ELECTRO-MOTIVE DIVISION • GENERAL MOTORS CORPORATION
SERVICE DEPARTMENT

MAINTENANCE INSTRUCTION

DRAFT GEAR ASSEMBLIES

DESCRIPTION

The powerful force exerted by the locomotive to pull its train is applied through the draft gear assembly and coupler of the locomotive. The draft gear must not only withstand the entire pulling power of the locomotive, but in addition, it must be capable of absorbing the impact shock during coupling and starting, and be sufficiently flexible to conform to the small fluctuations of load during operation.

Since rubber is recognized as one of the best materials for cushioning vibration and shock, the current design rubber draft gear is best suited for the severe service of modern railroads. A current design rubber draft gear and its application in the draft gear pocket is shown in Fig. 1.

Although there are a number of different designs of rubber draft gears outlined in this instruction, they all operate on the same principle, differing primarily in size and capacity. The original selection of the draft gear is determined basically by the number of power units that will operate together and the kind of service in which the locomotive will operate.

The draft gear assembly consists of the draft gear and its yoke, Fig. 2, to which the coupler is pinned. When the locomotive is exerting force, the force is transmitted through the draft gear pocket to the draft gear, then through the yoke to the coupler. The draft gear then is interposed between the draft gear pocket, which is an integral part of the locomotive underframe, and the yoke which is connected to the locomotive coupler.

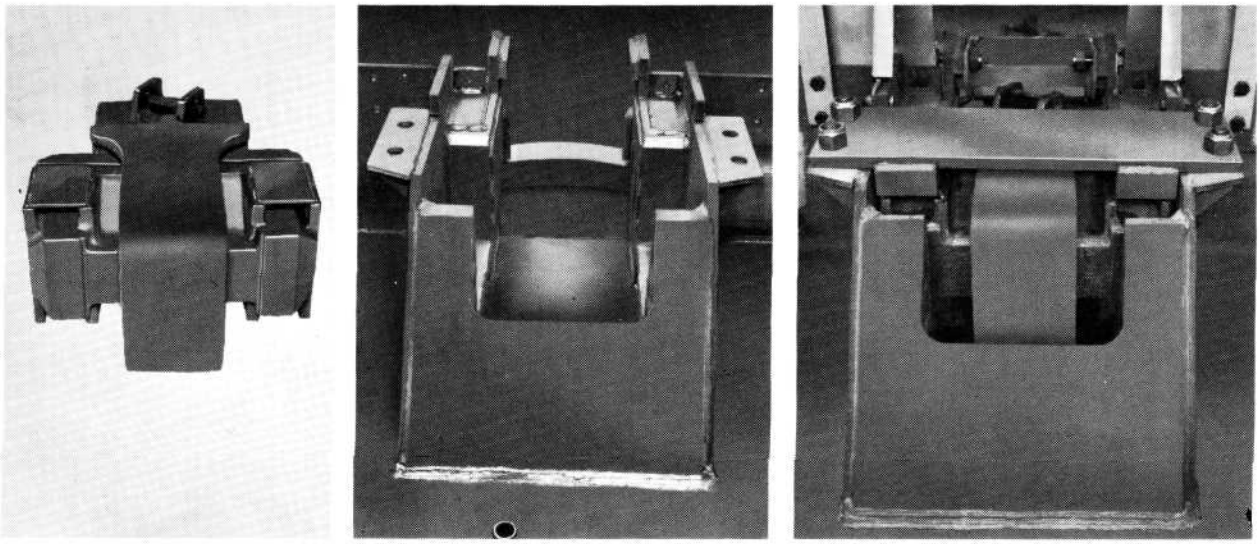

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Fig. 1 — Draft Gear And Application

*NOTE: Information contained herein is applicable to equipment being produced as of the date of publication.

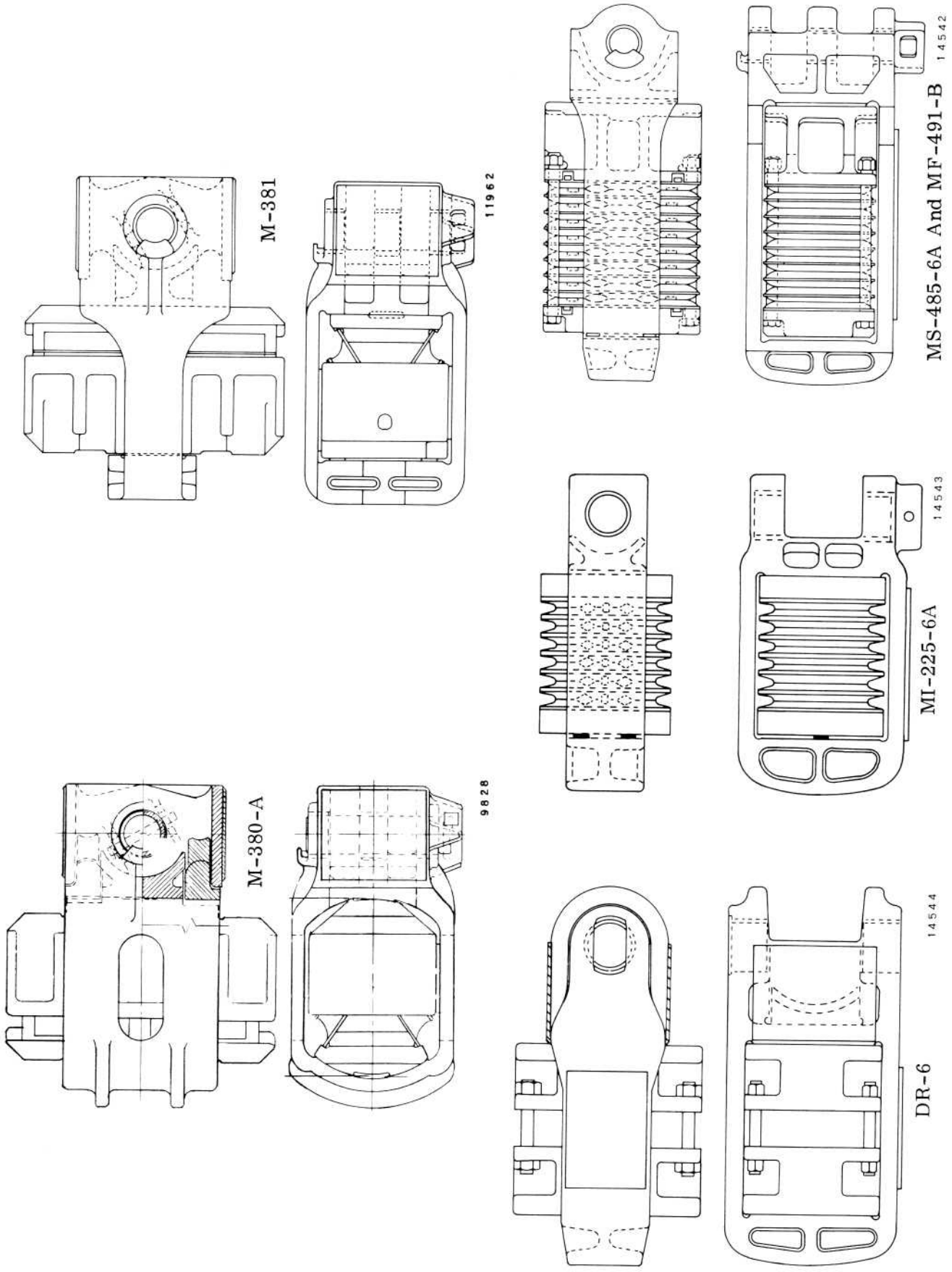


Fig. 2 — Representative Draft Gear To Yoke Application

GENERAL MAINTENANCE

To ensure satisfactory service, the draft gear assemblies should be maintained according to the following recommendations and in compliance with the Bureau of Locomotive Inspection.

