A mount for holding a deflection yoke in operating position in relation to a kinescope. An outer housing fixedly mounted on the kinescope provides bearing surfaces for an inner housing which is adapted to being positioned axially and rotatably within. The inner housing contains a holding member into which a yoke is fixedly mounted and which member snaps into the inner housing.
Fig. 2.
DETECTION YOKE MOUNT

BACKGROUND OF THE INVENTION

This invention relates to an improved mount for holding a deflection yoke in operating position relative to a kinescope.

In television receivers it is customary to deflect the kinescope electron beam to form a raster scan by means of an electromagnetic deflection yoke which is energized by appropriate current sources at the line and field scanning rates. Particularly with regard to multiple beam color kinescopes, the deflection yoke must be positioned accurately around the kinescope to effect the desired deflection and convergence of the beams for producing a satisfactory color picture. Thus, it is desirable that the yoke mount be designed such that the yoke contained therein can be moved axially and rotatably along and around the central axis of the kinescope and then be secured after the desired positioning is determined.

According to the invention, an adjustable mount for holding a deflection yoke in operating position relative to a kinescope comprises an outer housing adapted to be securely attached to the kinescope and an inner housing assembly fitting within the outer housing. The inner housing is adapted to slide and rotate coaxially within the outer housing. Front and rear holding members are adapted to grasp the deflection yoke securely and are fixedly fitted into the inner housing by indexing and retaining means. Clamping apparatus is provided for securing the inner and outer housings together when the yoke is in the desired position.

A more detailed description of the invention is given in the specification and accompanying drawings of which:

FIGS. 1a – 1d comprise a disassembly view illustrating the component parts of a deflection yoke mount according to the invention; and

FIG. 2 is a cross-sectional assembly view of the deflection yoke mount illustrated in FIG. 1.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

FIGS. 1a through 1d comprise a view illustrating the disassembled component parts of a deflection yoke mount according to the invention. FIG. 1a illustrates an outer housing assembly 10 which is suitable for mounting against a kinescope. Outer housing 10 includes a plurality of fingers 11 extending from a front portion of the housing. Adhesive pads 12 which have an adhesive layer on both sides are attached to fingers 11 for mounting outer housing 10 to a flared bulb envelope portion of a kinescope. Outer housing 10 also includes front and rear cylindrical bearing surface portions 13 and 14 for containing an inner housing to be described subsequently. A plurality of clamping brackets 17 are adapted to bridge slots 16 in outer housing 10 and to slide axially over the slots. Clamping bracket 17 has a slot through which a clamping bracket screw 18 may pass. A rear portion of outer housing 10 includes a plurality of compressible fingers 15 which form a hole through which the neck of the kinescope passes. Fingers 15 provide compressible force radially against a neck portion of the kinescope which in conjunction with adhesive pads 12 serve to fixedly hold the outer housing 10 to the kinescope.

FIG. 1b illustrates the inner housing portion of a deflection yoke mount according to the invention. Inner housing 20 includes cylindrical front and rear portions 24 and 23 respectively which fit against the bearing surfaces 13 and 14 of FIG. 1a such that inner housing 20 may be moved axially and rotatably within outer housing 10. Inner housing 20 also includes retaining a plurality of retaining tabs 21 extending from the front cylindrical portion 24. Retaining tabs 21 serve to engage a front holding plate to be described subsequently. The front cylindrical member 24 of inner housing 20 also contains a plurality of slots 22 for engaging with clamping means to be described subsequently.

FIG. 1c illustrates a rear holding plate 30 which is adapted to fit against the rear portion 23 of inner housing member 20. Radially spaced from the central axis of rear holding plate 30 are a plurality of centering members 31 extending from the rear holding plate and which serve to center the deflection yoke at the rear of the mount. The center hole in rear holding plate 30 is large enough to accept the neck portion of a kinescope.

FIG. 1d illustrates a front holding plate 40 and front and rear ring members 47 and 50, respectively, suitable for holding a deflection yoke. Front holding plate 40 includes a plurality of clamping nuts 42 attached to clamping nut supports 43 extending rearwardly of the front holding plate. Clamping nuts 42 are positioned to fall within slots 22 of inner housing 20 shown in FIG. 1b. For preventing rotational movement between front holding plate 40 and inner housing 20 further as is more clearly shown in FIG. 2 clamping screw 18 extends through the indexing slots 22 of inner housing 20 to engage with the clamping nut 42 of the front holding plate 40. Front holding plate 40 also includes a plurality of indexing tab receiving members 45 spaced to receive indexing tabs.

