



L-LINE MOTOR TRUCK SERVICE MANUAL

CLUTCH GROUP

Motor truck models and their corresponding clutch models are shown in the following list. Clutch model specifications will be found on specification page 2.

TRUCK MODEL	CLUTCH MODEL	TRUCK MODEL	CLUTCH MODEL
L-110.	RK-10B	L-184	RK-11A-1
L-120.	RK-10B	L-185	RK-11A-1
LM-120	RK-10B	LC-180	RK-12-12
L-130.	RK-10B	L-190	RK-12-15
LB-140.	L-193	RK-12-15
L-150.	RK-10B	L-194	RK-12-15
L-153.	RK-10B	L-195	R-14-15
LM-150	RK-10B	LC-190
L-160.	R-11A-1	LF-190	R-14-15
L-163.	R-11A-1	L-200	R-14-15
L-164.	R-11A-1	L-204	R-14-15
L-165.	R-11A-1	L-205	R-14-15
LC-160.	R-11A-1	LC-200
L-170.	R-11A-1	L-210	R-14-15
L-173.	R-11A-1	LF-210	R-14-15
L-174.	R-11A-1	L-220	R-15-8
L-175.	R-11A-1	L-225	R-15-8
LF-170.	R-11A-1	LF-220
L-180.	RK-11A-1	L-230
L-183.	RK-11A-1	LF-230

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CLUTCH SPECIFICATIONS

CLUTCH MODELS (IH)	RK-10B	R-11A-1	RK-12-12	RK-12-15	R-14-15	R-15-8
Clutch Model (Manufacturer) . .	10-TT	11-TT	12-TT	12-TT	14-TT	15-TT
Number of plates	1	1	1	1	1	1
Vibration dampener	Coil Spring	Coil Spring	Coil Spring	Coil Spring	Coil Spring	Coil Spring
Pressure Springs;						
Number used	9	12	12	15	15	18
Pounds pressure	145	145	145	145	175	175
at	1-7/16"	1-7/16"	1-7/16"	1-7/16"	1-13/16"	1-13/16"
Clutch Facings;						
Number used	2	2	2	2	2	2
Release Lever Adjustment;						
Flywheel surface to						
levers	1-13/16"	2"	2-1/8"	2-1/8"	2-5/8"	2-3/4"
Clutch Pedal Free Travel. . . .	1 to 1-1/2"	1 to 1-1/2"	1 to 1-1/2"	1 to 1-1/2"	1 to 1-1/2"	1 to 1-1/2"
Capscrew size for						
removal and installation .	3/8-16x1-3/4"	3/8-16x1-3/4"	3/8-16x2"	3/8-16x2"	3/8-16x2-1/4"	3/8-16x2-1/2"





CLUTCH

Clutches on the R-110 through R-190 series chassis (10", 11" and 12" clutches) use a new cushion type driven member, this requires a change in release lever settings to accommodate the new thicker cushion type driven member.

Figure 1 illustrates the 10, 11 and 12 inch clutches and Figure 2 illustrates the 14" clutch used in R-line trucks (see following page). Refer to chart on page 3 for truck models and release lever settings.

The clutch linkage on R-150 and up chassis has two holes in the clutch release lever (see Figures 3 and 4 on page 4) to assure clean clutch release and afford the operator a choice between pedal pressures and travel. The clutch linkage adjustable yoke can be installed in either hole on the release lever to suit operator's choice.

The clutch pedal free travel for all R-line chassis is 2 inches. It is important that clutch pedal free travel be maintained to avoid premature clutch failure. Keep clutch control linkage lubricated.

Clutch release bearing sleeves on all R-line chassis incorporate a lubricator fitting to provide means of lubricating the clutch release bearing, sleeve and fork without their removal from chassis. Lubricate as follows:

Fill release bearing sleeve using hand gun. **Do not over-lubricate.** Lubricate every 15,000 to 20,000 miles. Under unusual "Stop-and-Go" driving conditions lubricate every 10,000 miles. Use lubricant comparable to "Lubriplate No. 110."

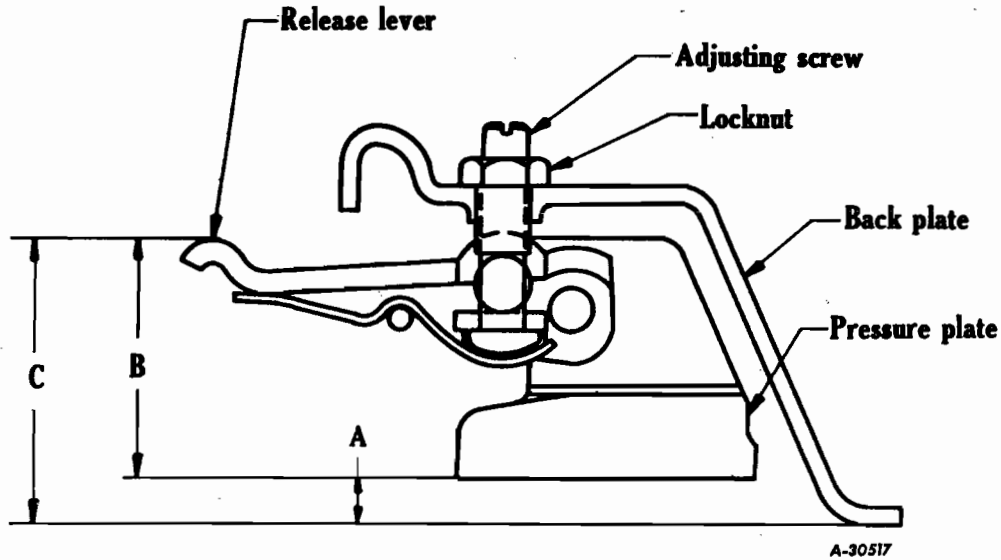


Fig. 1 - Clutch Models RK-10-B, R-11A-1, RR-12-12, RK-12-15 (10", 11" and 12" clutches).
See chart on page 3 for truck models, thickness of pressure plate spacers and release lever settings.

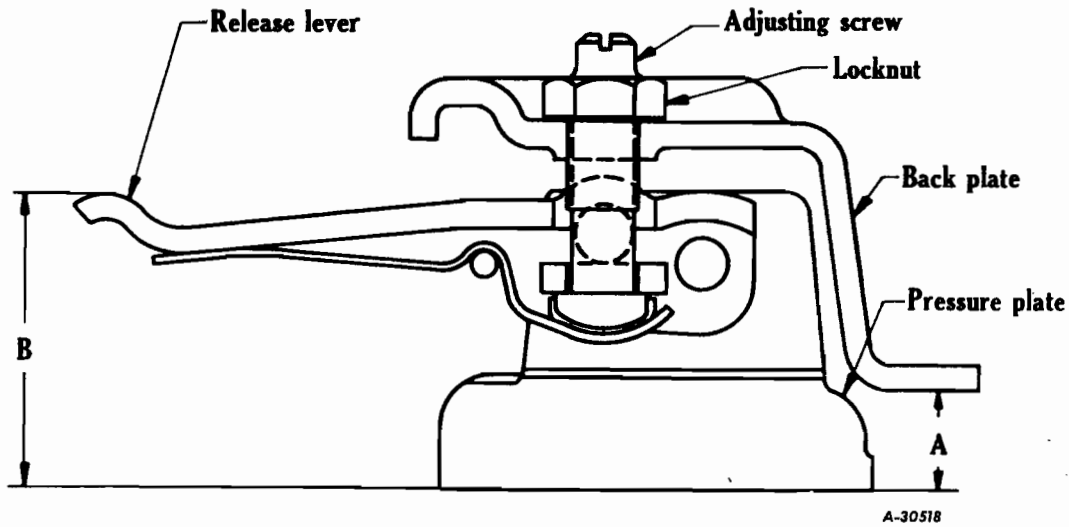


Fig. 2 - Clutch Model RK-14-15 (14" Clutch).
See chart on page 3 for truck models, thickness of back plate spacers and release lever settings.



The following chart shows truck model, clutch model number, type of driven member, thickness and part number of spacer plate, and release lever settings for R-LINE Chassis when using the SE-990 Clutch Overhaul Fixture.