NOTE: Clearance and dimensional limits used in this instruction are defined as follows:

1. New limits are those to which new parts are manufactured (drawing tolerances).
2. Rebuild limits are dimensions which should not be exceeded at the time of rebuild, in order to ensure satisfactory service until the time of the next scheduled overhaul.
3. Condemning limits are dimensions beyond which satisfactory operation cannot be assured. Parts having clearance and/or dimensional measurements beyond these limits should not be used.

Where extremely low wear rates are normally experienced or where wear is not a highly critical factor, the rebuild limits and condemning limits may be identical.

INSPECTION ON LOCOMOTIVE

The draft gear should be inspected to see that it is tight in the proper length pocket and that its appearance indicates the gear has been functioning properly.

CHECKING LATERAL DISPLACEMENT ON COUPLERS WITH ALIGNMENT CONTROL DRAFT GEAR

Draft gears with alignment control can be checked for wear of the alignment control mechanism by measuring the coupler lateral movement, as shown in Fig. 3. The alignment control normally provides a free lateral movement of the coupler of two inches to either side of the center measured at the coupling centerline, or a total movement of four inches. The maximum allowable lateral movement is four inches to each side of the coupling centerline, or a total movement of eight inches. The following method should be used to determine the amount of coupler movement.

1. Place a long pinch bar between the coupler horn and striker face and pry the coupler forward to take up all slack in the draft assembly.
2. Move the coupler laterally to one side as far as possible. Then suspend a plumb-line from the pulling face of the closed coupler knuckle, as shown in

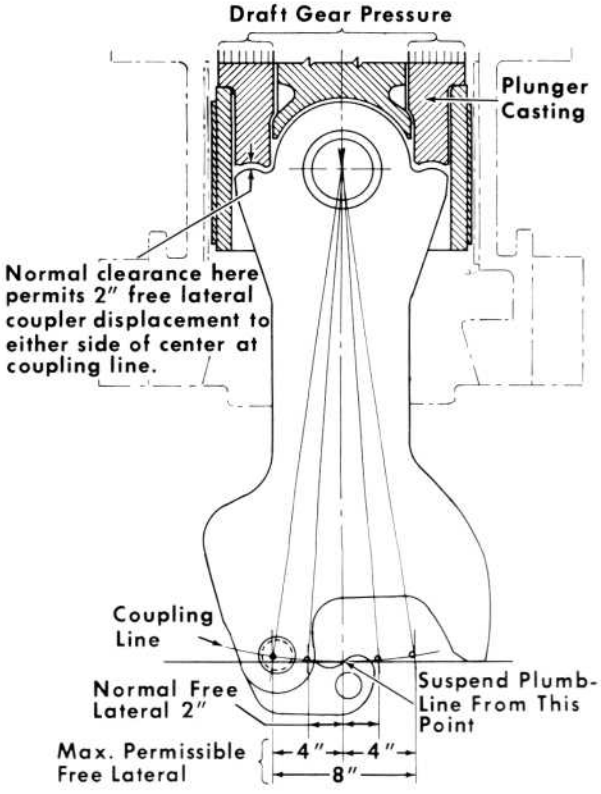


Fig. 3 — Alignment Control

Fig. 3. Lower the line until the plumb-bob touches the floor or other flat surface beneath the coupler head and mark the point of contact.

3. Now move the coupler laterally to the extreme opposite side and mark this position, using the plumb-line as before.

4. The measured distance between the plumb-bob markings is the total free lateral coupler movement. (Half of this total is the movement from the centerline to each side.)

5. If the total lateral coupler movement measures no more than 8", then the coupler aligning lugs, plunger castings or shank loops are not sufficiently worn to require maintenance.

CHECKING FREE SLACK

The draft gear, yoke and coupler on the locomotive should also be inspected for total free slack. If the total free slack of these parts is found to be 1/2" or more, the draft gear and coupler should be removed and reconditioned to maintain the slack within the 1/2" limit.

The total free slack may be determined as follows:

1. Bar the coupler and draft gear "in" as far as possible.

NOTE: This should be done manually so the draft gear will not be compressed. Using another locomotive to push the coupler "in" or pull the coupler "out" is not recommended as this would compress the draft gear which would give an incorrect slack indication.

2. After the coupler is pushed "in", measure from a point on the coupler to the end sill of the locomotive.

3. Bar the coupler and draft gear assembly "out" as far as it will go after taking the measurement in Item 2.

4. With the coupler and draft gear assembly "out" as far as it will go, take another measurement, using the same reference points as used in the Item 2 measurement.

5. The difference between the Item 2 and Item 4 measurement is the total free slack.

If either the total lateral movement of the coupler is more than eight inches in the case of alignment control assemblies or the total free slack is more than 1/2", the entire assembly should be removed to permit reconditioning.

RUBBER PAD INSPECTION

Visual inspection of the rubber pads of the draft gear can be misleading. Separation of the rubber from the steel plates and the rubber cracking and breaking off in small pieces or shredding is a natural condition and occurs when the draft gear is subjected to heavy-duty service.

If upon inspection the rubber is completely loose from the steel plate, it will not be necessary to remove the draft gear immediately. The draft gear may be retained in service as cushioning capacity is still available. However, the gear pads should be changed out at the earliest convenient time since the steel plates, previously bonded to the rubber, have a tendency to creep out of the wedge block.

REMOVING DRAFT GEAR FROM LOCOMOTIVE

The method of removing the draft gear from the locomotive varies with the locomotive model, however, they are removed in general as follows:

1. Remove the coupler pin retaining key, coupler pin, and the coupler.

2. If the locomotive has not been removed from the trucks, check the clearance below the draft gear. It may be necessary to jack the locomotive off the trucks.

3. The draft gear is removed by placing extended jacks under the draft gear, removing the carrier irons and jacking the draft gear down, out of the draft gear pocket. The draft gear should come out of the pocket by its own weight as the jacks are lowered.

5. The draft gear may then be removed from its yoke.

INDIVIDUAL DRAFT GEAR MAINTENANCE

MODEL M-380-A AND M-381

The wedge type draft gear, Fig. 4, is the most common type used on EMD locomotives. The M-380-A and M-381 are similar in function, but vary in size and shape.

DISASSEMBLY

Special clamps may be made to hold the draft gear compressed to aid in removal or application of the draft gear to its yoke. Shown in Fig. 5 are details of construction and application of the draft gear clamps.

1. Using a suitable press or other means, compress the draft gear to enable application of the holding clamps as shown in Fig. 5.

2. After the clamps are applied, remove the draft gear from its yoke. Apply compression pressure to the gear, remove the clamps and slowly remove the holding pressure.