Shown rearwardly of front holding plate 40 in FIG. 1d is a front ring member 47 which fits snugly over the front portion of a ferrite core 46 such that there is no rotational movement between the front ring member 47 and the core 46. Spaced around the outer circumference of front ring member 47 are a plurality of indexing tabs 48 which fit into the slots determined by indexing tab receiving members 45 of the front holding plate. Thus, when the front ring member 47 is engaged with the front holding plate 40 rotational movement between the two pieces is prevented and the front ring member 47 cannot move forward of the front holding plate 40.

Rearwardly of the front ring member 47 of FIG. 1d is a rear ring member 50. Rear ring member 50 is adapted to fit snugly over the rear portion of ferrite core 46 for preventing relative movement therebetween. Extending across the rear of rear ring member 50 are a plurality of slots 51 which serve to index the windings of the conductors wound around ferrite core 46. Although not shown in this view the front portion of front ring member 47 has a plurality of slots similar to rear ring member 50 such that the conductors can be accurately positioned angularly around ferrite core 46.

FIG. 2 illustrates a cross-sectional assembly view of the deflection yoke mount illustrated in FIG. 1. The yoke mount assembly is shown for illustrative purposes, to be fitted around a kinescope 60, with the front por-
tion of the mount adjacent a flared bulb 61 of the kinescope and with the rear portion adjacent a neck portion 62 of the kinescope. The assembled yoke description will be given starting from the right side and going to the left. The outer housing 10 has its fingers 11 with their respective adhesive pads 12 mounted against the flared bulb portion 61 of the kinescope 60. The inner housing 20 is fitted coaxially within the outer housing 10 against the bearing surfaces 13 and 14. Contained to the left of the retaining tabs 21 of inner housing 20 is front holding plate 40. Referring to the top of FIG. 2 it can be seen that clamping screw 18 passes through the slot in clamping bracket 17 and engages with the clamping nut 42 held by clamping nut supports 43 of the front holding plate 40. Centered upon front holding plate 40 by index tab receiving members 45 is the front ring member 47. As previously mentioned, front ring member 47 is to be fixedly retained by front holding plate 40.

As previously described a ferrite deflection yoke core 46 is snugly fitted within front ring member 47. A rear ring member 50 is similarly snugly fitted over the rear portion of ferrite core 46. The back of rear ring member 50 abuts rear holding plate 30. The centering members 31 of rear holding plate 30 fit within the inner circumference of rear ring member 50 to center it. Rear holding plate 30 abuts the back portion of inner housing 20 and is held coaxially centered therein by the bearing surface 23. Thus, the assembly comprising rear holding plate 30, rear ring member 50, ferrite core 46 and front ring member 47 is held fixedly within inner housing 20 by the front holding plate 40, the retaining tab slots 44 of which engage with the retaining tabs 21 of the inner housing 20. Conductors 52 are shown wound around the core 46 and front and rear ring members 47 and 50 for forming toroidal vertical and horizontal deflection yoke windings. Taps are made to the conductors by bringing predetermined conductors out through the tap members 49 of front ring member 47. Ferrite core 46 may be of one piece construction as is commonly used with toroidal yokes. The conductors 52 are held by the radial slots, not shown in FIG. 2, for yielding the predetermined desired conductor winding distribution of the toroidal yoke.

The rear portion of outer housing 10 is held firmly against and centered around the neck portion 62 of kinescope 60 by the plurality of compressible fingers 15 which provide a force against the neck of the kinescope.

At the top of FIG. 2 the clamping assembly for securing movement between the inner and outer housing is shown. Clamping screw 18 extends through the slot in clamping bracket 17 and engages with clamping nut 42 attached to clamping nut support 43 of front holding plate 40. To position the inner housing assembly axially and rotatably within the outer housing, clamping screw 18 is loosened and the inner housing 20 is moved to the desired position. Clamping screw 18 is then tightened and the entire assembly including the deflection yoke is fixedly held in operating position relative to kinescope 60. With the exception of the metal clamping screw assembly and the adhesive pads the entire yoke mount assembly may be made of a plastic material such as a thermoplastic resin. It should be noted that with the exception of the clamping screw assembly the component parts of the yoke mount assembly are fitted and locked one to another by their integral structure. This eliminates the need for additional metal parts for centering and locking the assembly relative to the kinescope and for centering and holding the deflection yoke within the mount.

The deflection yoke mount has been described as suitable for containing a toroidal yoke. However, it is to be understood that the yoke mount may readily be adapted to contain a deflection yoke comprising vertical and horizontal saddle type deflection coils. To accomplish this the front and rear holding plates 40 and 30 would be designed to fit snugly over the front and rear portions of the saddle type coils and ferrite core assembly.