TRUCK MODEL	IH CLUTCH MODEL NUMBER	TYPE OF DRIVEN MEMBER	SPACER THICKNESS AND NUMBER A	LEVER SETTING B	LEVER SETTING C
R-110, R-120, R-130, R-150, RA-120, RA-140, RM-120, RM-150 Series Chassis (10" Rockford Clutch)	RK-10-B	Cushion	5/16" (CR-99)	1-5/8"	1-15/16"
R-110, R-120, R-130, R-150, RA-120, RA-140, RM-120, RM-150 Series Chassis with SD-220 Engine (11" Rockford Clutch with 9 Springs)	R-11A-1	Cushion	5/16" (CR-99)	1-11/16"	2"
R-160, RC-160, R-170 Series Chassis (11" Rockford Clutch with 12 Springs).	R-11A-1	Cushion	5/16" (CR-99)	1-11/16"	2"
R-170, RC-180, RF-170 Series Chassis and R-180, R-181, R-182, R-183, R-184 Chassis (12" Rockford Clutch with 12 Springs)	RR-12-12	Cushion	3/8" (CR-84)	1-53/64"	2-13/64"
R-185, R-1853, R-190, R-191, R-192, R-194 (12" Rockford Clutch with 15 Springs)	RK-12-15	Cushion	3/8" (CR-84)	1-53/64"	2-13/64"
R-190, R-200, R-210, RF-190, RF-210 Series Chassis (14" Rockford Clutch).	RK-14-15	Solid	47/64" (CR-71)	2-5/32"

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R-LINE MOTOR TRUCK SERVICE

CLUTCH SECTION A Page 3

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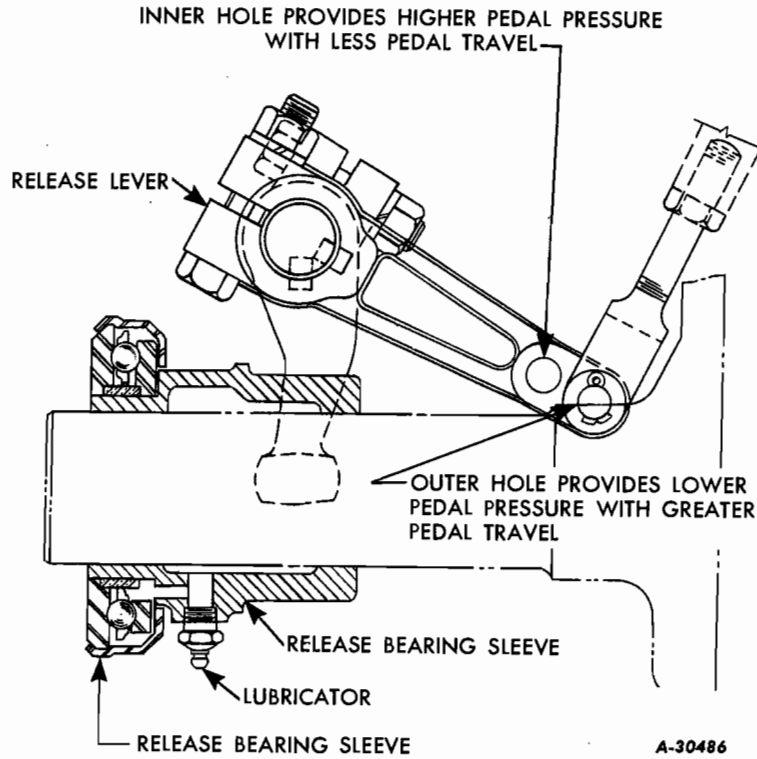


Fig. 3 - Clutch Release Lever, Sleeve and Bearing.
For R-150, R-160, R-170 series trucks, also R-180, R-181, R-182, R-183 and R-184 trucks.

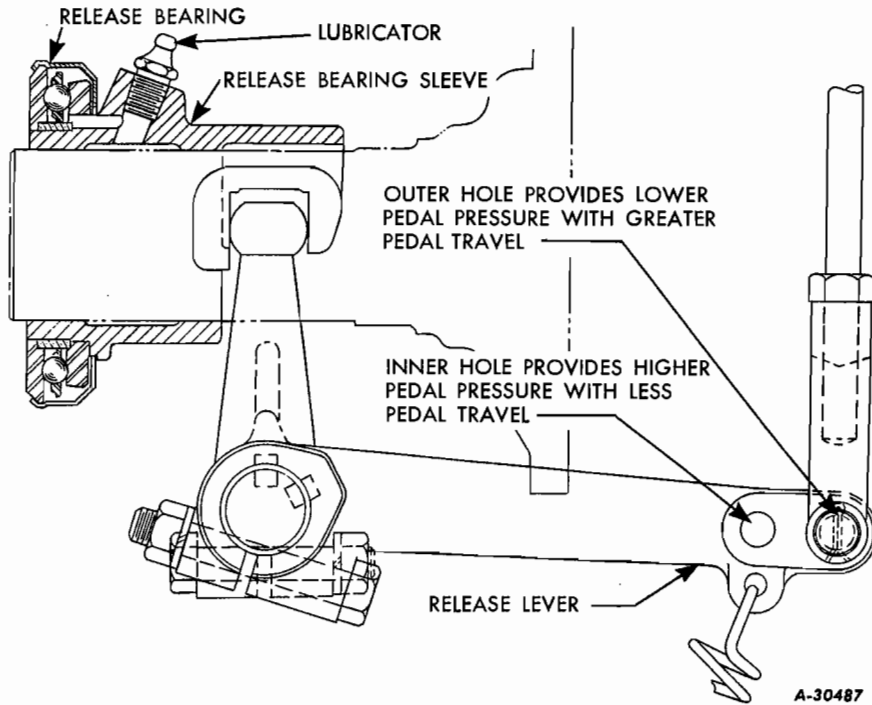


Fig. 4 - Clutch Release Lever, Sleeve and Bearing.
For R-185 to RF-210 trucks.



CLUTCHES

Models RK-10B, R-11A-1, RK-12-12, RK-12-15, R-14-15, R-15-8

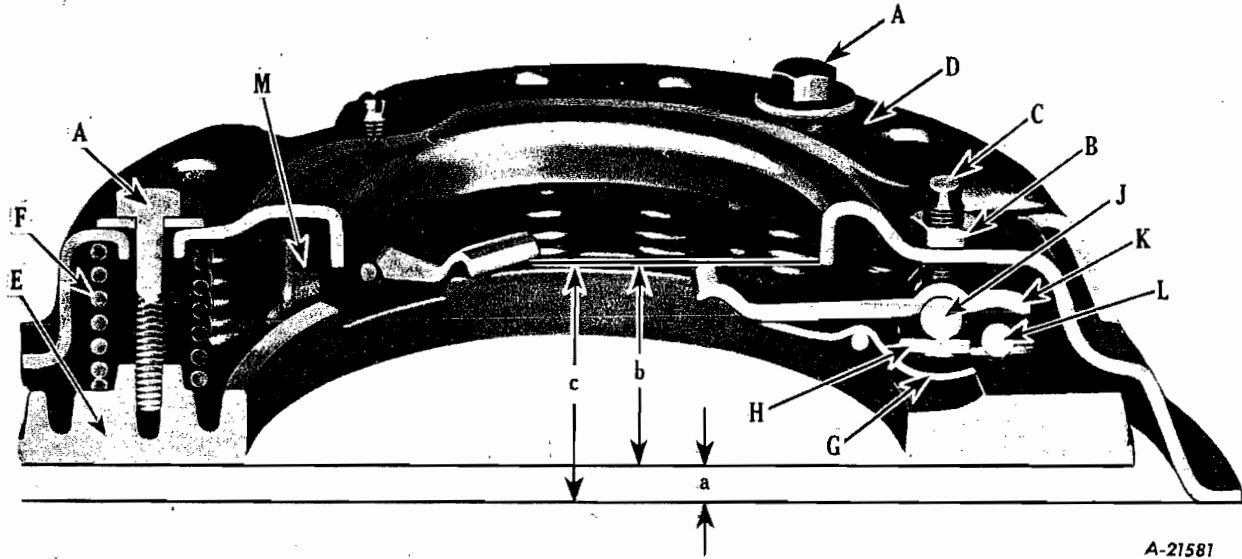


Fig. 1 (RK-10B CLUTCH)

- (a) Pressure plate to flywheel surface. 11/32"
- (b) Release lever to pressure plate surface 1-15/32"
- (c) Release lever to flywheel surface 1-13/16"

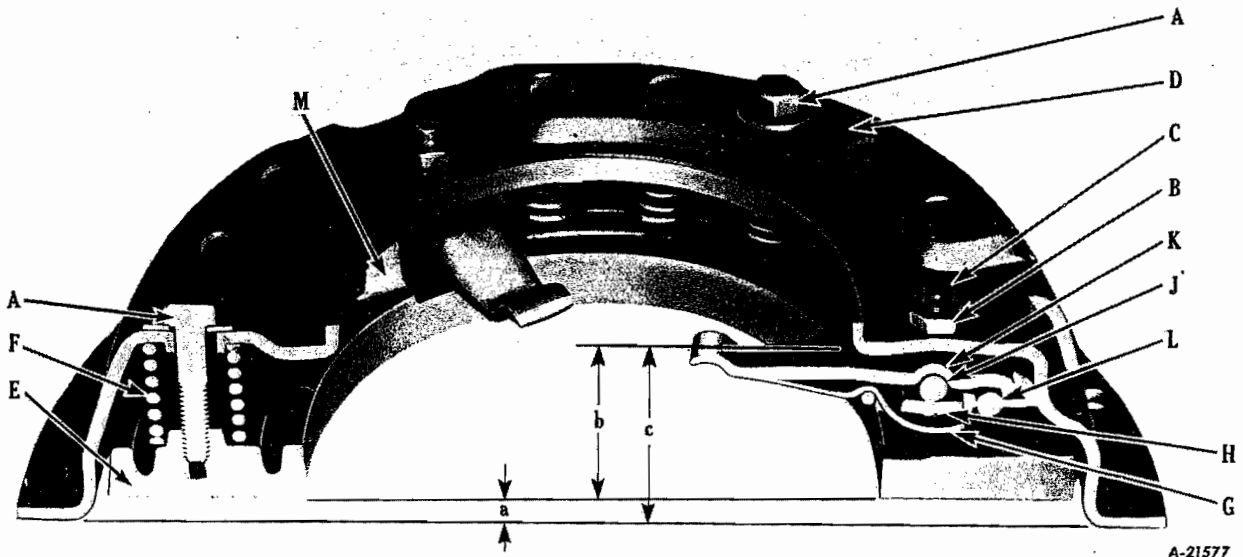


Fig. 2 (R-11A-1 CLUTCH)

- (a) Pressure plate to flywheel surface. 11/32"
- (b) Release lever to pressure plate surface 1-21/32"
- (c) Release lever to flywheel surface 2"