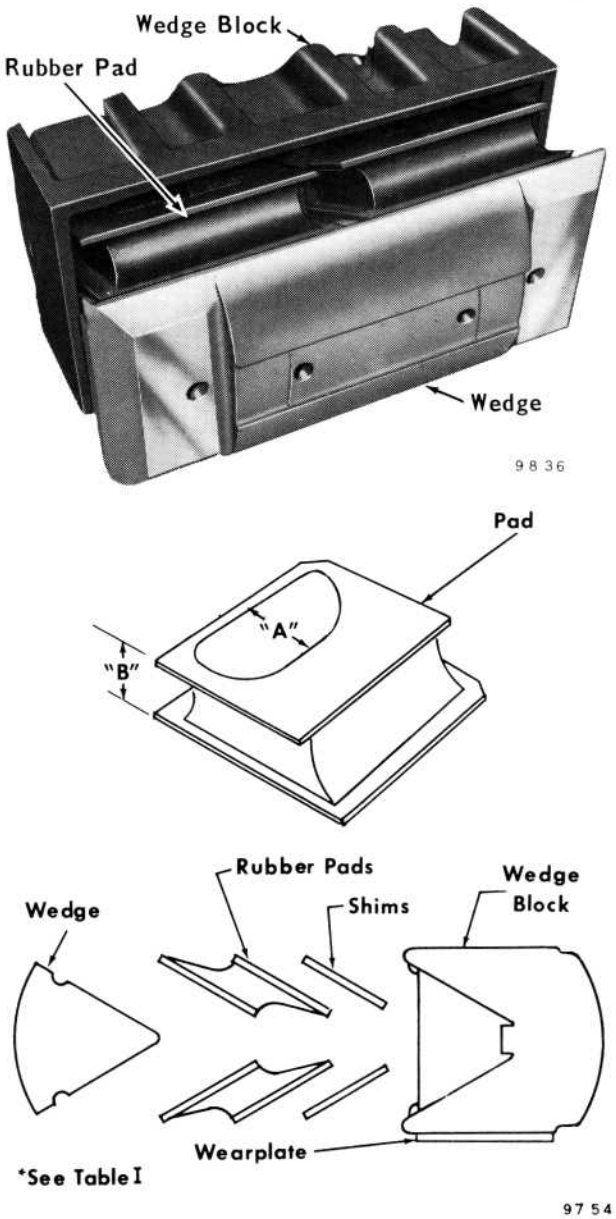


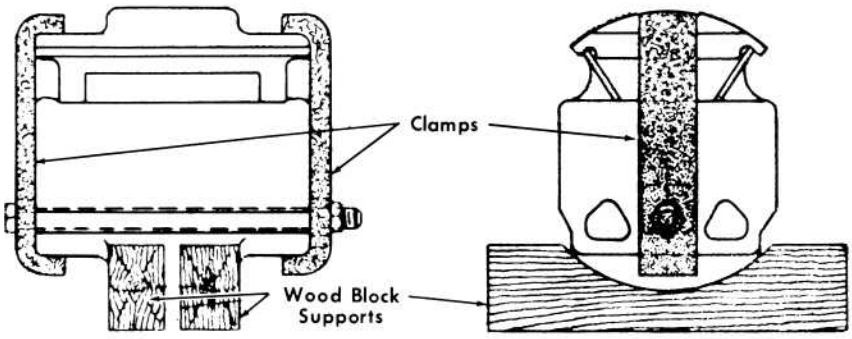
Fig. 4 — Wedge Type Draft Gear Details

3. After removal of the clamps, the individual parts of the draft gear can be removed.

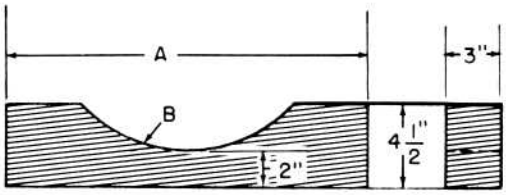
INSPECTION

Wedge

Using a Magnaflux procedure, inspect the wedge for cracks. Magnaflux gray powder provides a good contrast. If any cracks are found, the wedge should not be used. (Any Magnaflux machine such as KRH2D capable of providing 600-700 amperes may be used.)

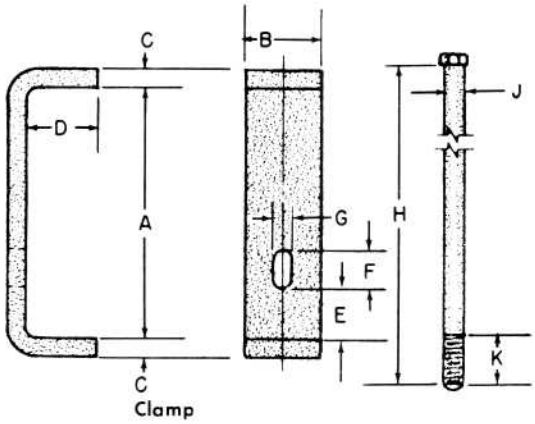


Application Of Clamps



Wood Block Support -2 Req'd Per Gear

Gear Type	A	B
M-380-A	15"	8-3/8"
M-381	Has a flat bottom	



Steel-2 Req'd Per Gear Steel-1 Req'd Per Gear

Gear Type	A	B	C	D	E	F	G	H	J	K
M-380-A	13-1/4"	4"	1-1/8"	3-3/4"	2-3/4"	2"	1"	28"	7/8"	2-1/2"
M-381	13-1/4"	4"	1-1/8"	3-3/4"	2-3/4"	2"	1"	28"	7/8"	2-1/2"

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Fig. 5 — Draft Gear Clamps And Supports

Wedge Block

Also Magnaflux inspect the wedge block for cracks. The wedge block should not be used if any evidence of cracks is found.

If the wedge block is equipped with wear plates, examine the plates for excessive gouging, scuffing and washboard type wear; that is, wear of a wavy pattern, or wear to 1/8" thickness or less. If any of these items are apparent, replace the wear plates with new plates of proper thickness.

Inspect the shims, if used, in the wedge block to determine that they are secured

in place at about 4" intervals along their length by suitable tack welds of about 1" length. (It may be necessary to replace shims during assembly of the draft gear to maintain correct height.) Shim sizes for the draft gears are shown in Table 1 in the Maintenance Data.

Rubber Pads

The rubber pads, Fig. 4, should be inspected for condition of the rubber, to see that they are not oil soaked. Oil soaked pads, although of correct thickness (dimension "B"), have no cushioning capacity and should be replaced. If oil soaked pads are found, the source of the oil on the locomotive should be located and stopped.

The rubber pads should be checked for the amount of bonding to both plates. This can be measured by placing a thin metal scale between the rubber and the steel plate at about 1" intervals at each side of the pad. The depth to which the scale enters may be measured at the edge of the steel plate and this measurement marked on top of the plate using chalk. By connecting these marks, an outline of the bonded area may be shown on top of the plate, as indicated on the pad shown in Fig. 4, having the "A" dimension.

The dimension of the bonded area should be measured as shown by dimension "A" on the pad in Fig. 4. If this dimension is less than the required amount given in Table I in the Maintenance Data, the pad should be replaced. If the pads have sufficient bonding and no deep cracks are found, they may be reapplied.

The pads should also be inspected for the thickness dimension "B" as shown on the pad in Fig. 4. If the "B" dimension is less than the figure given in Table I, the rubber pad should be replaced.

