolts and nuts evenly, install cotter pins then check to see that the rear bolts do not strike the shift shaft bosses on the transmission case.

Tighten set screws in spider, then tighten lock nuts and secure set screws with lacing wire.

Replace pin holding clutch brake plate assembly to brake yoke, making sure brake plate is in true alignment with brake disc. Slip the clutch release shaft thru case and replace release yoke and yoke support in position on clutch release shaft. Replace Woodruff key in center of shaft and slip shaft thru other side of case to position. Replace Woodruff key and release lever and install shaft cotter pins.

Connect release rod, adjusting so clutch pedal has 1-3/4 inch free travel.

Center the release support and yoke assembly on shaft and align the yoke into release sleeve so that the yoke is free on sleeve and in correct position to allow equal side pressure on sleeve and bearing when clutch is being operated.

Push down on clutch pedal to hold release yoke in position, then tighten and cotter the large nut on release yoke which clamps the support to shaft. Release clutch pedal and recheck alignment of release yoke.

Reconnect clutch brake rod, grease tube, clutch pull-back spring and, stop light operating wire.

Install instrument panel, FUEL TANK, and balance of parts removed, except the clutch housing cover. Adjust clutch brake as outlined under clutch brake adjustment.

Be sure all parts are properly lubricated and proper operation is checked, then install clutch housing cover.