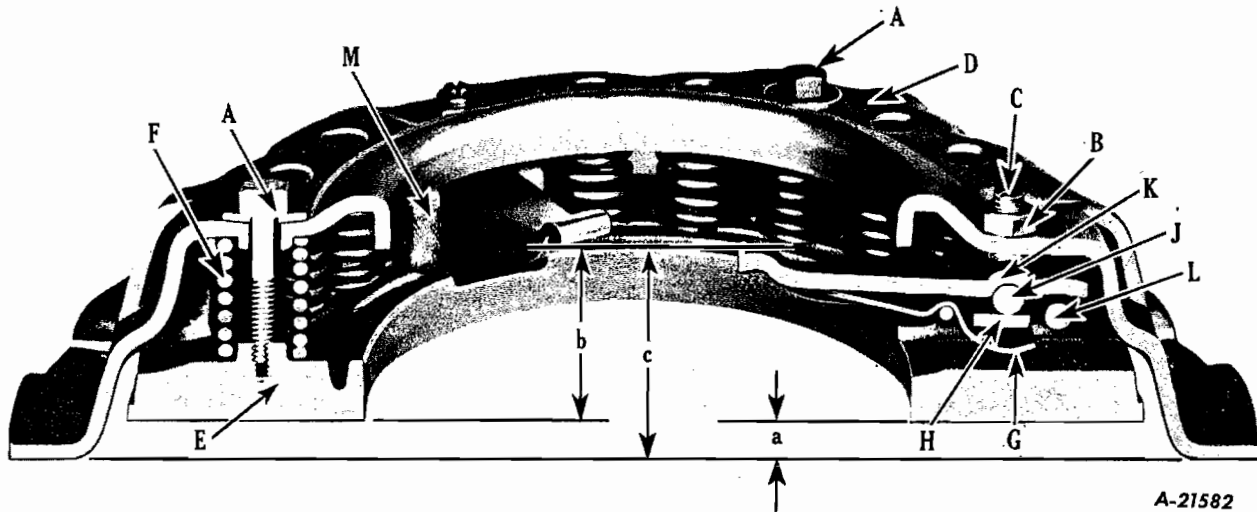


Fig. 3 (RK-12-12, RK-12-15 CLUTCHES)

- (a) Pressure plate to flywheel surface. 3/8"
- (b) Release lever to pressure plate surface 1-3/4"
- (c) Release lever to flywheel surface 2-1/8"

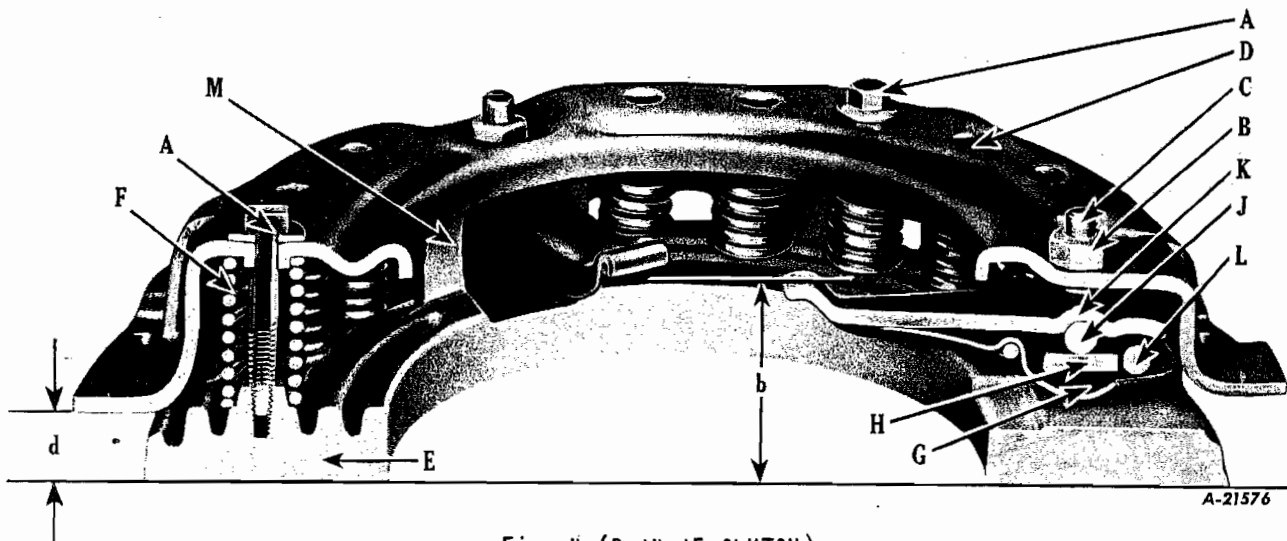


Fig. 4 (R-14-15 CLUTCH)

- * (a) Pressure plate to flywheel surface (not shown). 15/32"
- (b) Release lever to pressure plate surface 2-5/32"
- * (c) Release lever to flywheel surface (not shown) 2-5/8"
- (d) Cover plate mounting surface to pressure plate surface. . . 47/64"

* - Not shown in illustration.

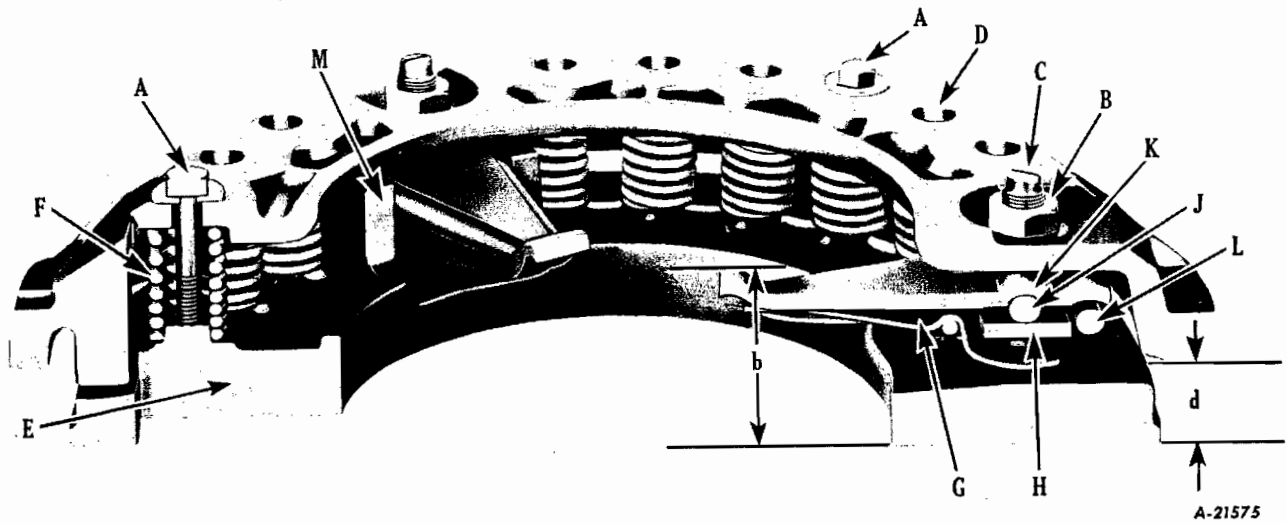


Fig. 5 (R-15-8 CLUTCH)

- * (a) Pressure plate to flywheel surface (not shown). 15/32"
- (b) Release lever to pressure plate surface 2-9/32"
- * (c) Release lever to flywheel surface (not shown) 2-3/4"
- (d) Cover plate mounting surface to pressure plate surface. . . 1-9/32"

* - Not shown in illustration.

LEGEND FOR FIGS. 1 TO 5 INCLUSIVE

- (A) Capscrew (for assembly purposes only)
- (B) Adjusting screw lock nut
- (C) Adjusting screw
- (D) Cover
- (E) Pressure plate
- (F) Pressure spring
- (G) Release lever spring
- (H) Pivot block
- (J) Rollers
- (K) Release lever
- (L) Release lever pin
- (M) Drive lug

NOTE: The above clutch parts are referred to in the following servicing procedure under the designated letter. The servicing procedure, in general, is the same for all clutch assemblies.



CLUTCH

Description

These clutches are of the single dry-plate type, and release lever adjustments should not be required during the normal life of the clutch driven-plate facings. As pedal free-play is reduced by wear of the clutch driven-member facings, the correct amount of pedal free travel should be restored by means of the pedal adjustment, which will also give the proper clearance between clutch release levers and the release bearing. It is extremely important to maintain free travel of the pedal at all times to avoid clutch slippage, and to protect throw-out bearing.

Whenever it is necessary to do any service work on the clutch, advantage should be taken of the opportunity to thoroughly recondition it. This is a comparatively short job and will assure satisfactory operation over a long period of time, whereas failure to do this may necessitate another tear-down within a short time.

Removal

When removing transmission for the purpose of gaining access to the clutch, or for any other reason, extreme care should be taken to support the weight of the transmission until it is completely removed so that the main shaft splines will clear the driven member. Otherwise, there is a possibility of distorting the driven member which will not permit a free release of the clutch.