When replacing rubber pads the following rules should be noted:

1. Rubber pads should be renewed in complete sets, new and old pads should not be used together.
2. Old pads are not interchangeable between draft gears.
3. Natural rubber and synthetic rubber pads should not be used together. Pads with synthetic rubber are identified by a strip of red colored rubber near the part number. Natural (crude) rubber pads in current use are identified by the steel plates having one of their corners cut off 5/8" × 5/8".

ASSEMBLY

After all components of the draft gear have been inspected and found to be satisfactory for reuse or replaced by new parts, the gear may be assembled again for application to its yoke.

1. As shown in Fig. 6, place the wedge block on the two cradle blocks. Install

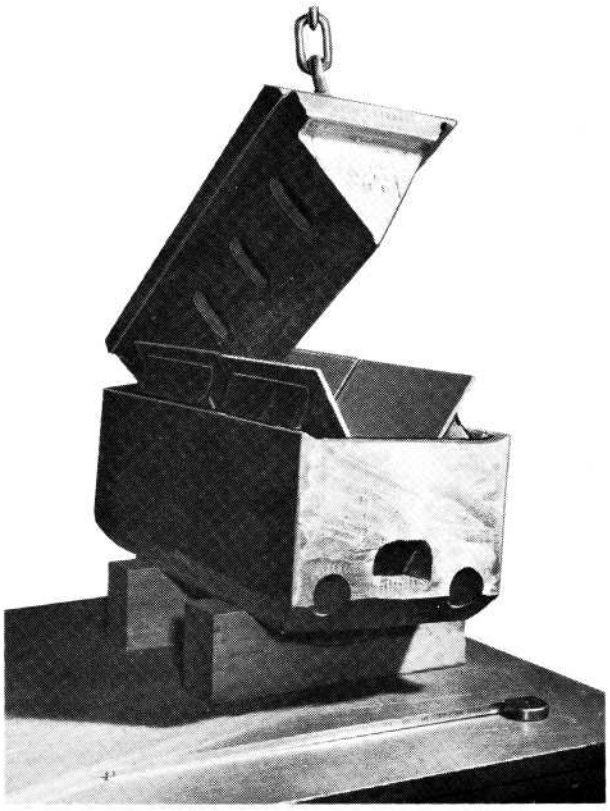

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Fig. 6 — Assembly Of Draft Gear

the rubber pads and apply the pad wedge on top of the rubber units. Position the wedge so that it is centered in the block.

2. Measure, as outlined under "Yokes," dimension "A", Fig. 12, to determine if the yoke qualifies to be reused. See Table II in the Maintenance Data.

3. After the parts of the draft gear have been assembled together, press the assembly to settle the parts, then release. Measure the overall height, as shown in Fig. 7.

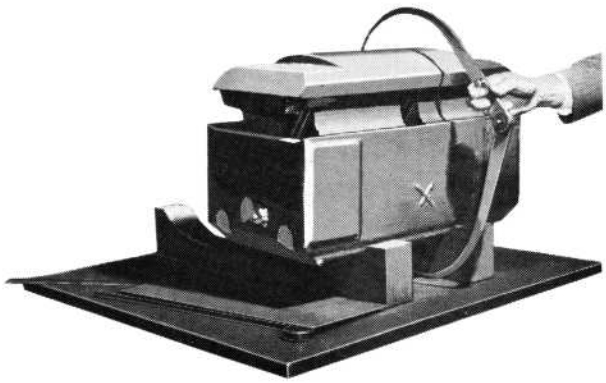

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Fig. 7 — Measuring Draft Gear

The total overall height of the draft gear should be 1/8" to 3/16" greater than its corresponding yoke new diameter if old rubber pads are reapplied, and 3/16" to 1/4" greater if new rubber pads are used.

If the gear does not come up to the required height with used pads, remove any shims which may already be in the gear and apply one steel shim of proper thickness to each of the two pad bearing surfaces in the wedge block. (It should be noted that the wedge will be raised a height equal to about twice the shim thickness used.) The thickness of the shim is not to exceed 3/16" and both shims must be of equal thickness. If the overall height of the gear cannot be obtained using shims of 3/16" maximum thickness, new rubber pads and shims of suitable thickness must be applied.

When the proper overall height is obtained, the gear should be placed under a press and compressed sufficiently to permit application of the clamps or other means to hold the gear compressed so as to permit application to the yoke.

APPLICATION OF DRAFT GEAR TO YOKE

After the assembly of the draft gear and application of its clamps, the draft gear is applied to its yoke with the block at the coupler end as shown in Fig. 8.

The gear should be compressed sufficiently to enable free entrance into the yoke. This will provide a clearance between the yoke and the draft gear which should be held to enable easy application of the draft gear and yoke assembly to the draft gear pocket. To hold this clearance, apply two phenolic blocks about 3/8" thick between the draft gear and its yoke, then release the draft gear compression. If phenolic blocks are not available, two 3/8" nuts may be used.

A lifting fixture, shown in Fig. 8, to facilitate draft gear to yoke application, may be

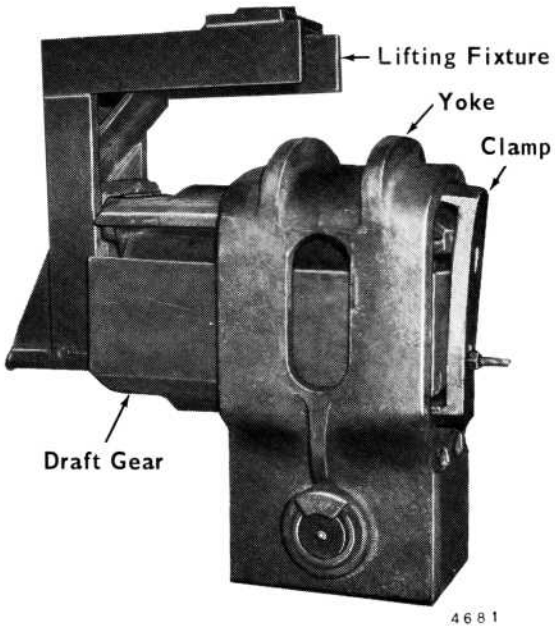

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Fig. 8 — Draft Gear To Yoke Application

made according to construction details shown on print 8107525 which is available upon request.

MODEL MS-485-6A AND MF-491-B

Model MS-485-6A, Fig. 9, and MF-491-B, Fig. 10, draft gears consist of pads made of steel plates with a rubber cushion bonded to each side. EMD pads have rubber only on one side of the plate. The pads are kept in relative position by a rubber protrusion on the side of the pad which fits into a slot on the adjacent pad. The end pads have metal tabs which are bent into indentations in the follower blocks. The entire assembly is held together by two bolts located diagonally opposite and extending through both followers, Fig. 10. These bolts are not tight, but only serve to hold the pieces together as an assembly.

DISASSEMBLY

Do not disassemble this gear unless it is apparent that one or more of the pads are damaged.

The two bolts can be removed and the pads separated after the tack weld is removed from the nuts.

INSPECTION

The pads should be inspected to see that they are firmly bonded to the plates. Check that the pad location protrusions are intact and not broken off. Pads which are not securely bonded or have the locating protrusions broken off should not be used. A good used pad which has taken a set should replace a pad in a group of pads which have likewise taken a set. A new pad should not be used with old pads.