It should be noted that the relatively large portion of rear holding plate 30 which is not abutting the rearmost portion of inner housing 20 may be utilized for mounting circuit components such as yoke damping resistors, temperature compensation elements or capacitors. Rear holding plate 30 may be utilized efficiently for this purpose as it is in close proximity to the yoke winding conductors.

What is claimed is:
1. An adjustable mount for holding a deflection yoke in operating position relative to a kinescope, comprising:
   - outer housing means including means for attaching said housing to said kinescope;
   - inner housing means sitting coaxially within said outer housing means and adapted to slide axially and rotatably therewith;
   - front holding member means adapted to engage a front portion of said yoke such as to prevent rotational movement and axial movement in a first direction between said front holding member means and said yoke;
   - rear holding member means adapted to engage a rear portion of said yoke for coaxially aligning said rear holding member means and said yoke;
   - said inner housing means including retaining means for retaining said rear holding member means and for fixedly retaining said front holding member means such that said yoke is held fixedly within said inner housing means; and
   - clamping means for preventing undesirable movement between said inner and outer housing means.
2. An adjustable mount for holding a deflection yoke in operating position relative to a kinescope, comprising:
   - outer housing means including means for attaching said housing to said kinescope;
   - inner housing means sitting coaxially within said outer housing means and adapted to slide axially and rotatably therewith;
   - front holding member means adapted to engage a front portion of said yoke such as to prevent rotational movement and axial movement in a first direction between said front holding member means and said yoke;
   - rear holding member means including means adapted to engage a rear portion of said yoke for coaxially aligning said rear holding member means and said yoke;
said inner housing means including retaining means including tabs extending from a front portion of said inner housing means for retaining said rear holding member means and for fixedly retaining said front holding member means such that said yoke is held fixedly within said inner housing means;
said front holding member means includes slots through which said tabs extend for positioning said front holding member means relative to said inner housing means and for fixedly retaining it thereto; and
clamping means for preventing undesirable movement between said inner and outer housing means.
3. An adjustable deflection yoke mount according to claim 2 wherein said front holding member means includes a first front ring member which fits over a front portion of the ferrite core of said yoke and which first front ring member includes indexing tabs for engaging with indexing tab receiving portions of a second front ring member for preventing rotational movement therebetween, said second front ring member including said slots for engaging with said tabs of said inner housing means.
4. An adjustable deflection yoke mount according to claim 3 wherein said rear holding member means includes a first rear ring member which fits over a rear portion of the ferrite core of said yoke and a second rear member which has centering portions which engage with said first rear ring member for centering said yoke relative to said second rear ring member, said second rear ring member being adapted to be received within said inner housing by said rear holding member retaining means.
5. An adjustable deflection yoke mount according to claim 4 wherein said first front and rear ring members are adapted to receive conductors of said yoke windings for positioning the successive conductor windings relative to each other.
6. An adjustable mount for holding a deflection yoke in operating position relative to a kinescope, comprising:
outer housing means adapted to encircle said kinescope and remain in fixed position thereto by gripping means disposed at the front and rear of said housing means, which means securely fasten said housing means to said kinescope;
inner housing means fitting coaxially within said outer housing means and adapted to be moved axially and rotatably therewithin, said inner housing means including means for retaining a rear holding member means, and indexing means for fixedly retaining a front holding member means;
rear holding member means adapted to engage a rear portion of said yoke;
front holding member means adapted to engage a front portion of said yoke,
said rear and front holding member means fitting within said rear retaining means and said indexing means respectively, for fixedly holding said yoke within said inner housing member; and
means securing said inner and outer housing means for preventing undesired movement therebetween.
7. An adjustable mount for holding a deflection yoke in operating position in relation to a kinescope, comprising:
outer housing means encircling said kinescope and fixedly mounted thereto by adhesive pads attached to fingers extending from said housing at one end thereof and by compressible fingers extending from the other end thereof to provide a force to center the other end about a neck portion of said kinescope;
inner housing means mounted within said outer housing means such as to be positioned axially and rotatably therewithin and including means for receiving front and rear holding member means;
front holding member means adapted to be positioned fixedly within said inner housing means by said front receiving means;
rear holding member means adapted to be positioned within said inner housing means against said rear receiving means;
front and rear yoke retaining means adapted for fixedly engaging said yoke and for fixedly engaging with said front holding means and for centering said yoke in relation to said rear holding member means, respectively; and
means for clamping said inner housing means to said outer housing means for preventing undesirable movement therebetween.