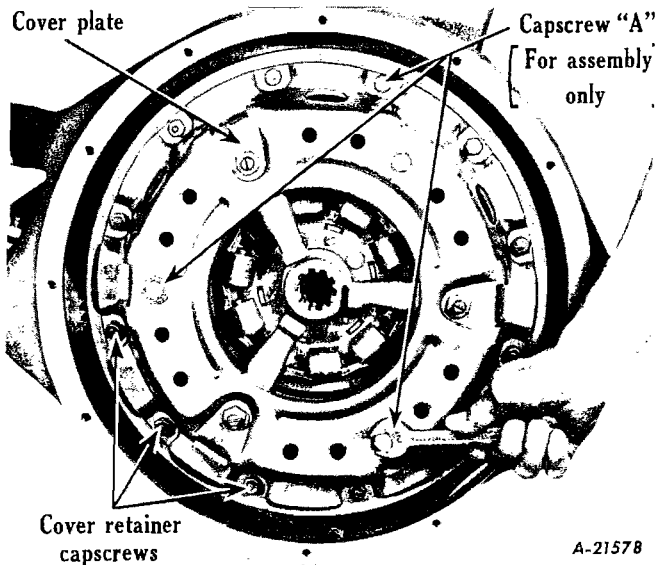


Fig. 6 - Install capscrews "A" before removing clutch assembly.

The clutch pressure plate (E) is drilled and tapped so that three capscrews (A) (see specifications for sizes) with washers may be inserted through the cover plate (D), thereby holding the clutch assembly compressed when it is removed or installed (Fig. 6). With three

capscrews holding the assembly compressed, remove clutch from flywheel by backing out the capscrews which hold it in place. All capscrews should be backed out gradually to avoid damage to the clutch cover or back plate.

Driven Member Assembly

The clutch driven member assembly should be carefully inspected. Facings showing considerable wear, or facings that are rough or oil soaked, should be replaced.

When installing new facings of the continuous ring type, and in cases where two different thicknesses are used on each plate, the thick facing is installed on the pressure plate side. The thin facing is installed on flywheel side.

Installation of clutch facings on the cushion type driven member differs from the other type in that each facing is attached to the discs separately and independently (Fig. 7 and 8).

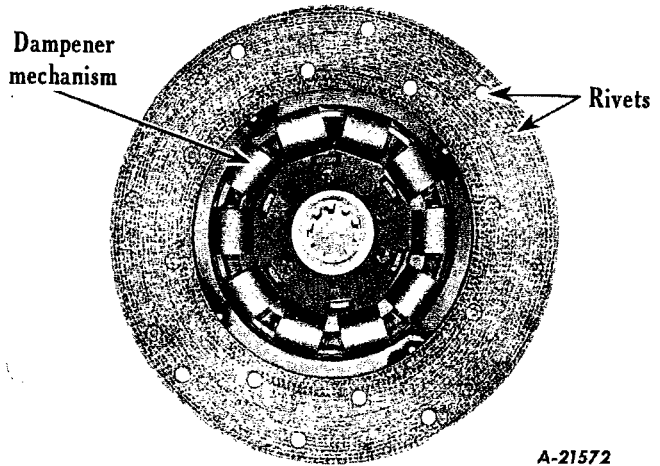


Fig. 7 - Solid type driven member. Each rivet secures both linings to disc.

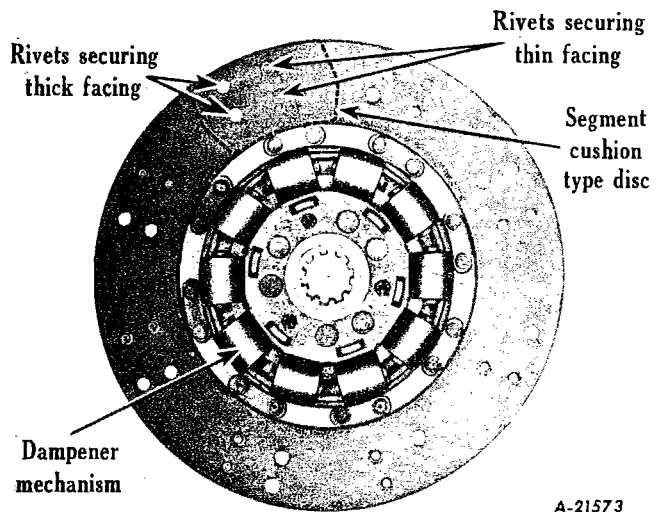


Fig. 8 - Cushion type driven member. Half of the rivets hold thin facing and other half secure thick facing to disc



Clutch Overhauling Fixture

A clutch overhauling fixture is available (Fig. 9) and is adapted to the overhaul and adjustment of clutches used in International Motor Trucks. Complete instructions accompany the machine.

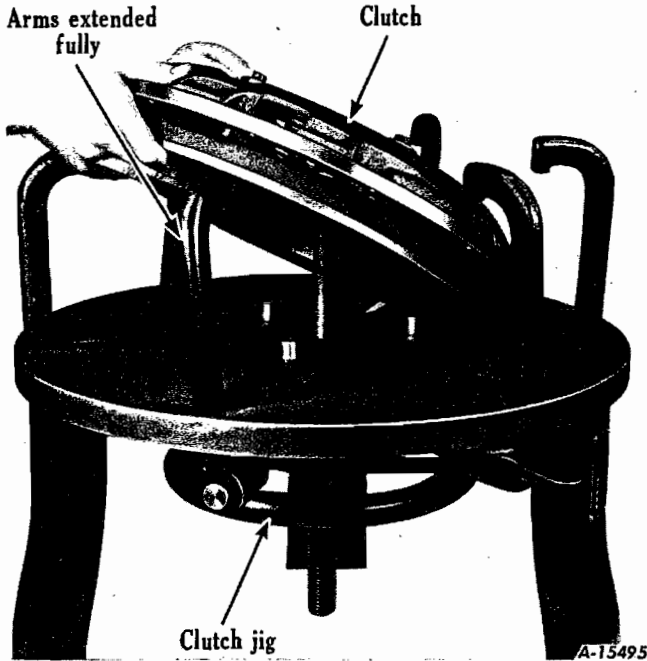


Fig. 9 - Placing clutch in SE-990 fixture.

Servicing the Clutch

NOTE: (Letter references in the text are those shown in Figs. 1 to 5.)

The cover and pressure plate assembly is dismantled by placing specified spacer plate or spacer blocks on clutch overhaul machine

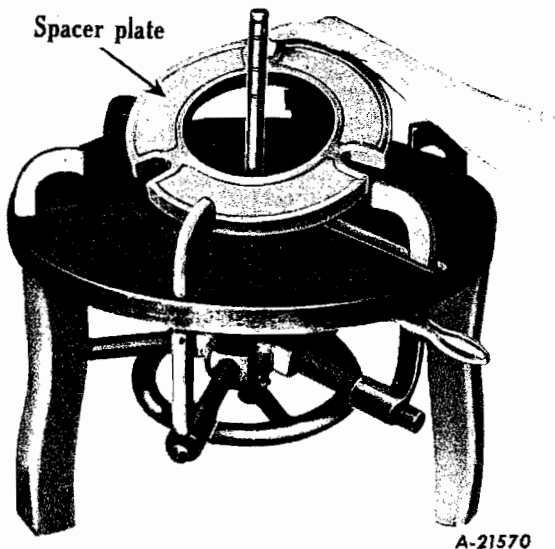


Fig. 10 - Use proper spacer plate, where needed.

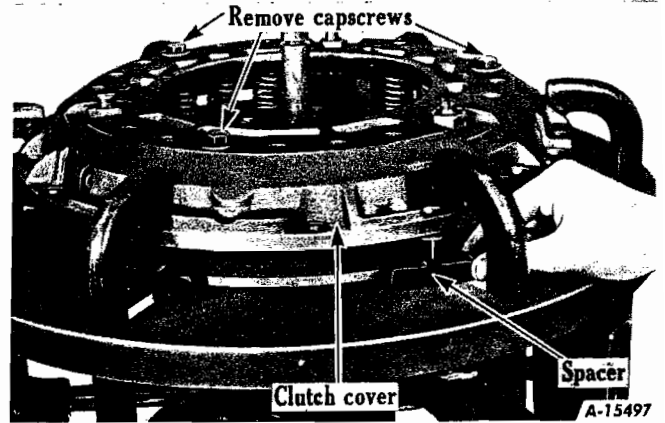


Fig. 11 - Spacer blocks are used when pressure plate extends below clutch cover.

(Figs. 10 and 11). Center clutch assembly over space plate. Draw fixture down to surface plate being sure fixture arms are seated so as not to damage cover (Fig. 12). Compress the assembly lightly.

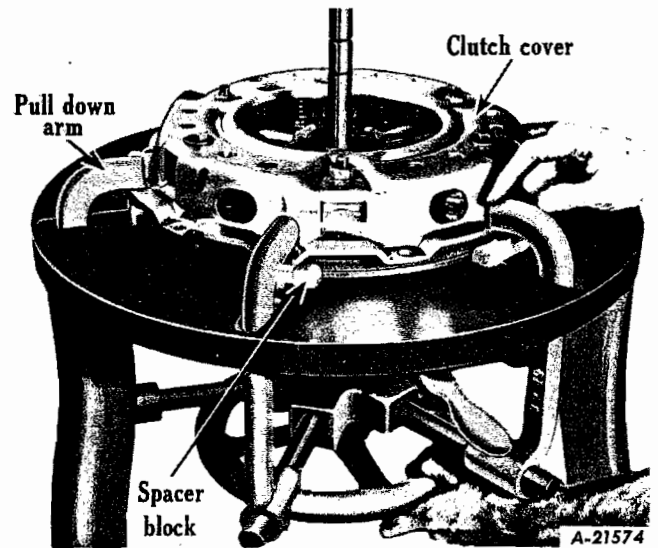


Fig. 12 - Draw clutch down with pulldown arms.