The follower block surfaces should be inspected for any roughness or gouging and smoothed down.

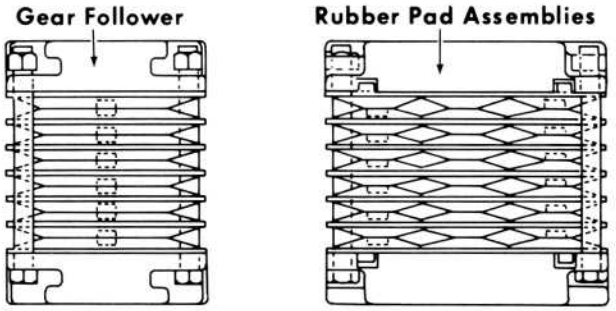

Fig. 9 — MS-485-6A Draft Gear Details

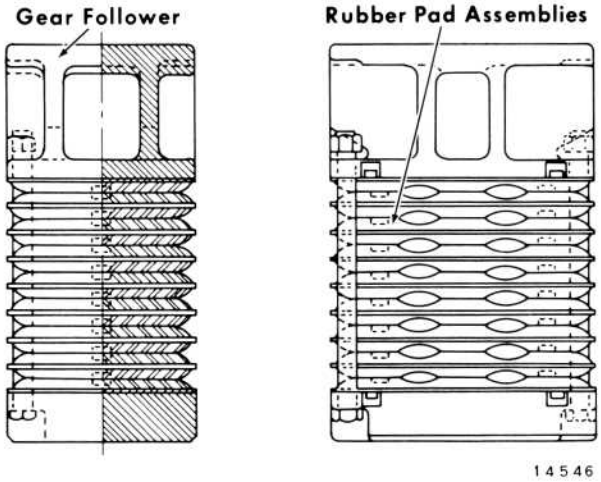

Fig. 10 — MF-491-B Draft Gear Details

ASSEMBLY

The draft gear assembly in the free state (not compressed in any way) should always be at least 1/2" to 3/4" larger than the yoke pocket in which it is to be used. During use the individual pads take a set, the amount depending upon length of service and forces applied. After use, the set stabilizes and reaches a point where any further set is unlikely to occur. The capacity of the draft gear is not affected by the set as long as the individual pads are in otherwise good condition. Therefore, a draft gear having used pads need only be slightly larger than the opening in which it is to fit.

If the free length of the used draft gear is slightly less than the yoke pocket in which it is to be used, steel shims may be

applied to the inside surface of the follower block to lengthen the assembly. The shims should be at least 1/8" thick and should be securely held in place by tack welds on the vertical edge of the follower.

As stated under "Inspection," used pads from another assembly may be added to other used pads in a gear to give the needed compression for gear application to the yoke. It may also be required to use a combination of used pads and/or shims to obtain a free height of the gear greater than the yoke pocket in which it is to be applied. If the assembly cannot satisfactorily be made up using shims and/or other used pads, a new gear assembly should be applied.

In either case, after assembly the gear should be put in a press to force the pads together. Holding bolts should then be applied at diagonal corners to hold the assembly. The bolts should not be so tight as to compress the pads. After the bolts are applied, tack weld the nut to the bolt.

APPLICATION OF DRAFT GEAR TO YOKE

Place the assembled gear in a suitable press and reduce its height to the required dimension.

The compressed height can be retained by application of phenolic blocks of proper thickness between the nuts and the follower.

After installation in the yoke, place phenolic blocks between the follower block and the yoke to retain the clearance. The blocks should be placed at the top left and bottom right of the follower, diagonally opposite each other.

The blocks under the nuts should be removed, which will permit the gear to hold itself in the yoke. When the assembly is installed in the draft gear pocket, the phenolic blocks between the follower and the yoke will be released or disintegrated when the locomotive starts pulling.

MODEL MI-225-6A AND DR-6

Model MI-225-6A and DR-6 draft gears, Fig. 11, are similar in construction to MS and MF model draft gears. Model MI-225-6A draft gear pads are held together by the rubber protrusions on each pad and the pressure applied by the yoke. Model DR-6 pads are held together by a metal cap over each end which in turn is held together by four bolts, one at each corner.

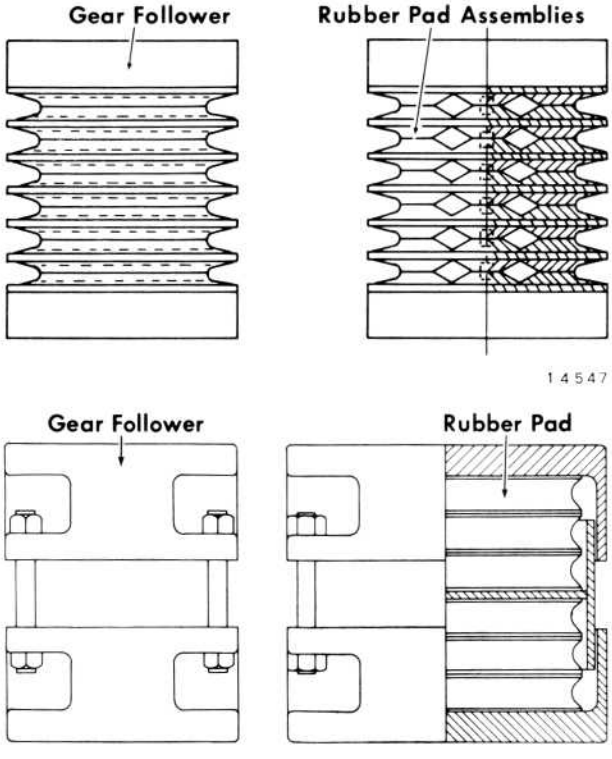

Fig. 11 — MI-225-6A And DR-6 Draft Gear Details

DISASSEMBLY

Do not disassemble this gear unless it is apparent that one or more of the pads are damaged.

Disassemble the DR-6 gear by removing the nuts from the four corner bolts and

lifting the metal end caps and pads apart. The pads that make up gear MI-225-6A will come apart when the draft gear is removed from the yoke.

INSPECTION

The pads should be inspected to see that they are firmly bonded to the plates. Check that the pad location protrusions are intact and not broken off. Pads which are not securely bonded or have the locating protrusions broken off should not be used. It should be noted that a good used pad which has taken a set should replace a pad in a group of pads which have likewise taken a set. A new pad should not be used with old pads.

The follower block surfaces should be inspected for any roughness or gouging and smoothed down.

ASSEMBLY

The draft gear assembly in the free state (not compressed in any way) should always be at least 1/2" to 3/4" larger than the yoke pocket in which it is to be used. During use the individual pads take a set, the amount depending upon length of service and forces applied. After use, the set stabilizes and reaches a point where any further set is unlikely to occur. The capacity of the draft gear is not affected by the set as long as the individual pads are in otherwise good condition. Therefore, a draft gear having used pads need only be slightly larger than the opening in which it is to fit.

If the free length of the used draft gear is slightly less than the yoke pocket in which it is to be used, steel shims may be applied to the inside surface of the follower block to lengthen the assembly. The shims should be at least 1/8" thick and should be securely held in place by tack welds on the vertical edge of the follower.

As stated under "Inspection," used pads from another assembly may be added to other used pads in a gear to give the needed compression for gear application to the yoke. It may also be required to use a combination of used pads and/or shims to obtain a free height of the gear greater than the yoke pocket in which it is to be applied. If the assembly cannot satisfactorily be made up using shims and/or other used pads, a new gear assembly should be applied.

In either case, after assembly the gear should be put in a press to force the pads together. On model DR-6 the metal end caps and bolts should then be applied to hold the assembly. The bolts should not be so tight as to compress the pads.

APPLICATION OF DRAFT GEAR TO YOKE

Place the assembled gear in a suitable press and reduce its height to the required dimension.

Model MI-225-6A has drilled holes provided in the follower block for application of suitable holding bars to retain the gear in the compressed position.

On model DR-6 the compressed height can be retained by application of phenolic blocks of proper thickness between the nuts and the follower.

After installation in the yoke, place phenolic blocks between the follower block and the yoke to retain the clearance. The blocks should be placed at the top left and bottom right of the follower, diagonally opposite each other.

Model MI-225-6A should have the holding bars removed and model DR-6 should have the blocks under the nuts removed. In either case, this will permit the gear to hold itself in the yoke. When the assembly

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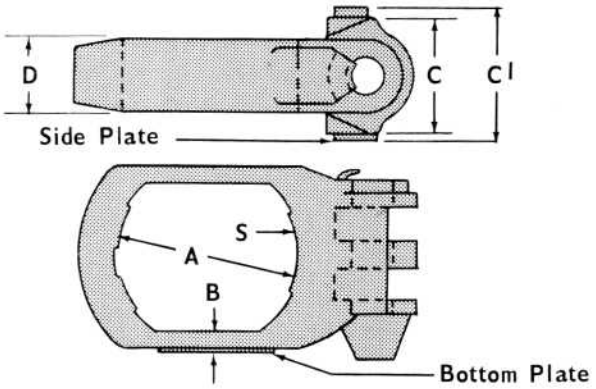

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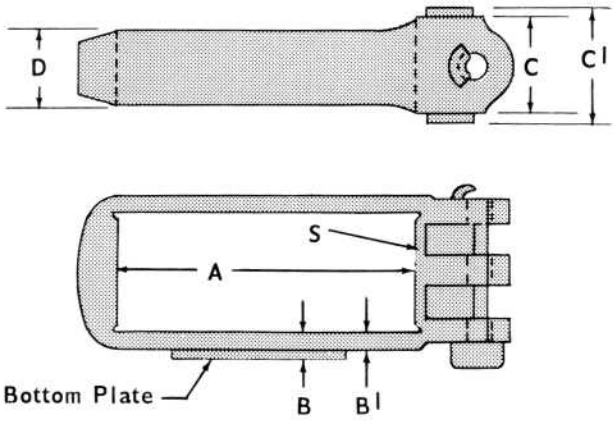

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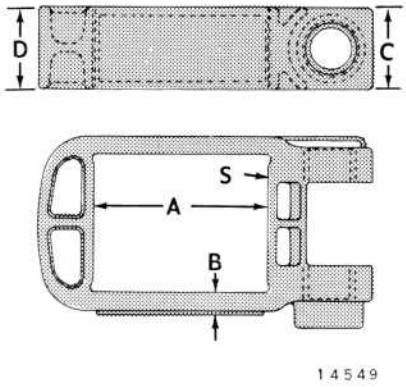

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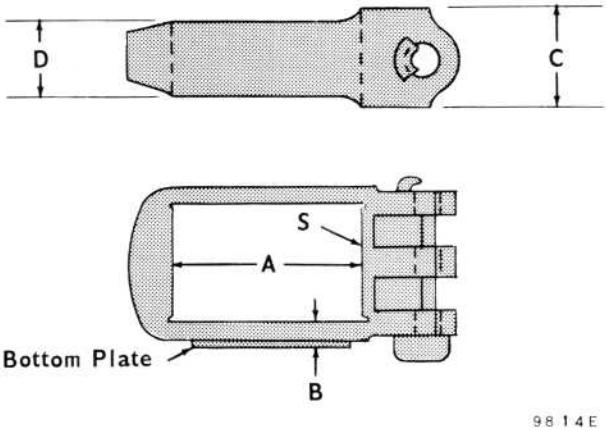

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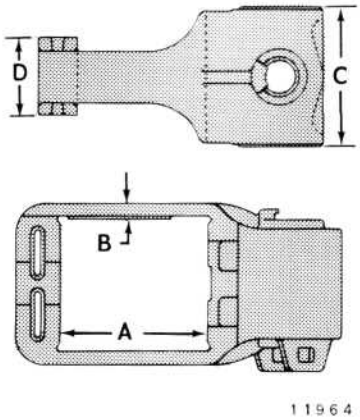

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Fig. 12 — Draft Gear Yoke Details

is installed in the draft gear pocket, the phenolic blocks between the follower and the yoke will be released or disintegrated when the locomotive starts pulling.

YOKES

Details of the draft gear yokes are provided in Fig. 12. Table II in the Maintenance Data provides information in relation to the dimensions shown in Fig. 12. The pockets of the respective yokes, shown in Fig. 12, should be inspected to the limits given in Table II according to their part numbers and particular dimension. If the yoke is worn to or past the maximum or minimum limit shown in Table II, the yoke should be reconditioned to the new dimension.

If required, shims not less than 1/8" thick should be applied at areas marked "S," to bring the dimension back to the new dimension. The shims should be welded in place along both sides, the full length of the shim. Applied shims should not be transversely welded.

The wear plates on the yokes should be inspected for wear, excessive roughness or gouging of the metal, and for possible cracks in the weld holding the shims or wear plates. If the wear plate is worn beyond the minimum dimension shown in Table II, new wear plates should be applied. Roughness of the wear plates should be smoothed down by a power emery wheel. If cracks are found, they should be ground out and a new weld applied at the area. Cracks found in other parts of the yoke should also be ground out and repaired.

YOKE PLUNGER CASTINGS

The yoke plunger castings used on the M-380-A or M-381 draft gears,with alignment control only, should be checked for wear using the template illustrated in Fig. 13. With the template applied as shown in Fig. 14, the total amount of wear present must not exceed 1/8" as indicated by the notch in the template. If the wear on either plunger casting exceeds 1/8" both should be replaced with new castings.

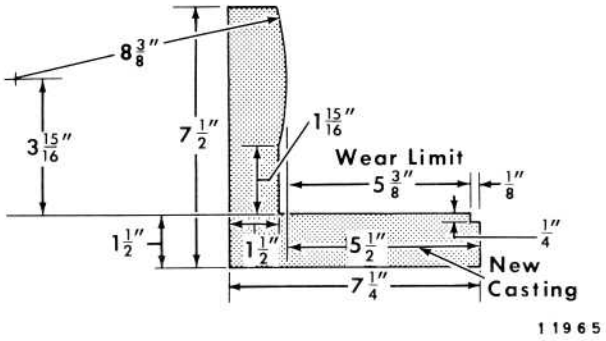

Fig. 13 — Plunger Casting Template

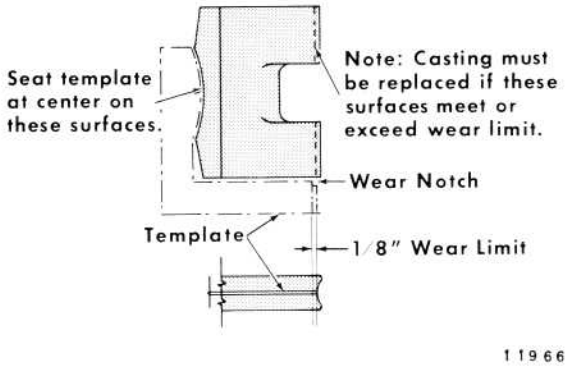

Fig. 14 — Application Of Plunger

YOKE COUPLER PIN BUSHINGS

The yoke coupler pin bushings should be measured at the time of yoke reconditioning. If the bushings are cracked, loose, scuffed in the inside diameter or broken in any way, they should be replaced. If the bushings are otherwise in good condition, a measurement should be made of their inside diameter. If the inside diameter is worn to or exceeds the maximum diameter shown in Table III in the Maintenance Data, the worn bushings should be removed and replaced with new bushings.