Remove the three capscrews (A) used to hold the assembly while removing it from fly-wheel (Fig. 6).

Loosen and remove lock nuts (B) from adjusting screws (C), Fig. 13. Screw adjusting screws (C) out of cover (D) turning screws clockwise three or four turns at a time while slightly releasing pressure on backing plate. Repeat until pressure from the clutch pressure springs is relieved and adjusting screws (C) are free of cover (D). This procedure of gradually releasing the assembly and backing out of the screws (C) must be followed in order to avoid damage to the lever assemblies (K).

The clutch may then be fully released, after which all parts are readily dismantled for inspection and replacement if necessary. (Fig. 14.)

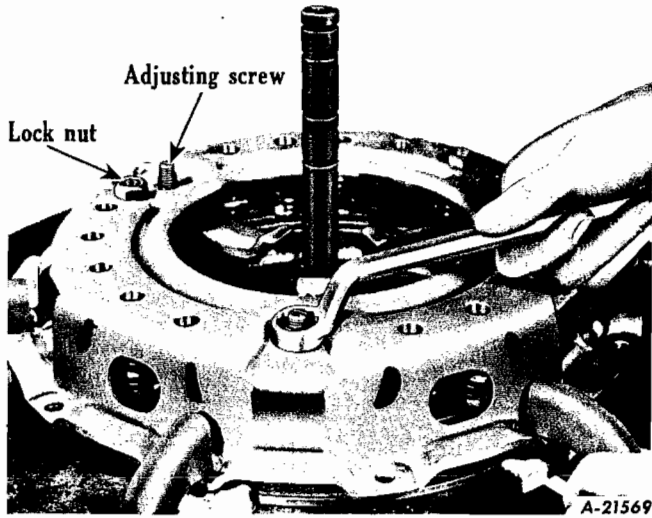


Fig. 13 - Remove adjusting screw lock nuts.

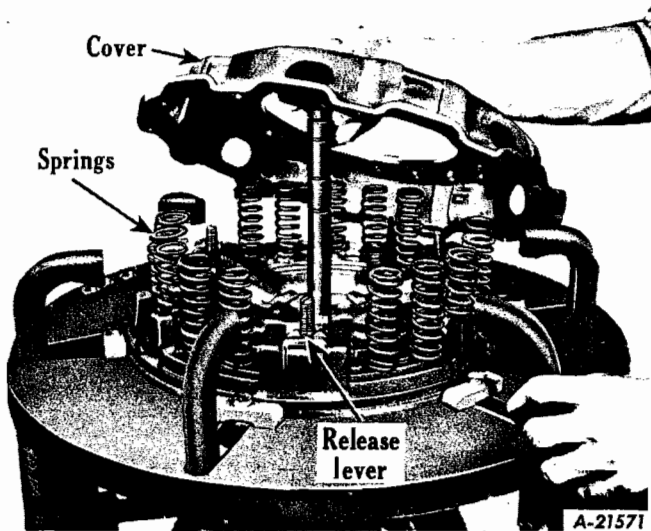


Fig. 14 - Clutch cover removed.

Remove cotter keys from release lever pins (L) and remove pins and levers (K).

A pressure plate (E) that is badly scored, checked or warped should be replaced, as it will not perform satisfactorily, and in addition, will damage the clutch driven member.

If the clutch surface on the flywheel is not smooth, the flywheel should be removed, mounted in a lathe and smoothed with emery cloth using first a coarse cloth, finishing with a fine cloth. Where the surface is extremely rough, a light cut should be taken on the flywheel with a lathe tool, finishing and polishing with emery cloth.

Clutch pressure springs (F) that have had considerable service should be replaced, as it is possible that they may have lost their original tension (see Specifications) and thus permit the clutch to slip under load. Springs that are discolored due to heat should always be replaced.

Clutch spring tester (Fig. 15) or similar unit should be used for testing springs, (F). They may also be tested by comparison with new springs. Discard those not of same length.

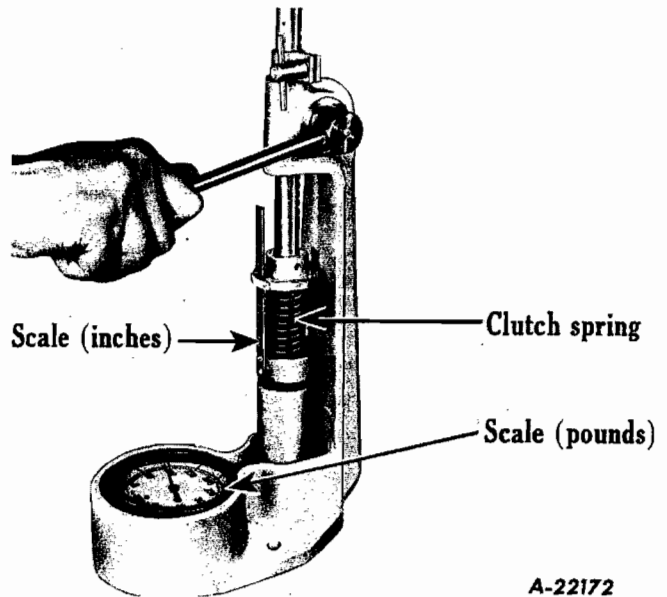


Fig. 15 - Check springs on SE-1565 Spring tester.

Release levers (K) that show considerable wear at the release bearing contact points as well as at the pivot points should be replaced, as should worn lever pins (L). The lever spring (G) should hold the lever adjusting screw (C) and pivot block (H) up firmly against the pivot points on the release levers. If this condition does not exist on the old levers, it is sufficient reason for replacement with new lever assemblies.

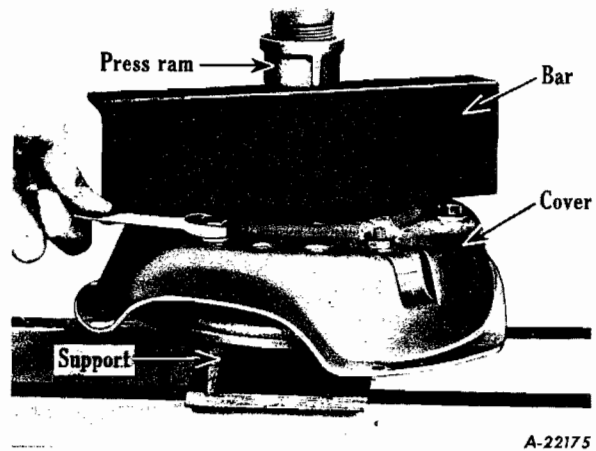


Fig. 16

When overhauling clutch assemblies, where no clutch fixture is available, the following procedure will be found helpful:

The cover and pressure plate assembly is dismantled by placing it on a drill press or arbor press with supporting blocks of

wood or metal under pressure plate. (Fig. 16.) These blocks should not extend out beyond the outside edges of the pressure plate. (E). A bar is then placed across the top of the cover assembly "D" and the drill press or arbor press arm brought down to a point where the assembly is compressed slightly. From this point on, the same procedure can be followed as used with the special type clutch overhaul fixture previously explained.

Clutch Release Levers

Hardened-steel, disc-type rollers (J) are used between the adjusting screw block (H) and lever (K) which reduces operating friction and relieves the stress on the adjusting screws (C).

Assembling The Clutch (Using Clutch Overhaul Fixture)

Place the clutch pressure plate (E) with release levers assembled to plate on top of specified spacer plate (Fig. 10 or Fig. 11). Install pressure springs (F) in position on pressure plate (Fig. 14).

Place clutch cover or back plate (D) over springs, making sure that springs (F) are seated properly both above and below, and that the adjusting screw holes in cover are directly over the clutch lever adjusting screws (C).

Draw fixture down to clutch cover or back plate (D), Fig. 12, being sure fixture arms are seated so as not to damage cover. The assembly can then be compressed slowly until the top unthreaded portion of each adjusting screw (C) can be guided by hand up through the tapped holes in cover plate (D). At this point care should be taken to see that both pressure plate (E) and cover (D) are lined up correctly, so as to permit free entry of the three drive lugs (M).

Turn each adjusting screw (C) up into cover (D) approximately five turns at a time, (turning screw driver counter clockwise) and after each five turns, compress the assembly a small amount.

The release levers (K) may now be adjusted to the correct setting as follows:

Clutch Release Lever Adjustments

The release levers (K) should be set to the dimensions shown in Figs. 1 to 5. Lever adjusting tool as shown in Fig. 17 can be used for accurate adjustment of levers. It is very important that all three levers be set exactly the same height. After levers are set to the correct height, the adjustment lock nuts (B) are installed and tightened securely. Care should be taken not to upset the adjustment when tightening the lock nuts.

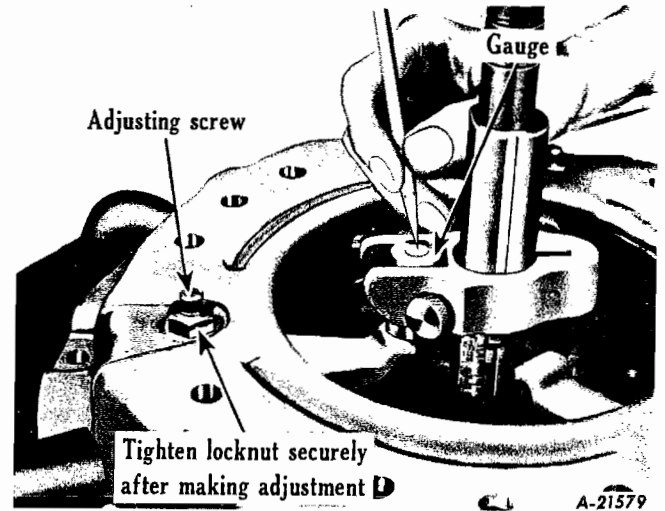


Fig. 17 - Checking lever setting.

FOR SERVICE STATIONS NOT EQUIPPED WITH OVERHAUL FIXTURE, the following procedure may be used:

Place the pressure plate with release levers assembled on supporting blocks on drill or arbor press. From this point on, same procedure as outlined in the above paragraphs may be followed.

The release levers (K) may be adjusted to correct setting as follows:

Adjust the pressure plate in relation to the clutch cover as shown (Fig. 18). Use a straight edge across the cover plate surface and, turning the capscrews a small amount at a time, secure dimension given in specifications. Recheck this operation several times to assure accurate adjustment.

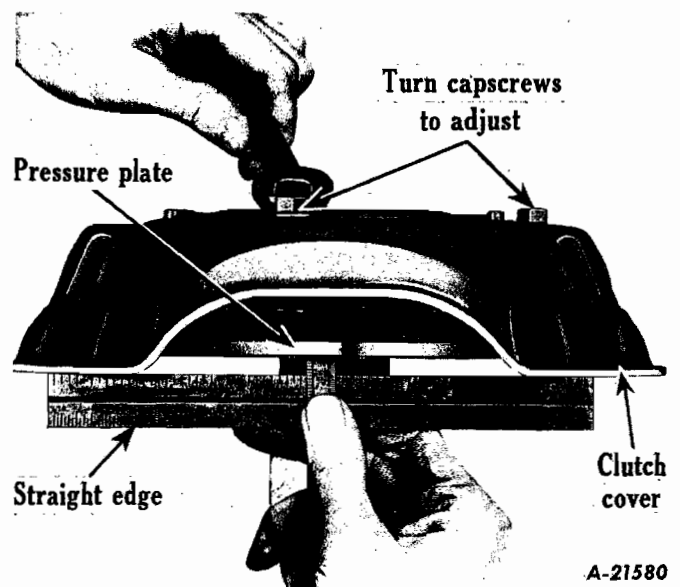


Fig. 18



The release levers are adjusted in a manner similar to that used when the "Clutch Fixture" is available. Place the clutch assembly on a flat surface and, with the adjusting screw lock nuts loose, adjust the levers to secure specified dimensions (Fig. 19). Recheck at each lever to assure accuracy.

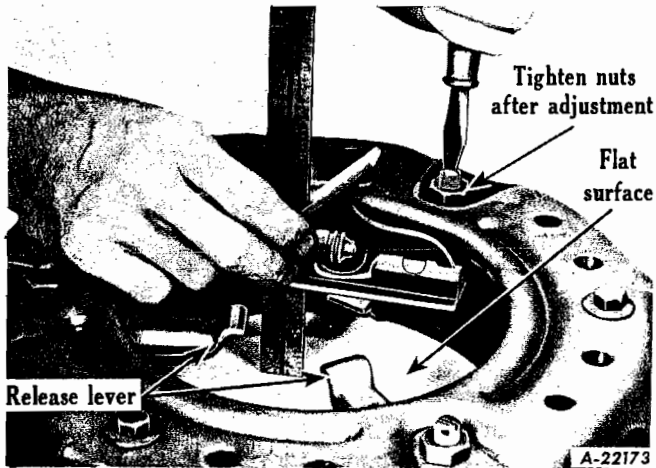


Fig. 19

Installing Clutch

Figs. 21 to 25 inclusive illustrate clutch and control installation.

When installing the clutch on flywheel in truck, care should be taken to see that the clutch driven-member is aligned properly by inserting a transmission stub shaft or aligning bar through the driven member splines and into pilot bearing. Have dampener mechanism of clutch driven member toward the transmission. **IMPORTANT:** An inspection mark or

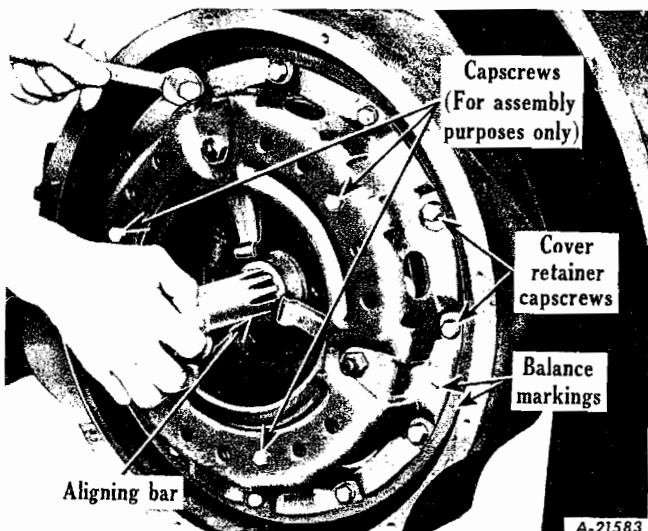


Fig. 20 - Showing use of aligning bar or shaft when assembling clutch to flywheel.

arrow is stamped on the outer flange of the clutch cover which indicates the **HEAVY** side of the clutch assembly. The clutch should be assembled to the flywheel so that this mark is adjacent to the mark "L" stamped on the flywheel which indicates the **LIGHT** side. Fig. 20.

Bolt clutch assembly to flywheel making sure that the marks on the flywheel and outer flange of clutch cover match as nearly as possible. This is important in order to maintain the correct balance of the flywheel and clutch assembly.

Remove the three capscrews (A) holding the assembly compressed. The transmission stub shaft or aligning bar is also removed, as the driven-member assembly will now be held in position by the clutch pressure plate. Care should be exercised when installing the transmission, so as not to permit the transmission to hang by the clutch shaft, which would bend the hub of clutch-driven member, creating misalignment, with resultant clutch "drag".

With transmission installed and floor boards in place, make correct pedal adjustments. Do not adjust the clutch release levers, which were previously set to the correct height and require no further adjustment during the life of the clutch-driven plate facings. Pedal adjustments only are required to maintain the recommended amount of pedal free travel. The specified pedal clearance will assure proper clearance between the clutch release bearing and release levers. (Figs. 21 to 25 incl.)

NOTE: When installing the R-15-8 clutch on the International Continental Engine flywheel, place the white paint marking on the clutch cover as close to the letter "L" (light side) on the flywheel as possible. The white dab of paint on these clutch covers indicates the heavy side of the clutch assembly.

Important

Oil and grease must be kept off the driven member facings. The clutch release bearing is lubricated at assembly and should require no further lubrication during the life of the clutch facings. If this bearing is removed for any reason it should be examined and replaced if it shows signs of lack of lubrication. The bearing and retaining sleeve are available as a unit and neither is furnished separately.



Clutch Control Adjustment

Figs. 21 to 25 inclusive illustrate the assembly of the clutch control mechanism.

The clutch pedal should have a specified amount of free movement before clutch pressure is felt. (See Specifications or Figs. 21 to 25 inclusive). The clutch release bearing will just touch the clutch release levers when the clutch pedal is depressed the above amount. If clutch pedal free movement is 1" or less, adjustment is necessary to provide adequate bearing-to-lever clearance.

As wear of the clutch facing takes place, the clutch release levers move outward, reducing the clearance between the clutch release levers and clutch release bearing. The adjustable yoke on clutch release rod provides means of adjusting the clearance.

Clutch Chatter

Clutch chatter cannot always be attributed to the type of lining being used (molded or woven). It is generally chargeable to grease or oil on the clutch facing, the source of which may be:

1. Failure to remove anti-rust grease from the flywheel and pressure plate.
2. Excessive anti-rust grease in the cover plate assembly.

When dismantling a clutch for service, the flywheel, pressure plate, and cover plate assembly should be thoroughly cleaned. If the clutch facings show evidence of lubricant, they should be replaced. It is impossible to remove oil or grease from clutch facings with solvents or by burning.