COUPLER PIN

The coupler pin should be inspected to see that its diameter is not less than the minimum diameter shown in Table III. All pins worn to the minimum diameter should be replaced. The date of removal and inspection of pins to be reused should be legibly marked on the head of the pin and all prior dates obliterated.

COUPLER BUSHING

In conjunction with the inspection of the yoke bushing and pin, the coupler bushing should also be inspected.

As outlined for the yoke bushings, the coupler bushings should be replaced if they are broken, cracked, scuffed, or the inside diameter is worn to the maximum dimension as given in Table III.

NOTE: It should be noted that the total free slack between the coupler and yoke must not exceed 3/16". The individual parts, each worn to their condemning limit, would exceed this limit considerably. Therefore, it is necessary to check the clearance of each coupler and yoke assembly and if the free slack exceeds 1/4", replace some of the parts before they reach their condemning limit.

ALIGNMENT CONTROL COUPLER CONTOUR SURFACES

When the contour surfaces of the shank loops or the shank aligning lugs are worn a minimum of 1/8", they should be restored to ensure continued efficiency of the alignment control. The method of determining the amount of wear and the procedure for reconditioning when the limit is reached is as follows:

1. Apply a gauge as illustrated in Fig. 15 to the top and bottom surfaces of the shank with stop block on gauge held in contact with the edge of the pin hole as shown in Fig. 16.

2. The gauge is made to conform with the normal contour of the shank and is provided with legs as shown to determine the amount of wear at these locations. With the gauge properly positioned the wear limit has been reached or exceeded when a 1/8" shim can be inserted between the leg or legs of the gauge and the adjacent casting contour.

NOTE: Manufacturing tolerances permit, and may show, 1/16" clearance at points "X," Fig. 16, with gauge applied to new coupler. This clearance is not detrimental and ensures satisfactory pivot pin application when coupler is applied to yoke.

3. To restore these worn surfaces they should be built up to the contour of the gauge by welding.

DRAFT GEAR POCKETS

Shown in Fig. 17 are representative outline drawings of the two types of draft gear pockets. Table IV in the Maintenance Data shows the draft gear which may be used with the type of pocket shown in Fig. 17, as well as governing dimensions affecting the draft gear pockets.

Inspect the wear areas of the pocket for roughness or galling. Using an emery wheel or equally effective means, smooth up any roughness.

Measure the draft gear pocket as shown in Fig. 17, where wear would occur. Compare the measurement to the respective limit shown in Table IV for the particular dimension. If the measurement shows wear beyond the rebuild limit given

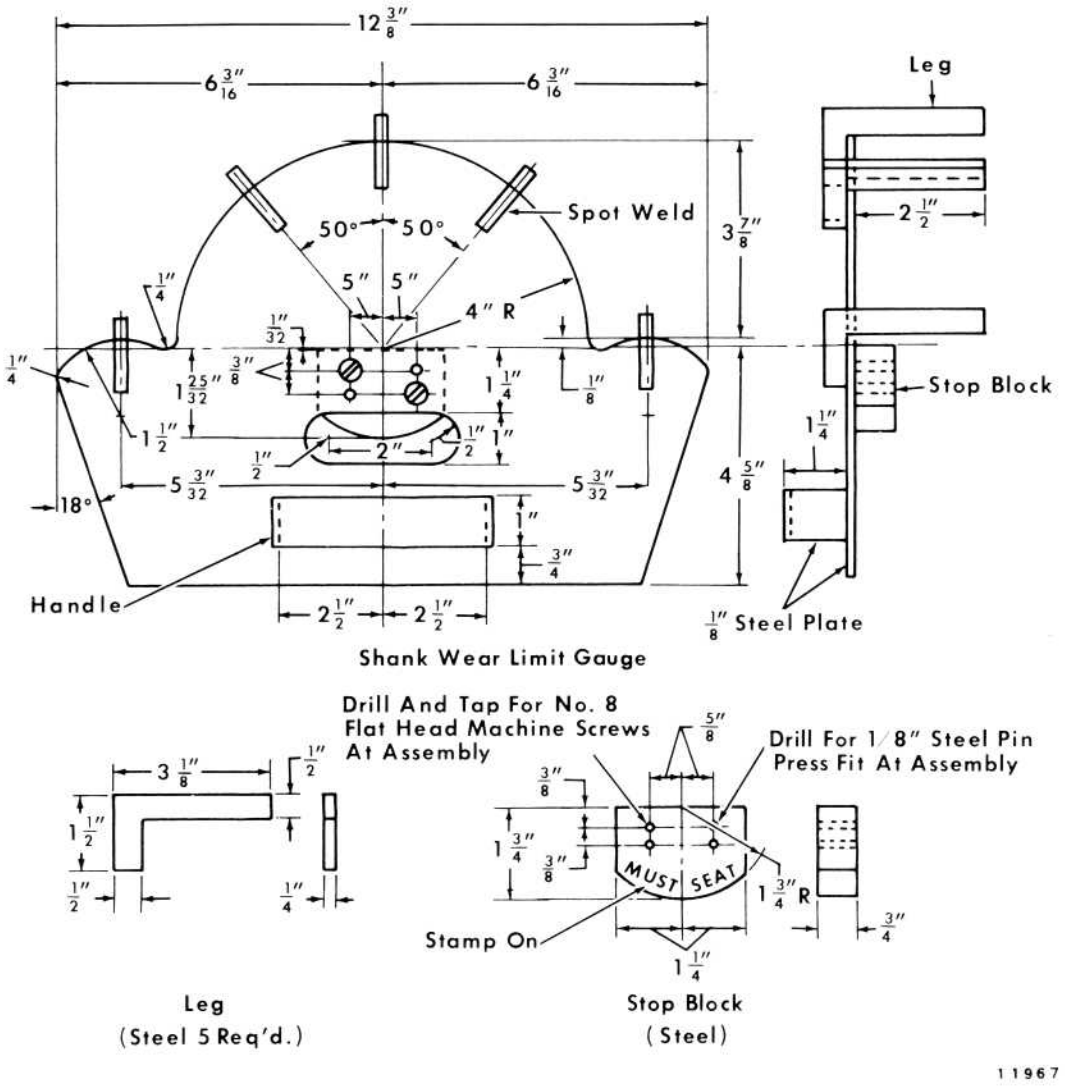

Fig. 15 — Coupler Shank Limit Gauge

in Table IV, the area should be reconditioned to bring the dimension to the "new" dimension given for that location. If required, shims should be applied to the draft gear pocket at the areas marked "S" to bring the dimension to the "new" limit. The shims applied should be at least 1/8" thick and securely held in place by a number of tack welds along the top and bottom of the shim.

INSTALLING DRAFT GEAR ASSEMBLY IN LOCOMOTIVE

Jack the draft gear assembly into the draft gear pocket and locate it in its proper place. Install the carrier irons and bolt them securely in place.

After the draft gear is installed in the pocket, the coupler, coupler pin and retaining key can be installed.

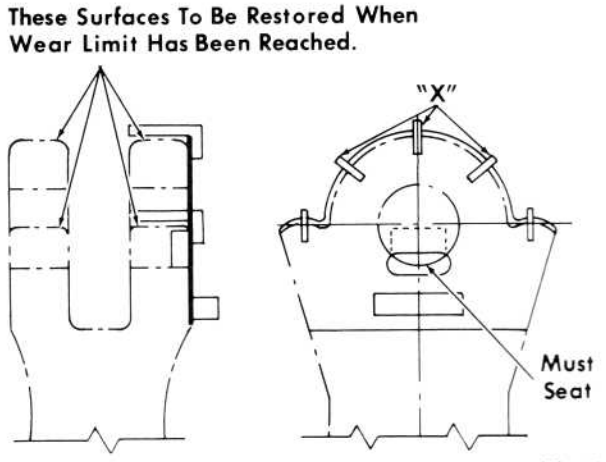

Fig. 16 — Application Of Coupler Shank Limit Gauge

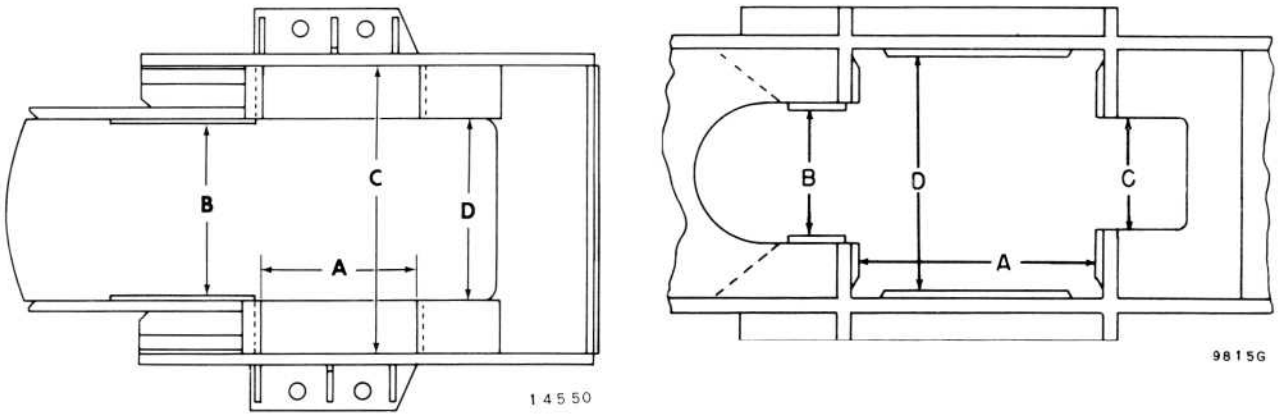

Fig. 17 — Draft Gear Pocket Details

MAINTENANCE DATA

TABLE I

Gear Type	Draft Gear Part No.	Pad Part No.	Pad "A" Dim. Min.	Pad "B" Dim. New	Pad "B" Dim. Min.	Pads Used	Shim Size
M-380-A	8247906	8034316	4-1/4"	2-1/2"	2-5/16"	4	8"×10-3/4"
M-381	8314757	8034316	4-1/4"	2-1/2"	2-5/16"	4	8"×10-3/4"

TABLE II

Yoke	Type	Draft Gear Yoke Dimensions A New	A "R"*	A "C"*	B New	B Min. "C"*	C New	C Min. "C"*	D New	D Min. "C"*
8034302 6915380	I	16-3/4"	16-27/32"	16-31/32"	1-1/4"	1-1/8"	15"	14-3/4"	14-1/4"	14"
8366733	II	18-1/2"	18-5/8"	18-3/4"	1-1/2"	1-3/8"	8-1/2"	8-1/4"	6"	5-3/4"
8263361	III	10-3/4"	10-7/8"	11"	1-3/8"	1-1/4"	5"	4-3/4"	5"	4-3/4"
8305983	III	11-5/8"	11-3/4"	11-7/8"	1-1/2"	1-3/8"	8-1/2"	8-1/4"	6"	5-3/4"
8191279	IV	11-5/8"	11-3/4"	11-7/8"	1-1/2"	1-3/8"	8-1/2"	8-1/4"	6"	5-3/4"
8314758	V	13-3/4"	13-27/32"	13-31/32"	1-1/2"	1-3/8"	15"	14-3/4"	8-1/4"	8"

*"R" - Rebuild Limits, "C" Condemning Limits. See limits note, page 3.

TABLE III

Yoke	Yoke Bushing, Coupler Bushing And Pin Diameter: Yoke Bushing Dia. New	Yoke Bushing Dia. Max.	Pin Dia. New	Pin Dia. Min.	Coupler Bushing Dia. New	Coupler Bushing Dia. Max.
8191279 8366733	2-5/16"	2-1/2"	2-1/4"	2-1/8"	2-5/16"	2-1/2"
8263361	2-9/16"	2-3/4"	2-1/2"	2-3/8"	2-9/16"	2-3/4"
8305983	3-1/16"	3-1/4"	3"	2-7/8"	3-1/16"	3-1/4"
8034302 8314758	3-9/16"	3-3/4"	3-17/32"	3-13/32"	3-9/16"	3-3/4"

TABLE IV

Draft Gear No.	Pocket Type	Draft Gear Pocket Dimensions											
		A			B			C			D		
		New	"R"*	"C"*	New	"R"*	"C"*	New	"R"*	"C"*	New	"R"*	"C"*
8314757 8247906	I	13-3/4"	13-27/32"	13-31/32"	15-1/8" $^{+1/8}_{-0}$	15-1/2"	15-1/2"	25-1/4"			15-7/8"	16-1/8"	16-1/8"
8263360	II	10-3/4"	10-7/8"	11"	5-1/8" $^{+1/8}_{-0}$	5-3/8"	5-3/8"	5-1/8" $^{+1/8}_{-0}$	5-3/8"	5-3/8"	9-3/8"	9-5/8"	9-5/8"
8229465 8253666	II	11-5/8"	11-3/4"	11-7/8"	8-3/4" $^{+1/8}_{-0}$	9"	9"	6-1/4" $^{+1/8}_{-0}$	6-1/2"	6-1/2"	13-1/2"	13-3/4"	13-3/4"
8366732	II	18-1/2"	18-5/8"	18-3/4"	8-3/4" $^{+1/8}_{-0}$	9"	9"	6-1/4" $^{+1/8}_{-0}$	6-1/2"	6-1/2"	13-1/2"	13-3/4"	13-3/4"

*"R" - Rebuild Limits, "C" Condemning Limits. See limits note, page 3.

Litho in U.S.A.

M.I. 2703