THE FOLLOWING PAGES - 10 to 14 inclusive-
ILLUSTRATE CLUTCH INSTALLATIONS

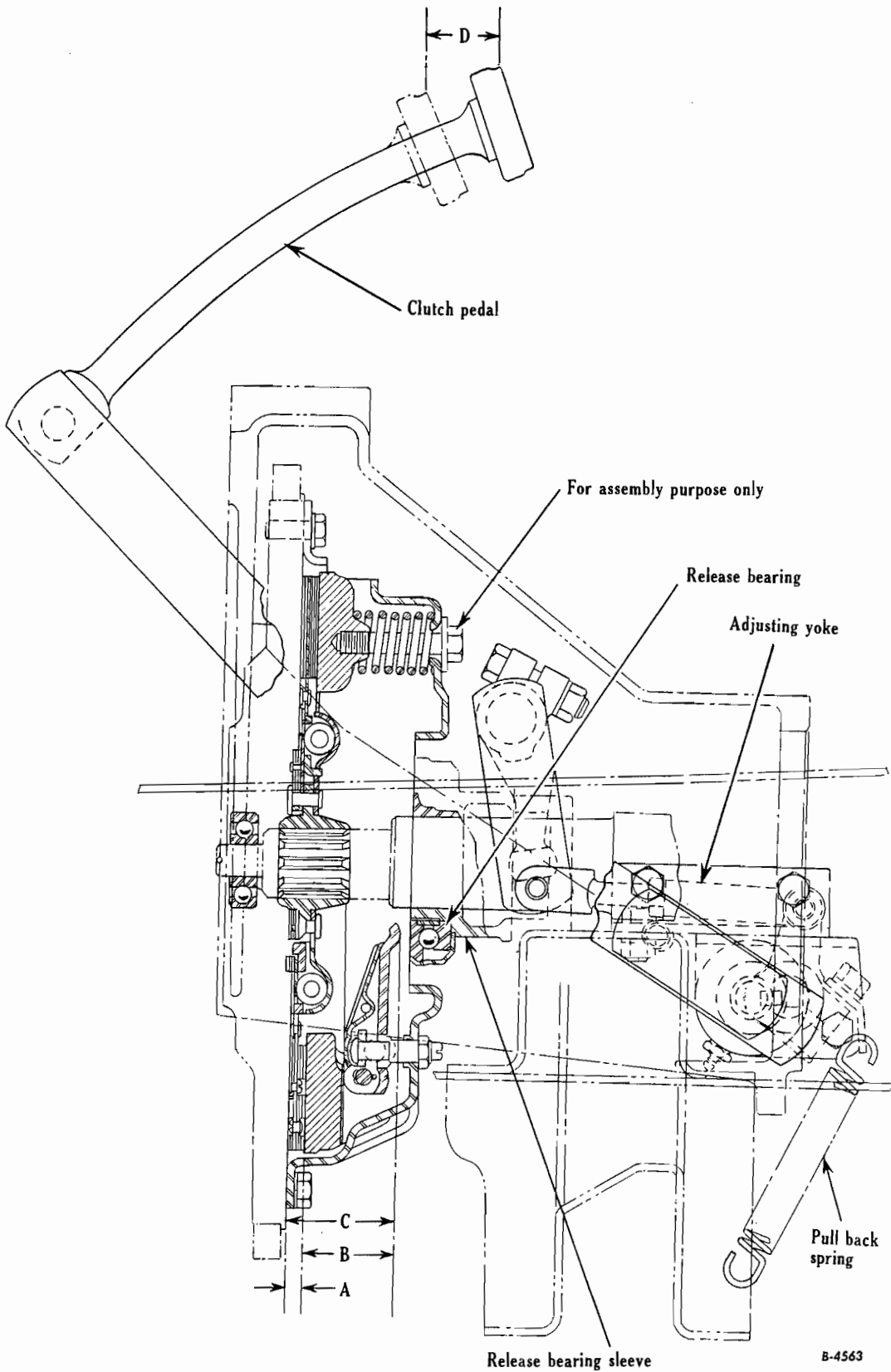
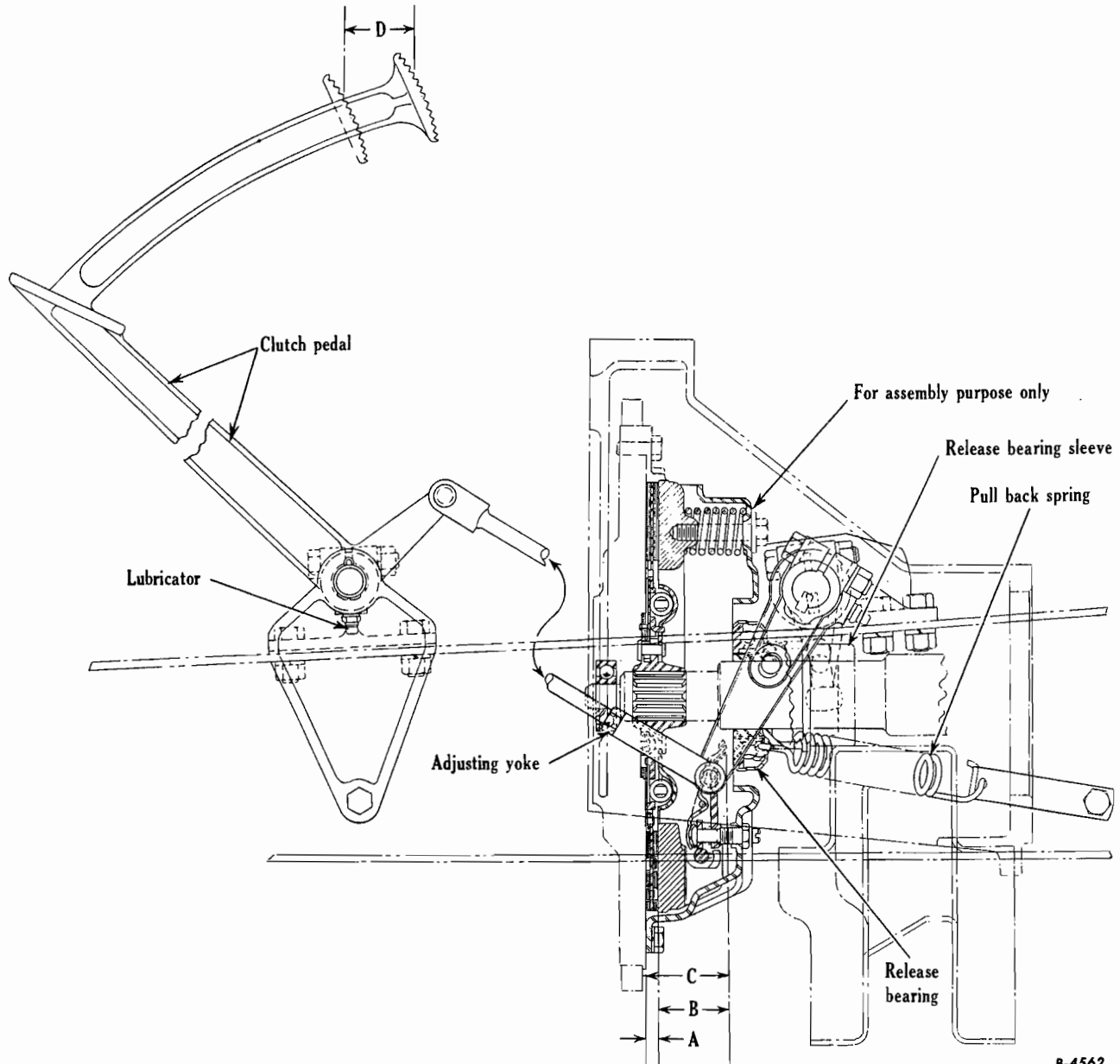


Fig. 21 - Control installation - L-110, L-120, L-130, L-150, L-153 Series.

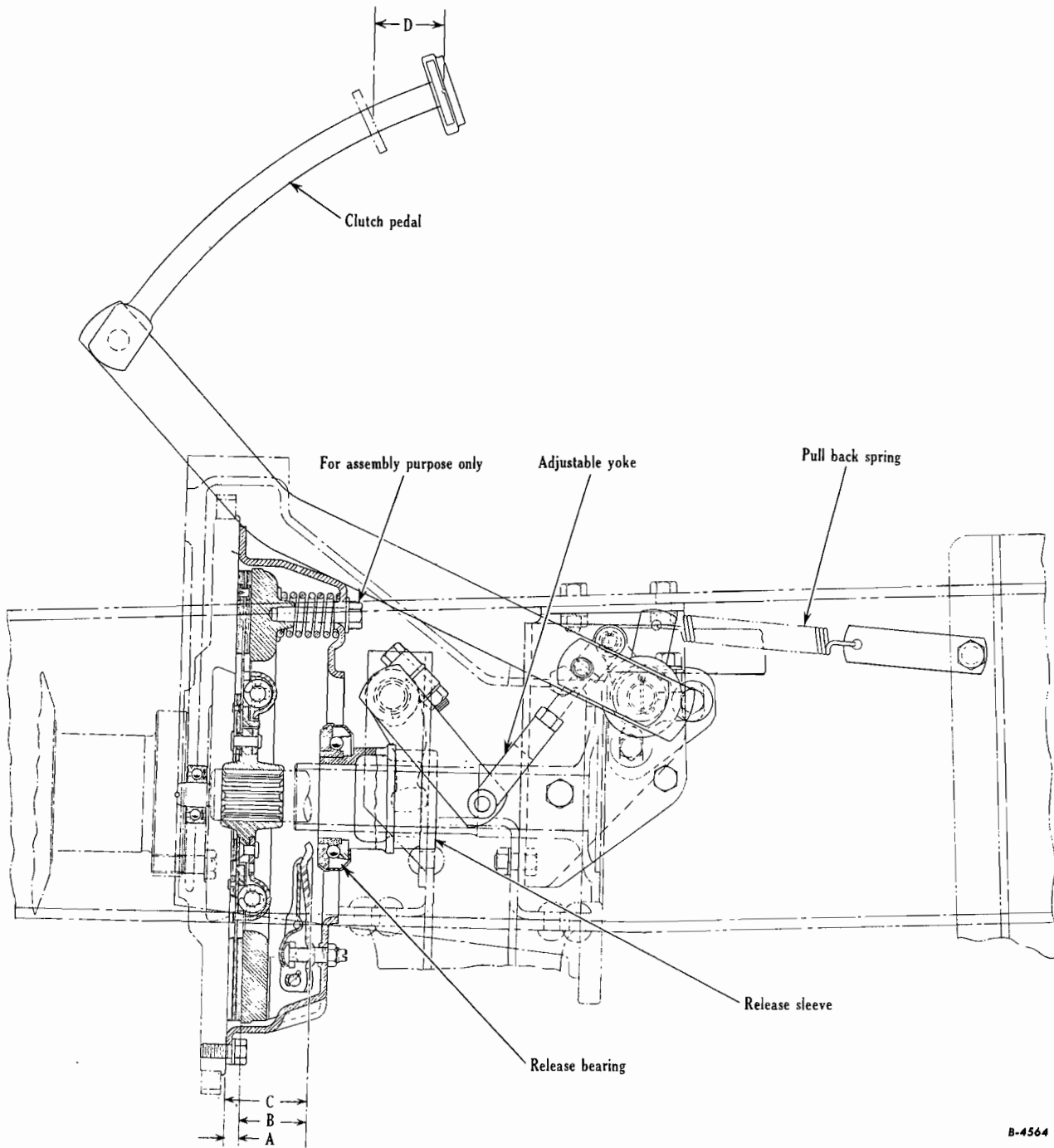
A	B	C	D
11/32"	1-15/32"	1-13/16"	1 To 1-1/2"



B-4562

Fig. 22 - Control Installation - LM-120, LM-150.

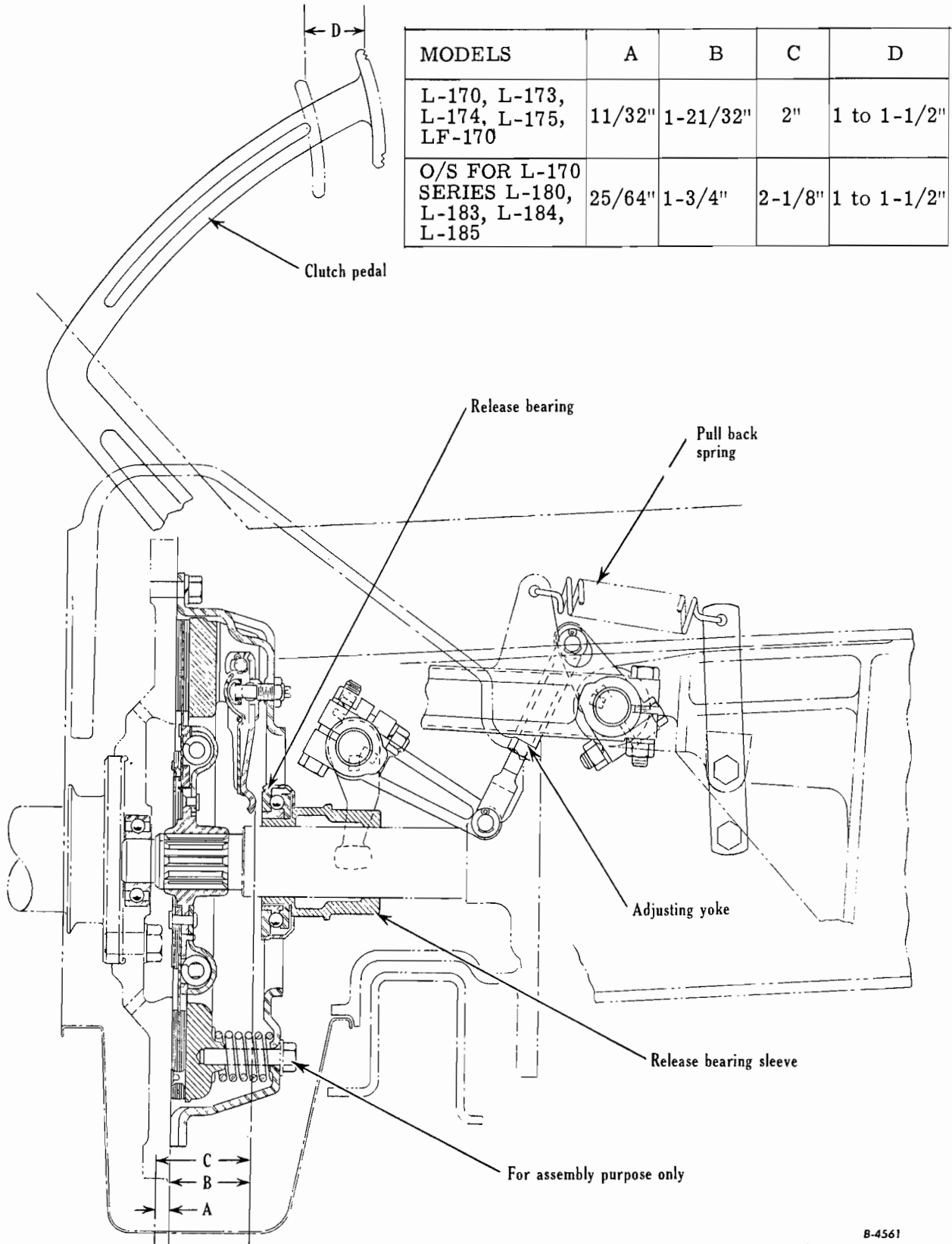
A	B	C	D
11/32"	1-15/32"	1-13/16"	1 To 1-1/2"



B-4564

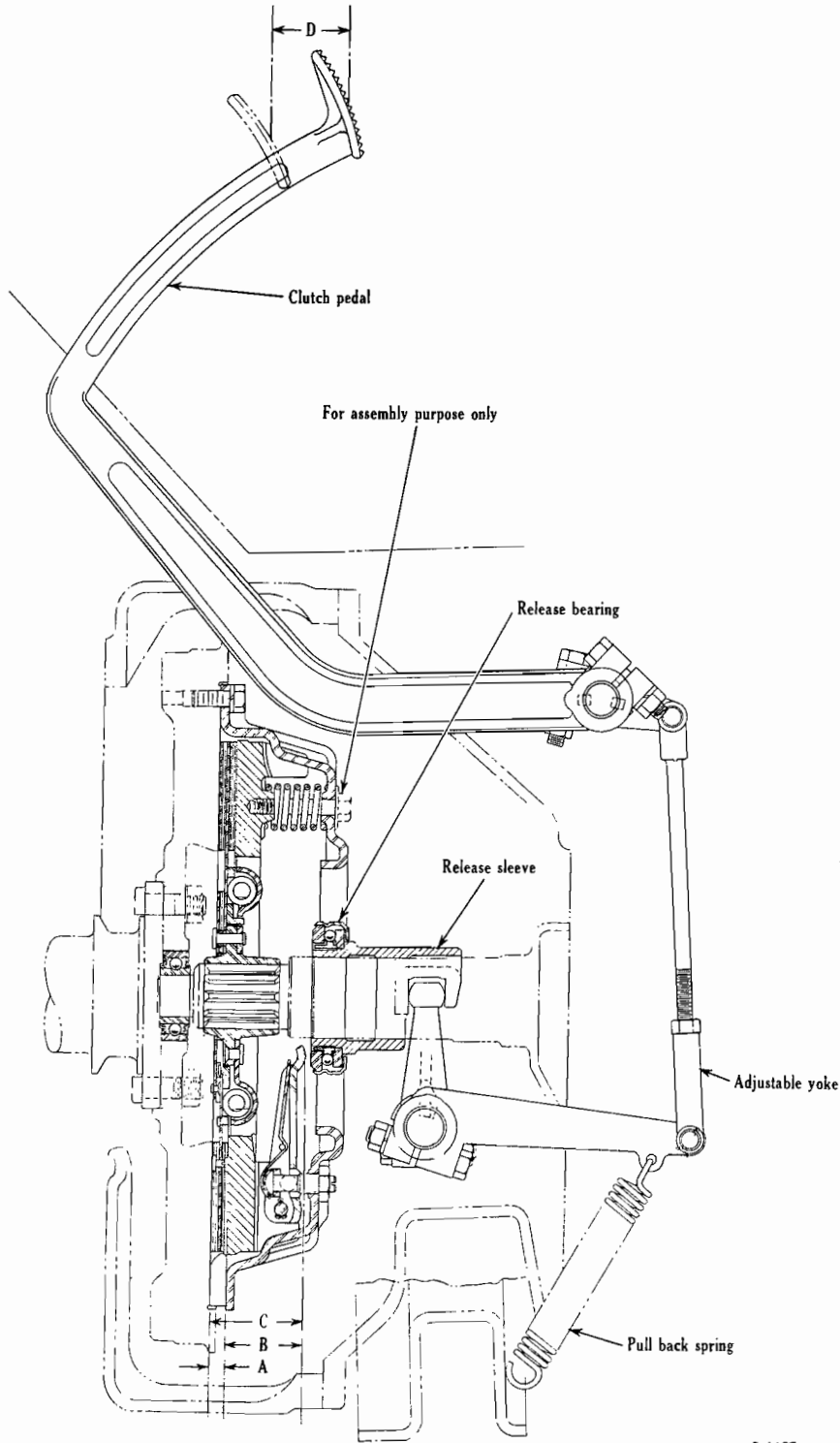
Fig. 23 - Control Installation - L-160, L-163, L-164, L-165, LC-160 Series.

A	B	C	D
11/32"	1-21/32"	2"	1 To 1-1/2"



B-4561

Fig. 24 - Control Installation - L-170, L-173, L-174, L-175, LF-170, L-180, L-183, L-184, L-185 Series.



B-4697

Fig. 25 - Control Installation - L-190, L-193, L-194, L-195, LF-190, L-200, L-204, L-205, L-210, LF-210.

MODELS	A	B	C	D
L-190, L-193, L-194	3/8"	1-3/4"	2-1/8"	1 To 1-1/2"
O/S FOR L-190, L-194 L-195, LF-190, L-200, L-204, L-205, L-210, LF-210	15/32"	2-5/32"	2-5/8"	1 To 1-1/2"